

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Introduction to Aerospace Propulsion

Subject Co-ordinator - Prof. Bhaskar Roy, Prof. A M Pradeep

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Intro & Historical development of flights

Lecture 2 - Early development of aircraft propulsive devices

Lecture 3 - Development of Jet propulsion for aircraft

Lecture 4 - Introduction to thermodynamics, Scope and method, Basic concepts

Lecture 5 - Quasi-static processes, zeroth law of thermodynamics and temperature, concept of energy and its v

Lecture 6 - Specific heats at constant pressure and volume Work and heat transfers

Lecture 7 - Tutorial

Lecture 8 - First law of thermodynamics for closed systems

Lecture 9 - First law of thermodynamics for open systems/flow processes

Lecture 10 - Second law of thermodynamics, heat engines, refrigerators and heat pumps, Kelvin-Planck and Clau

Lecture 11 - Reversible and irreversible processes, concept of entropy

Lecture 12 - Increase of entropy principle, third law of thermodynamics, absolute entropy, perpetual motion m

Lecture 13 - Tutorial

Lecture 14 - Carnot cycle, Carnot principle, thermodynamic temperature scale

Lecture 15 - Exergy, availability and second law efficiency

Lecture 16 - Tutorial

Lecture 17 - Gas and vapour power cycles, Otto cycle, Diesel cycle, Dual cycle

Lecture 18 - Rankine cycle, Brayton cycle, Stirling and Ericsson cycles

Lecture 19 - Thermodynamic property relations, Jacobean and Legendre transformations, Maxwell's equations

Lecture 20 - Tutorial

Lecture 21 - Properties of gas and vapour mixtures

Lecture 22(A) - One-dimensional compressible flows, isentropic flows

Lecture 22(B) - Flows with friction and heat transfer, normal and oblique shocks

Lecture 23 - Piston-prop engines

Lecture 24 - IC Engines for aircraft application

Lecture 25 - Performance parameters of IC engines

Lecture 26 - Supercharging of aircraft IC engines

Lecture 27 - Tutorial

Lecture 28 - Propeller fundamentals

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- Lecture 29 - Propeller aerodynamic theories - I
- Lecture 30 - Propeller aerodynamic theories - II
- Lecture 31 - Tutorial
- Lecture 32 - Ideal cycles for Jet engines
- Lecture 33 - Ideal cycles for variants of jet engines
- Lecture 34 - Tutorial
- Lecture 35 - Fundamentals of Ramjets and Pulsejets
- Lecture 36 - Fundamentals of Rocket engines
- Lecture 37 - Fundamentals of Missile engines
- Lecture 38 - Various space vehicles and their engines
- Lecture 39 - Closure of the lecture series

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Jet Aircraft Propulsion

Subject Co-ordinator - Prof. A M Pradeep, Prof. Bhaskar Roy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction & Development of Jet Aircraft Propulsion  
Lecture 2 - How the Aircraft Jet Engines make Thrust  
Lecture 3 - Jet Engine Basic Performance Parameters  
Lecture 4 - Turbojet, Reheat Turbojet and Multi-spool Engines  
Lecture 5 - Turbofan, Turbo-prop and Turboshift engines  
Lecture 6 - Ideal and Real Brayton cycles  
Lecture 7 - Jet Engine Cycles for Aircraft propulsion  
Lecture 8 - Cycle components and component performances  
Lecture 9 - Tute-1  
Lecture 10 - Analysis of engine real cycles  
Lecture 11 - Tute-2  
Lecture 12 - Thermodynamics of Compressors  
Lecture 13 - Thermodynamics of Turbines  
Lecture 14 - Axial Compressors  
Lecture 15 - Cascade analysis; Loss and Blade performance estimation  
Lecture 16 - Free Vortex theory; Single-Multi-stage characteristics  
Lecture 17 - Tutes-3  
Lecture 18 - Elements of centrifugal compressor  
Lecture 19 - Centrifugal Compressor characteristics  
Lecture 20 - Axial flow turbines; Turbine Blade 2-D (cascade) analysis  
Lecture 21 - Multi-staging  
Lecture 22 - Radial Turbine Aerodynamics & Thermodynamics; Losses  
Lecture 23 - Tutes-4  
Lecture 24 - Types of combustion chambers  
Lecture 25 - Pr. Loss, Combustion efficiency; Combustion intensity  
Lecture 26 - Practical combustion system ; Stability, Fuel injection  
Lecture 27 - Intakes for Powerplant  
Lecture 28 - Subsonic, Transonic, Supersonic Intake Designs  
Lecture 29 - Nozzle

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- Lecture 30 - C-D nozzle and their uses
- Lecture 31 - Tute-5
- Lecture 32 - Engine Off Design Operations
- Lecture 33 - Aircraft Engine component matching
- Lecture 34 - Engine component matching and Sizing
- Lecture 35 - Installed Performance of Engine
- Lecture 36 - Tute-6
- Lecture 37 - Use of Ramjets and Pulsejets in Aircraft propulsion
- Lecture 38 - Thermodynamic Cycle & Performance Parameters
- Lecture 39 - Flow in Diffusers, Combustors and Nozzles
- Lecture 40 - Performance and Design of Ramjet & Scramjet Engines
- Lecture 41 - Tute-7
- Lecture 42 - Future of Aircraft Propulsion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Turbomachinery Aerodynamics

Subject Co-ordinator - Prof. Bhaskar Roy, Prof. A M Pradeep

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Turbo machines Syllabus, References and Schedules

Lecture 2 - Axial Flow Compressors and Fans

Lecture 3 - A two dimensional analytical model

Lecture 4 - 2D losses in Axial flow Compressor Stage

Lecture 5 - Tutorial 1

Lecture 6 - 3D Flows in Blade Passages, Secondary Flows, Tip leakage Flow, Scrubbling

Lecture 7 - Three Dimensional Flow Analysis

Lecture 8 - Classical Blade Design Laws

Lecture 9 - Three Dimensional Flow Analysis in Axial Flow Compressor

Lecture 10 - Tutorial 2

Lecture 11 - Axial Compressor Characteristics

Lecture 12 - Instability in Axial Compressors

Lecture 13 - Inlet Distortion and Rotating Stall, Control of Instability

Lecture 14 - Transonic Compressors and Shock Structure Models, Transonic Compressor Characteristics

Lecture 15 - Axial Flow Compressor Design, Inter Spool Duct

Lecture 16 - Design of Compressor Blades, Aerofoil Design (Subsonic, Transonic, Supersonic Profiles )

Lecture 17 - Design of Compressor Blade

Lecture 18 - Noise Problem in Axial Compressors and Fans

Lecture 19 - Axial Flow Turbines

Lecture 20 - Axial Flow Turbines

Lecture 21 - Axial Flow Turbines

Lecture 22 - Axial Flow Turbines

Lecture 23 - Tutorial 3

Lecture 24 - Multi staging and Multi spooling of Turbine

Lecture 25 - 3D Flow in Turbine

Lecture 26 - Tutorial 4

Lecture 27 - Turbine Blade Cooling â Fundamentals of Heat Transfer, Blade Cooling Requirements

Lecture 28 - Turbine Blade Cooling Technologies

Lecture 29 - Turbine Blade Design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Turbine Blade Design
- Lecture 31 - Centrifugal Compressors
- Lecture 32 - Centrifugal Compressors
- Lecture 33 - Tutorial 5
- Lecture 34 - Design of Centrifugal Compressors
- Lecture 35 - Radial Turbines
- Lecture 36 - Tutorial 6
- Lecture 37 - Radial Turbine Characteristics and Design of Radial Turbines
- Lecture 38 - CFD for Turbomachinery
- Lecture 39 - CFD for Turbomachinery
- Lecture 40 - CFD for Turbomachinery

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Aero Elasticity

Subject Co-ordinator - Prof. C. Venkatesan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Aero elasticity  
Lecture 2 - Aero elasticity  
Lecture 3 - Aero elasticity  
Lecture 4 - Aero elasticity  
Lecture 5 - Aero elasticity  
Lecture 6 - Aero elasticity  
Lecture 7 - Aero elasticity  
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Lecture 24 - Aero elasticity  
Lecture 25 - Aero elasticity  
Lecture 26 - Aero elasticity

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Foundation of Scientific Computing

Subject Co-ordinator - Prof. Tapan K. Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21

Lecture 22

Lecture 23

Lecture 24 (Same as Lecture 23)

Lecture 25

Lecture 26

Lecture 27

Lecture 28

Lecture 29

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Lecture 33  
Lecture 34  
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Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Instability and Transition of Fluid Flows

Subject Co-ordinator - Prof. Tapan K. Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Instability and Transition of Fluid Flows  
Lecture 2 - Instability and Transition of Fluid Flows  
Lecture 3 - Instability and Transition of Fluid Flows  
Lecture 4 - Instability and Transition of Fluid Flows  
Lecture 5 - Instability and Transition of Fluid Flows  
Lecture 6 - Instability and Transition of Fluid Flows  
Lecture 7 - Instability and Transition of Fluid Flows  
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Lecture 26 - Instability and Transition of Fluid Flows  
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Lecture 28 - Instability and Transition of Fluid Flows  
Lecture 29 - Instability and Transition of Fluid Flows

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Instability and Transition of Fluid Flows
- Lecture 31 - Instability and Transition of Fluid Flows
- Lecture 32 - Instability and Transition of Fluid Flows
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- Lecture 34 - Instability and Transition of Fluid Flows
- Lecture 35 - Instability and Transition of Fluid Flows
- Lecture 36 - Instability and Transition of Fluid Flows
- Lecture 37 - Instability and Transition of Fluid Flows
- Lecture 38 - Instability and Transition of Fluid Flows
- Lecture 39 - Instability and Transition of Fluid Flows

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Introduction to Helicopter Aerodynamics and Dynamics

Subject Co-ordinator - Prof. A.R. Manjunath, Prof. C. Venkatesan

Co-ordinating Institute - IIT - Kanpur | HAL

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 2 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 3 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 4 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 5 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 6 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 7 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 8 - Introduction to Helicopter Aerodynamics and Dynamics  
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Lecture 25 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 26 - Introduction to Helicopter Aerodynamics and Dynamics

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Introduction to Propulsion

Subject Co-ordinator - Dr. D.P. Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Aerospace Propulsion
- Lecture 2 - Fundamentals of Aerospace Propulsion
- Lecture 3 - Fundamentals of Aerospace Propulsion
- Lecture 4 - Fundamentals of Aerospace Propulsion
- Lecture 5 - Fundamentals of Aerospace Propulsion
- Lecture 6 - Fundamentals of Aerospace Propulsion
- Lecture 7 - Fundamentals of Aerospace Propulsion
- Lecture 8 - Fundamentals of Aerospace Propulsion
- Lecture 9 - Fundamentals of Aerospace Propulsion
- Lecture 10 - Fundamentals of Aerospace Propulsion
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- Lecture 16 - Fundamentals of Aerospace Propulsion
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- Lecture 25 - Fundamentals of Aerospace Propulsion
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- Lecture 27 - Fundamentals of Aerospace Propulsion
- Lecture 28 - Fundamentals of Aerospace Propulsion
- Lecture 29 - Fundamentals of Aerospace Propulsion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Fundamentals of Aerospace Propulsion  
Lecture 31 - Fundamentals of Aerospace Propulsion  
Lecture 32 - Fundamentals of Aerospace Propulsion  
Lecture 33 - Fundamentals of Aerospace Propulsion  
Lecture 34 - Fundamentals of Aerospace Propulsion  
Lecture 35 - Fundamentals of Aerospace Propulsion  
Lecture 36 - Fundamentals of Aerospace Propulsion  
Lecture 37 - Fundamentals of Aerospace Propulsion  
Lecture 38 - Fundamentals of Aerospace Propulsion  
Lecture 39 - Fundamentals of Aerospace Propulsion  
Lecture 40 - Fundamentals of Aerospace Propulsion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Jet and Rocket Propulsion

Subject Co-ordinator - Dr. A. Kushari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Jet and Rocket Propulsion  
Lecture 2 - Jet and Rocket Propulsion  
Lecture 3 - Jet and Rocket Propulsion  
Lecture 4 - Jet and Rocket Propulsion  
Lecture 5 - Jet and Rocket Propulsion  
Lecture 6 - Jet and Rocket Propulsion  
Lecture 7 - Jet and Rocket Propulsion  
Lecture 8 - Jet and Rocket Propulsion  
Lecture 9 - Jet and Rocket Propulsion  
Lecture 10 - Jet and Rocket Propulsion  
Lecture 11 - Jet and Rocket Propulsion  
Lecture 12 - Jet and Rocket Propulsion  
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Lecture 14 - Jet and Rocket Propulsion  
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Lecture 22 - Jet and Rocket Propulsion  
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Lecture 25 - Jet and Rocket Propulsion  
Lecture 26 - Jet and Rocket Propulsion  
Lecture 27 - Jet and Rocket Propulsion  
Lecture 28 - Jet and Rocket Propulsion  
Lecture 29 - Jet and Rocket Propulsion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Jet and Rocket Propulsion  
Lecture 31 - Jet and Rocket Propulsion  
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Lecture 39 - Jet and Rocket Propulsion  
Lecture 40 - Jet and Rocket Propulsion



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Airplane Performance

Subject Co-ordinator - Dr. A.K. Ghosh, Dr. Deepu Philip

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - General Introduction  
Lecture 2 - George Cayley  
Lecture 3 - Introduction to airplane and its components  
Lecture 4 - Hansa 3 Aircraft and its Primary Systems  
Lecture 5 - Concept of Lift Aerofoil  
Lecture 6 - Drag Polar  
Lecture 7 - Revision  
Lecture 8 - Standard Atmosphere  
Lecture 9 - Measuring Instruments  
Lecture 10 - Equations of Motion  
Lecture 11 - Thrust Required, Power Required  
Lecture 12 - Excess Thrust and Power  
Lecture 13 - Review  
Lecture 14 - Thrust Required  
Lecture 15 - Modeling of CL  
Lecture 16 - A Closer Look  
Lecture 17 - Estimation of Drag Polar Through Flight Test  
Lecture 18 - Estimation of Rate of Climb  
Lecture 19 - Revision.  
Lecture 20 - Range and Endurance  
Lecture 21 - Range and Endurance  
Lecture 22 - Gliding Flight  
Lecture 23 - Accelerated Flight  
Lecture 24 - V-n Diagram  
Lecture 25 - Revision..  
Lecture 26 - V stall  
Lecture 27 - Flaps  
Lecture 28 - Take off  
Lecture 29 - Take off Performance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Take off Performance
- Lecture 31 - Revision...
- Lecture 32 - Landing Performance
- Lecture 33 - Landing Performance
- Lecture 34 - Challenges in Takeoff and Landing
- Lecture 35 - Introduction to Static Stability
- Lecture 36 - Positioning of Center of Pressure for Static Stability
- Lecture 37 - Revision.....
- Lecture 38 - Stability and Control
- Lecture 39 - Stability and Control
- Lecture 40 - Longitudinal Control
- Lecture 41 - Contribution of Wing and Tail
- Lecture 42 - Stability
- Lecture 43 - Control
- Lecture 44 - Control
- Lecture 45 - Control
- Lecture 46 - Design Basics
- Lecture 47 - Design Basics
- Lecture 48 - Revision.

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Stability and control of aircraft

Subject Co-ordinator - Dr. A.K. Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction to Static Stability  
Lecture 3 - Stability and Trim  
Lecture 4 - Stability  
Lecture 5 - Stability  
Lecture 6 - Problems  
Lecture 7 - Problems  
Lecture 8 - Neutral Point and Fuselage Contribution Completed  
Lecture 9 - Longitudinal Control Completed  
Lecture 10 - Longitudinal Control (Continued...)  
Lecture 11 - Control  
Lecture 12 - CL\_trim Vs  $\alpha_{trim}$   
Lecture 13 - Neutral Point  
Lecture 14 - Contribution of Engine towards Stability  
Lecture 15 - Revision  
Lecture 16 - Trim  
Lecture 17 - Trim  
Lecture 18 - Maneuvering Point  
Lecture 19 - Numerical  
Lecture 20 - Revision (Lecture20)  
Lecture 21 - Directional Stability  
Lecture 22 - Directional Control  
Lecture 23 - Lateral Stability and Control  
Lecture 24 - Numericals  
Lecture 25 - Lecture - 25 Revision  
Lecture 26 - Stick Free Stability  
Lecture 27 - Stick Free Stability (Continued...)  
Lecture 28 - Hinge Moment and Hinge Moment Derivative  
Lecture 29 - Aircraft Handling Qualities

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- Lecture 30 - Aircraft Handling Qualities (Continued...)
- Lecture 31 - Reversible Control
- Lecture 32 - Numericals
- Lecture 33 - Numericals
- Lecture 34 - Handling Qualities
- Lecture 35 - Determination of Neutral Point and Maneuvering Point by Flight Experiment
- Lecture 36 - Ponit Mass Equation of Motion
- Lecture 37 - Forces and Moments
- Lecture 38 - Aircraft Equations of Motion
- Lecture 39 - Six Degrees of Freedom of an Aircraft
- Lecture 40 - 6 DoF
- Lecture 41 - Vector in a Rotating Frame
- Lecture 42 - Euler Angles
- Lecture 43 - Small Perturbation Theory
- Lecture 44 - Small Perturbation Theory (Continued...)
- Lecture 45 - Perturbed Equations of Motion
- Lecture 46 - Perturbed Force
- Lecture 47 - Perturbed Force
- Lecture 48 - Perturbed Pitching Moment
- Lecture 49 - Longitudinal Dimensional Stability Derivatives
- Lecture 50 - Dynamic Stability
- Lecture 51 - Longitudinal Modes
- Lecture 52 - Short Period and Phugoid Approximations
- Lecture 53 - Pure Pitching Motion
- Lecture 54 - Stability Augmentation System (SAS)
- Lecture 55 - Lateral-Directional Motion
- Lecture 56 - Tutorial - 1
- Lecture 57 - Tutorial - 2
- Lecture 58 - Tutorial - 3
- Lecture 59 - Tutorial - 4
- Lecture 60 - History of Aviation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Engineering Thermodynamics

Subject Co-ordinator - Dr. D.P. Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Thermodynamics and its Applications
- Lecture 2 - System and its Surroundings
- Lecture 3 - Property of System
- Lecture 4 - Energy and its Various Forms
- Lecture 5 - Concepts of Equilibrium and its State
- Lecture 6 - Energy and its Interactions
- Lecture 7 - Heat Interactions
- Lecture 8 - Thermodynamic Properties of Fluids - 1
- Lecture 9 - Thermodynamic Properties of Fluids - 2
- Lecture 10 - Thermodynamic Properties of Fluids - 3
- Lecture 11 - Thermodynamic Properties of Fluids - 4
- Lecture 12 - Thermodynamic Properties of Fluids - 5
- Lecture 13 - First Law of Thermodynamics for Cyclic Process
- Lecture 14 - First Law of Thermodynamics for Non-cyclic Process - 1
- Lecture 15 - First Law of Thermodynamics for Non-cyclic Process - 2
- Lecture 16 - Control Mass and Control Volume
- Lecture 17 - First Law of Thermodynamics for Steady Flow Processes
- Lecture 18 - First Law of Thermodynamics for Unsteady Flow Processes
- Lecture 19 - First Law of Thermodynamics to Reacting Systems
- Lecture 20 - Second Law of Thermodynamics
- Lecture 21 - Second Law of Thermodynamics
- Lecture 22 - Second Law of Thermodynamics
- Lecture 23 - Second Law of Thermodynamics
- Lecture 24 - Applications of Second Law of Thermodynamics
- Lecture 25 - Applications of Second Law of Thermodynamics
- Lecture 26 - Exergy
- Lecture 27 - Gas Turbine Cycle
- Lecture 28 - Vapor Power Cycle - 1
- Lecture 29 - Vapor Power Cycle - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Vapor Power Cycle - 3
- Lecture 31 - Gas Power Cycles - 1
- Lecture 32 - Gas Power Cycles - 2
- Lecture 33 - Refrigeration Cycles
- Lecture 34 - Non-Reacting Mixture and Psychrometry
- Lecture 35 - Gas-Vapor Mixture and Air Conditioning - 1
- Lecture 36 - Gas-Vapor Mixture and Air Conditioning - 2
- Lecture 37 - Thermodynamic Property Relations - 1
- Lecture 38 - Thermodynamic Property Relations - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Aircraft Dynamic Stability and Design Stability Augmentation

Subject Co-ordinator - Dr. A.K. Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Dynamic Stability
- Lecture 2 - Spring-Mass-Damper System
- Lecture 3 - Spring-Mass-Damper System
- Lecture 4 - Laplace Transform
- Lecture 5 - Pitch Dynamics
- Lecture 6 - Numericals
- Lecture 7 - Aircraft Rigid Body Equation of Motion
- Lecture 8 - Six Degree of Freedom Equation of Motion
- Lecture 9 - Vector in Rotating Frame
- Lecture 10 - Forces and Moments on Aircraft
- Lecture 11 - Euler Angles
- Lecture 12 - Trajectory of the Aircraft
- Lecture 13 - Small Perturbation Theory
- Lecture 14 - Perturbed Aerodynamic Forces and Moments
- Lecture 15 - U-derivatives
- Lecture 16 - Alpha - derivatives
- Lecture 17 - Alpha Dot Derivatives
- Lecture 18 - q and delta Derivatives
- Lecture 19 - Dimensional Stability Derivatives
- Lecture 20 - Longitudinal Characteristic Equation
- Lecture 21 - Routh's Criteria and Longitudinal Dynamic Stability
- Lecture 22 - Longitudinal Modes
- Lecture 23 - Short period Mode Approximation
- Lecture 24 - Long Period Mode (Phugoid) Approximation
- Lecture 25 - Lateral Directional Stability Derivatives
- Lecture 26 - Lateral Directional Stability Derivatives (Continued...)
- Lecture 27 - Perturbed Equation of Motion for Lateral Dynamics
- Lecture 28 - Modes of Lateral Directional Dynamics
- Lecture 29 - Spiral and Dutch Roll modes Approximation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Routh's Hurwitz Stability Criterion
- Lecture 31 - Introduction to Stability Augmentation
- Lecture 32 - Pure Yawing and Pure Rolling Motion
- Lecture 33 - SAS for Longitudinal Dynamics
- Lecture 34 - SAS for Lateral Dynamics
- Lecture 35 - Flight Handling Qualities
- Lecture 36 - Numericals
- Lecture 37 - Revision
- Lecture 38 - Mode Shape
- Lecture 39 - Mode Shape
- Lecture 40 - Numericals
- Lecture 41 - Stability Augmentation System
- Lecture 42 - Numericals
- Lecture 43 - Numericals



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Ancient Indian Technology

Subject Co-ordinator - Dr. D.P. Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Ancient Indian Civilization
- Lecture 2 - Ancient Indian Civilization's Gift to the World
- Lecture 3 - Why do we need to look at Ancient Indian Science and Technology?
- Lecture 4 - Glimpses of Ancient Indian Science and Technology
- Lecture 5 - Brief Review of Ancient Indian Scriptures
- Lecture 6 - Basic Principles of carrying out science and technology
- Lecture 7 - Arrays of Physics, chemistry and Indoor games
- Lecture 8 - Marvels of Ancient Indian Technology
- Lecture 9 - Introduction to Indian Agriculture
- Lecture 10 - Problems arising due to modern agricultural practices
- Lecture 11 - Pesticides and soil degradation
- Lecture 12 - Agriculture - A Primary Productive Activity
- Lecture 13 - An Agricultural Tools - A Plough
- Lecture 14 - Soil and seeds
- Lecture 15 - Sowing Methods
- Lecture 16 - Indigenous cattle and manuring
- Lecture 17 - Ancient Indian Textile Technology
- Lecture 18 - Handlooms and Charkha
- Lecture 19 - Different types of Handlooms
- Lecture 20 - Ancient Rural Indian Housing
- Lecture 21 - Thatched Roof House
- Lecture 22 - Rural Walls and Roof materials
- Lecture 23 - Indus Valley and Harappan Civilization
- Lecture 24 - First and Second of Indian Civilization
- Lecture 25 - Town topologies and Brick and Tile making process
- Lecture 26 - Availability of Water and Freshwater
- Lecture 27 - Ancient Indian Wells
- Lecture 28 - Temple Water tanks and Dams
- Lecture 29 - Tank Irrigation system and Rainwater Harvesting

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Waterbodies - Lakes and Canals
- Lecture 31 - Sluices and Embankments
- Lecture 32 - World of Materials
- Lecture 33 - Metals - Gold Silver Lead
- Lecture 34 - History of Copper
- Lecture 35 - Iron during Vedic period
- Lecture 36 - Iron smelting process in ancient India
- Lecture 37 - Iron and Steel crafts in ancient India
- Lecture 38 - Extraction and smelting of Zinc in Ancient India
- Lecture 39 - Metal Casting in Ancient India
- Lecture 40 - Glass Technology in Ancient India

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Experiments in Flight

Subject Co-ordinator - Prof. Mahendra Verma, Dr. A.K. Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Weighment and Calculation of CG (Theory)
- Lecture 2 - Cruise Experiment (Theory)
- Lecture 3 - Weighment Experiment and cockpit panel description
- Lecture 4 - Drag Polar Experiment
- Lecture 5 - CG and Climb Experiment
- Lecture 6 - Calibration of Control Surface
- Lecture 7 - Calibration of Control Surfaces (Experiment)
- Lecture 8 - Introduction to Flight Data Recorder
- Lecture 9 - Sensors - Part I
- Lecture 10 - Sensors - Part II
- Lecture 11 - Data Acquisition using MEMS devices
- Lecture 12 - Estimation of Stick-Fixed Neutral Point
- Lecture 13 - Estimation of Stick-Free Neutral Point and Stick-Free Maneuvering Point
- Lecture 14 - Static
- Lecture 15 - Static
- Lecture 16 - Steady Coordinated Turn
- Lecture 17 - Introduction to Parameter Estimation
- Lecture 18 - Parameter Estimation using Least Squares Method
- Lecture 19 - Aerodynamic Parameter Estimation using Least Squares Method
- Lecture 20 - Aerodynamic Parameter Estimation using Delta Method
- Lecture 21 - Aerodynamic Parameter Estimation using Delta Method (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Engineering Thermodynamics (2017)

Subject Co-ordinator - Dr. Jayant K. Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamental laws of nature, system definitions and applications
- Lecture 2 - Thermodynamic property, state, equilibrium and process
- Lecture 3 - Temperature scale and pressure
- Lecture 4 - Macroscopic and microscopic forms of energy
- Lecture 5 - Different forms of work, energy transfer and sign convention
- Lecture 6 - First law of thermodynamics and energy balance
- Lecture 7 - Efficiency of mechanical and electrical devices
- Lecture 8 - Examples on basic concept and energy balance
- Lecture 9 - Phase change of a pure substance
- Lecture 10 - Property diagrams of pure substances
- Lecture 11 - Thermodynamic properties of a pure substance from a property table
- Lecture 12 - Thermodynamic properties of a pure substance
- Lecture 13 - Equations of state and compressibility chart
- Lecture 14 - Examples on properties of pure substances
- Lecture 15 - Quasi equilibrium, moving boundary work
- Lecture 16 - Polytropic process
- Lecture 17 - Energy analysis of closed system and unrestrained expansion
- Lecture 18 - Internal energy, enthalpy, and specific heats of ideal gas
- Lecture 19 - Internal energy, enthalpy, and specific heats of solids and liquids
- Lecture 20 - Examples on energy balance for closed systems and moving boundary work
- Lecture 21 - Conservation of mass and steady flow processes
- Lecture 22 - Flow work and energy of flowing fluid
- Lecture 23 - Energy balance for steady flow devices
- Lecture 24 - Throttling valve, mixing chamber and heat exchanger
- Lecture 25 - Energy analysis of steady and unsteady flow devices
- Lecture 26 - Examples on mass and energy analysis of open systems
- Lecture 27 - Second law of thermodynamics, heat engine and cyclic devices
- Lecture 28 - COP of refrigerator and heat pump, second law statements
- Lecture 29 - Perpetual motion machines, reversible and irreversible processes, Carnot cycle

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Carnot principles, thermodynamic temperature scale, Carnot HE and HP
- Lecture 31 - Examples on second law of thermodynamics
- Lecture 32 - Clausius inequality, application of second law
- Lecture 33 - Entropy, increase in entropy principle, isentropic process
- Lecture 34 - Change in entropy of solids, liquids and ideal gases
- Lecture 35 - Reversible flow work, multistage compressor, efficiency of pump and compressors
- Lecture 36 - Entropy balance in closed system and control volume
- Lecture 37 - Examples on entropy change in a system
- Lecture 38 - Exergy and second law efficiency
- Lecture 39 - Exergy of a fixed mass and flowing stream
- Lecture 40 - Exergy transfer due to heat, mass and work, exergy destruction
- Lecture 41 - Exergy balance and second law efficiency for closed systems and steady flow devices
- Lecture 42 - Examples related to exergy change and exergy destruction
- Lecture 43 - Gas power cycles and air-standard assumptions
- Lecture 44 - An overview of reciprocating engines and otto cycle
- Lecture 45 - Analysis of Diesel cycle
- Lecture 46 - Analysis of Brayton cycle
- Lecture 47 - Examples on gas power cycles such as Otto, Diesel and Brayton
- Lecture 48 - Rankin and Carnot vapour power cycles
- Lecture 49 - Ideal regenerative Rankin cycle and combined gas-vapour cycle
- Lecture 50 - Refrigeration cycles
- Lecture 51 - Examples on vapour power cycles
- Lecture 52 - Thermodynamic property relations
- Lecture 53 - Thermodynamic property relations
- Lecture 54 - Thermodynamic property relations
- Lecture 55 - Combustion and conservation of mass in a chemical reaction
- Lecture 56 - Energy balance for reacting systems
- Lecture 57 - Enthalpy of formation and combustion, adiabatic flame temperature
- Lecture 58 - Examples on property relations and reaction thermodynamics

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Aircraft Design

Subject Co-ordinator - Dr. A.K. Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Wing Loading and Thrust Loading
- Lecture 3 - Basic Design - Lift and Drag
- Lecture 4 - Range and Endurance
- Lecture 5 - Mission Requirements
- Lecture 6 - Range and Endurance
- Lecture 7 - Fuel Consumption
- Lecture 8 - L/D for Maximum Range and Endurance
- Lecture 9 - Range and endurance for Jet-driven Aircraft
- Lecture 10 - Estimation of Fuel for a Mission
- Lecture 11 - Design Considerations
- Lecture 12 - Design Considerations
- Lecture 13 - Design Considerations
- Lecture 14 - Wing Design
- Lecture 15 - Wing Design
- Lecture 16 - Wing Design
- Lecture 17 - Wing Design
- Lecture 18 - Wing Arrangements
- Lecture 19 - Tail Arrangements
- Lecture 20 - Tail Arrangements (Continued...)
- Lecture 21 - Aircraft Structure
- Lecture 22 - Wing Loading and Power Loading
- Lecture 23 - Thrust Loading and Wing Loading
- Lecture 24 - Thrust Loading
- Lecture 25 - Wing Loading
- Lecture 26 - Wing Loading
- Lecture 27 - Take off
- Lecture 28 - Take off
- Lecture 29 - Wing Loading

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Revision (Wing Loading and Thrust Loading)
- Lecture 31 - Numerical
- Lecture 32 - Wing Loading
- Lecture 33 - Stability Considerations
- Lecture 34 - Static Stability Basics
- Lecture 35 - Wing and tail contribution to Longitudinal Static Stability
- Lecture 36 - Conceptual Design
- Lecture 37 - Conceptual design (Continued...)
- Lecture 38 - Elevator Effectiveness
- Lecture 39 - Elevator Effectiveness (Continued...)
- Lecture 40 - Numerical - Pitching moment
- Lecture 41 - Numerical - Elevator Effectiveness
- Lecture 42 - Aircraft Maintenance Guidelines
- Lecture 43 - Inspection for Aircraft
- Lecture 44 - Numerical of Weight Fraction
- Lecture 45 - Inspection of Sinus 912 Motor Glider
- Lecture 46 - Numericals

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Fundamentals Of Combustion-I

Subject Co-ordinator - Dr. D.P. Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to fundamentals of combustion
- Lecture 2 - Scope and applications of combustion
- Lecture 3 - Scope of combustion (Continued...) and types of fuel and oxidizers
- Lecture 4 - Characterization of liquid and gaseous fuel
- Lecture 5 - Properties of liquid and solid fuels, various modes of combustion
- Lecture 6 - Thermodynamics of combustion
- Lecture 7 - Thermodynamics of combustion (Continued...)
- Lecture 8 - Laws of thermodynamics and Stoichiometry
- Lecture 9 - Stoichiometric calculations for air-gas mixture
- Lecture 10 - Mixture fraction calculation for diffusion flames
- Lecture 11 - Thermochemistry
- Lecture 12 - Heat of reaction and bond energy
- Lecture 13 - Adiabatic flame temperature
- Lecture 14 - Adiabatic flame temperature and its effect on various parameters
- Lecture 15 - Introduction to chemical equilibrium
- Lecture 16 - Chemical equilibrium and Gibbs free energy
- Lecture 17 - Equilibrium constants and Le chatlier principle
- Lecture 18 - Determination of chemical equilibrium composition
- Lecture 19 - Chemical and reaction kinetics
- Lecture 20 - Compact notation and reaction rate of chemical reaction
- Lecture 21 - Collision Theory
- Lecture 22 - Collision theory (Continued...)
- Lecture 23 - Collision frequency of molecules
- Lecture 24 - Specific reaction rate and Arrhenius law
- Lecture 25 - First order, Second order and Third-order reactions
- Lecture 26 - Classification of chemical reactions
- Lecture 27 - Elementary chain reactions
- Lecture 28 - Quasi-steady state and partial equilibrium approximation
- Lecture 29 - Physics of combustion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transport equations and molecular model for transport process
- Lecture 31 - Mean free path length
- Lecture 32 - Lennard-Jones potential model for diffusivity
- Lecture 33 - Lennard-Jones potential model (Continued...)
- Lecture 34 - Mass conservation law
- Lecture 35 - Momentum conservation equation
- Lecture 36 - Introduction to mass transfer
- Lecture 37 - Species transport equation
- Lecture 38 - Energy conservation equation
- Lecture 39 - Conserved scalar approach for one dimensional flows
- Lecture 40 - Introduction to turbulent combustion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Aircraft Maintenance

Subject Co-ordinator - Dr. A.K. Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Rules and Regulations for Civil Aviation in India
- Lecture 2 - Rules and Regulations for Civil Aviation in India (Continued...)
- Lecture 3 - Aircraft Hydraulic System
- Lecture 4 - Aircraft Fuel System
- Lecture 5 - Aircraft Landing Gear System
- Lecture 6 - Aircraft Wheels
- Lecture 7 - Aircraft Brakes System
- Lecture 8 - Basic Aircraft Design
- Lecture 9 - Aircraft Electrical System
- Lecture 10 - Aircraft Electrical Circuit
- Lecture 11 - Inspection of Aircraft
- Lecture 12 - Maintenance Schedule
- Lecture 13 - Maintenance Schedule (Continued...)
- Lecture 14 - Inspection of Cessna 206

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Fundamentals of Combustion - Part 2

Subject Co-ordinator - Dr. D.P. Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Combustion Modes and Classification of Flames
- Lecture 2 - Analysis of One Dimensional Combustion Wave
- Lecture 3 - Analysis of One Dimensional Combustion Wave (Continued...)
- Lecture 4 - Introduction to Laminar Premixed Flame
- Lecture 5 - Structure of One Dimensional Premixed Flame
- Lecture 6 - Laminar Flame Theory for Premixed Flames
- Lecture 7 - Laminar Flame Theory for Premixed Flames (Continued...)
- Lecture 8 - Determination of Laminar Burning Velocity for Premixed Flames
- Lecture 9 - Flame Thickness and Burning Velocity Measurement Methods
- Lecture 10 - Stationary Flame Method for Burning Velocity Measurement
- Lecture 11 - Effects of Chemical and Physical Variables on Burning Velocity
- Lecture 12 - Effects of Chemical and Physical Variables on Burning Velocity (Continued...)
- Lecture 13 - Effect of Inert Additives on Burning Velocity and Flame Extinction
- Lecture 14 - Simplified Analysis for Quenching Diameter
- Lecture 15 - Flammability Limits and Flame Stabilization
- Lecture 16 - Ignition in Premixed Flames
- Lecture 17 - Introduction to Turbulent Premixed Flames
- Lecture 18 - Turbulent Burning Velocity and Premixed Flame Regimes
- Lecture 19 - Introduction to Gaseous Jet Diffusion Flame
- Lecture 20 - Phenomenological Analysis of a Laminar Jet Diffusion Flame
- Lecture 21 - Theoretical Analysis of a Two-Dimensional Diffusion Flame
- Lecture 22 - Theoretical Analysis of a Two-Dimensional Diffusion Flame (Continued...)
- Lecture 23 - Flame Height Estimation and Smoke point in Diffusion Flames
- Lecture 24 - Mechanism of Soot Formation and Introduction to Liquid Fuel Combustion
- Lecture 25 - Introduction to Droplet Combustion
- Lecture 26 - Liquid Droplet Combustion
- Lecture 27 - Droplet Combustion (Continued...)
- Lecture 28 - Droplet Combustion in Convective Environment
- Lecture 29 - Droplet Combustion in Convective Environment and Introduction to Spray Combustion Mode

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Spray Combustion Model
- Lecture 31 - Introduction to Solid Fuel Combustion
- Lecture 32 - Solid Fuel Combustion (Continued...)
- Lecture 33 - Diffusional theory for Carbon Combustion
- Lecture 34 - Carbon Burning Rate
- Lecture 35 - Carbon Burning Rate (Continued...)
- Lecture 36 - Carbon Sphere in Convective Environment
- Lecture 37 - Combustion and Effects on Environment
- Lecture 38 - Chemicals from Combustion
- Lecture 39 - Emission Control Methods
- Lecture 40 - Combustion Modification Methods

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Design of Fixed Wing Unmanned Aerial Vehicles

Subject Co-ordinator - Prof. Saderla Subrahmanyam

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, course content and classification of UAVs
- Lecture 2 - Measurement of Flight Velocity and Standard Atmosphere
- Lecture 3 - Anatomy of Airplane and Airfoil Nomenclature
- Lecture 4 - Examples, Pitot and static tube and differential pressure sensor
- Lecture 5 - Generation of Lift and Drag
- Lecture 6 - Aerodynamic center and center of pressure, Various wing planform
- Lecture 7 - Lifting line theory, NACA airfoil nomenclature
- Lecture 8 - Airfoil and Finite wing, Various wing planform
- Lecture 9 - Interpreting airfoil data,  $C_l$  vs  $\alpha$  and drag polar, selection of airfoil
- Lecture 10 - Introduction to Airplane performance, Equation of motion
- Lecture 11 - Thrust required and Power required
- Lecture 12 - Calculation of Performance parameters and selection of power plant
- Lecture 13 - Climb Performance, Engine Sizing and Power Plant selection
- Lecture 14 - Weight Estimation, Common propulsion systems
- Lecture 15 - Weight Estimation contd., Electric propulsion, Battery Sizing
- Lecture 16 - Iterative weight estimation and Wing sizing
- Lecture 17 - Wing Planform selection and sizing and Flight test of Cropped delta wing UAVs
- Lecture 18 - Effect of variation of CG location and Static Stability
- Lecture 19 - C.G. location and Longitudinal Static stability
- Lecture 20 - Tutorial 1
- Lecture 21 - Contribution of tail in static stability and Neutral point.
- Lecture 22 - Tutorial 2
- Lecture 23 - Tutorial 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Finite Volume Methods-I

Subject Co-ordinator - Prof. Ashoke De

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Finite Volume Method
- Lecture 2 - Governing Equations and Discretization
- Lecture 3 - Boundary Conditions and Classification of PDEs
- Lecture 4 - Mathematical Description of fluid flow - I
- Lecture 5 - Mathematical description of fluid flow - II
- Lecture 6 - Discretization Process - I
- Lecture 7 - Discretization Process - II
- Lecture 8 - Discretization Process - III
- Lecture 9 - Taylor Series - I
- Lecture 10 - Taylor Series - II
- Lecture 11 - Derivatives and Errors - I
- Lecture 12 - Derivatives and errors - II
- Lecture 13 - Grid Transformation
- Lecture 14 - Finite Volume Formulation - I
- Lecture 15 - Finite Volume Formulation - II
- Lecture 16 - Properties of discretized equations
- Lecture 17 - Introduction to Finite Volume Mesh
- Lecture 18 - Structured Mesh System
- Lecture 19 - Unstructured Mesh System - I
- Lecture 20 - Unstructured Mesh System - II
- Lecture 21 - Properties of Unstructured Mesh - I
- Lecture 22 - Properties of Unstructured Mesh - II
- Lecture 23 - Finite Volume discretization of Diffusion Equation - I
- Lecture 24 - Finite Volume discretization of Diffusion equation - II
- Lecture 25 - Finite Volume discretization of Diffusion equation - III
- Lecture 26 - Discretization of Diffusion Equation for Cartesian orthogonal systems - I
- Lecture 27 - Discretization of Diffusion Equation for Cartesian orthogonal systems - II
- Lecture 28 - Calculation of Diffusivity
- Lecture 29 - Discretization of Diffusion Equation for non-Cartesian orthogonal systems - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discretization of Diffusion Equation for non-orthogonal systems - I
- Lecture 31 - Discretization of Diffusion Equation for non-orthogonal systems - II
- Lecture 32 - Discretization of Diffusion Equation for non-orthogonal systems - III
- Lecture 33 - Gradient Calculation for Diffusion Equation - I
- Lecture 34 - Gradient Calculation for Diffusion Equation - II
- Lecture 35 - Gradient Calculation for Diffusion Equation - III
- Lecture 36 - Properties of matrices - I
- Lecture 37 - Properties of matrices - II
- Lecture 38 - Error Analysis - I
- Lecture 39 - Error Analysis - II
- Lecture 40 - Error Analysis - III

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - High Speed Aero Dynamics

Subject Co-ordinator - Dr. K.P. Sinhamahapatra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Review of Thermodynamics
- Lecture 2 - Review of Thermodynamics (Continued...)
- Lecture 3 - Review of Thermodynamics (Continued...)
- Lecture 4 - Review of Thermodynamics (Continued...)
- Lecture 5 - One-dimensional gas dynamics
- Lecture 6 - One-dimensional gas dynamics (Continued...)
- Lecture 7 - One-dimensional gas dynamics (Continued...)
- Lecture 8 - One-dimensional waves
- Lecture 9 - One-dimensional waves (Continued...)
- Lecture 10 - One-dimensional waves (Continued...)
- Lecture 11 - Waves and Supersonic Flow
- Lecture 12 - Waves and Supersonic Flow (Continued...)
- Lecture 13 - Waves and Supersonic Flow (Continued...)
- Lecture 14 - Waves and Supersonic Flow (Continued...)
- Lecture 15 - Shock Expansion Theory
- Lecture 16 - Flow through ducts and channels
- Lecture 17 - Flow in ducts
- Lecture 18 - Flow in ducts (Continued...)
- Lecture 19 - Adiabatic Flow in ducts with friction
- Lecture 20 - Adiabatic flow in ducts with friction (Continued...)
- Lecture 21 - Isothermal flow in ducts with friction
- Lecture 22 - Flow in uniform duct with heating
- Lecture 23 - Multi - dimensional flow problems
- Lecture 24 - Multi - dimensional flow problems (Continued...)
- Lecture 25 - Linearized flow problems
- Lecture 26 - Linearized flow problems (Continued...)
- Lecture 27 - Linearized flow problems (Continued...)
- Lecture 28 - Linearized flow problems (Continued...)
- Lecture 29 - Linearized flow problems (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linearized flow problems (Continued...)
- Lecture 31 - Linearized flow problems (Continued...)
- Lecture 32 - Linearized Problems - Forces on Slender Bodies
- Lecture 33 - Linearized Problems - Forces on Slender Bodies (Continued...)
- Lecture 34 - Similarity Rules for High Speed Flows
- Lecture 35 - Similarity Rules for High Speed Flows (Continued...)
- Lecture 36 - Similarity Rules for High Speed Flows (Continued...)
- Lecture 37 - Similarity Rules in Hypersonic Flow
- Lecture 38 - Transonic Flow
- Lecture 39 - Transonic Flow (Continued...)
- Lecture 40 - Transonic Flow (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Space Flight Mechanics

Subject Co-ordinator - Dr. Manoranjan Sinha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Space Flight Mechanics
- Lecture 2 - Particle Kinematics
- Lecture 3 - Particle Kinematics (Continued...)
- Lecture 4 - Conic Section
- Lecture 5 - Two Body Problem
- Lecture 6 - Two Body Problem (Continued...1)
- Lecture 7 - Two Body Problem (Continued...2)
- Lecture 8 - Two Body Problem (Continued...3)
- Lecture 9 - Two Body Problem (Continued...4)
- Lecture 10 - Two Body Problem (Continued...5)
- Lecture 11 - Two Body Problem (Continued...6)
- Lecture 12 - Two Body Problem (Continued...7) & Three Body Problem
- Lecture 13 - Three Body Problem (Continued...1)
- Lecture 14 - Three Body Problem (Continued...2)
- Lecture 15 - Three Body Problem (Continued...3)
- Lecture 16 - Three Body Problem (Continued...4)
- Lecture 17 - Three Body Problem (Continued...5)
- Lecture 18 - Three Body Problem (Continued...6)
- Lecture 19 - Three Body Problem (Continued...7)
- Lecture 20 - Three Body Problem (Continued...8)
- Lecture 21 - Trajectory Transfer
- Lecture 22 - Trajectory Transfer (Continued...1)
- Lecture 23 - Trajectory Transfer (Continued...2)
- Lecture 24 - Trajectory Transfer (Continued...3)
- Lecture 25 - Trajectory Transfer (Continued...4)
- Lecture 26 - Trajectory Transfer (Continued...5)
- Lecture 27 - Trajectory Transfer (Continued...6)
- Lecture 28 - Trajectory Transfer (Continued...7)
- Lecture 29 - Trajectory Transfer (Continued...8)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Trajectory Transfer (Continued...9)
- Lecture 31 - Trajectory Transfer (Continued...10)
- Lecture 32 - Trajectory Transfer (Continued...11) and Attitude Dynamics
- Lecture 33 - Attitude Dynamics (Continued...1)
- Lecture 34 - Attitude Dynamics (Continued...2)
- Lecture 35 - Attitude Dynamics (Continued...3)
- Lecture 36 - Attitude Dynamics (Continued...4)
- Lecture 37 - Attitude Dynamics (Continued...5)
- Lecture 38 - Attitude Dynamics (Continued...6)
- Lecture 39 - Attitude Dynamics (Continued...7)
- Lecture 40 - Attitude Dynamics (Continued...8)
- Lecture 41 - Attitude Dynamics (Continued...9)
- Lecture 42 - Propulsion
- Lecture 43 - Propulsion (Continued...1)
- Lecture 44 - Propulsion (Continued...2)
- Lecture 45 - Propulsion (Continued...3)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Introduction to Aerodynamics

Subject Co-ordinator - Dr. K.P. Sinhamahapatra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Aircraft and Aerodynamic Forces and Moments
- Lecture 2 - Aircraft and Aerodynamic Forces and Moments (Continued...)
- Lecture 3 - Fluids and Forces in Fluids
- Lecture 4 - Fluids and Forces in Fluids (Continued...)
- Lecture 5 - Forces in Fluids
- Lecture 6 - Forces in Fluids (Continued...)
- Lecture 7 - Kinematics of fluid motion
- Lecture 8 - Kinematics of fluid motion (Continued...)
- Lecture 9 - Kinematics of fluid motion (Continued...)
- Lecture 10 - Kinematics of fluid motion (Continued...)
- Lecture 11 - Kinematics of fluid motion - Velocity with specified extension and vorticity
- Lecture 12 - Kinematics of fluid motion - Velocity with specified extension and vorticity (Continued...)
- Lecture 13 - Kinematics of fluid motion - Vorticity Distribution
- Lecture 14 - Kinematics of fluid motion - Velocity without expansion and vorticity
- Lecture 15 - Irrotational Solenoidal Flow in Multiply Connected region
- Lecture 16 - Irrotational Solenoidal Flow in Multiply Connected region (Continued...)
- Lecture 17 - Equations of Fluid Motion - Navier - Stokes Equation
- Lecture 18 - Equations of Fluid Motion - Navier - Stokes Equation (Continued...)
- Lecture 19 - Equations of Fluid Motion - Navier - Stokes Equation (Continued...)
- Lecture 20 - Conservation of Energy and Energy Equation
- Lecture 21 - Equations of Motions
- Lecture 22 - Equations of Motion (Continued...)
- Lecture 23 - Exact Solution for Simple Problems
- Lecture 24 - Exact Solution for Simple Problems (Continued...)
- Lecture 25 - Non-dimensional Form of the Equations and Possible Simplifications
- Lecture 26 - High Reynolds Number Approximation
- Lecture 27 - Conditions for Incompressibility
- Lecture 28 - Potential Flow
- Lecture 29 - Potential Flow - Combination of Basic Solutions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Potential Flow - Combination of Basic Solutions (Continued...)
- Lecture 31 - Potential Flow - Combination of Basic Solutions (Continued...)
- Lecture 32 - Potential Flow - Combination of Basic Solutions (Continued...) - Lifting Cylinder
- Lecture 33 - Conformal Transformation
- Lecture 34 - Conformal Transformation (Continued...)
- Lecture 35 - Zhukovsky Transformation
- Lecture 36 - Zhukovsky Transformation (Continued...)
- Lecture 37 - Zhukovsky Transformation - Applications
- Lecture 38 - Zhukovsky Transformation - Applications (Continued...)
- Lecture 39 - Zhukovsky Transformation - Applications (Continued...)
- Lecture 40 - Transformation
- Lecture 41 - Transformation (Continued...)
- Lecture 42 - Boundary - Layer Theory
- Lecture 43 - Boundary - Layer Theory (Continued...)
- Lecture 44 - Boundary - Layer Theory (Continued...)
- Lecture 45 - Boundary - Layer Theory (Continued...)
- Lecture 46 - Boundary - Layer Theory (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Acoustic Instabilities in Aerospace Propulsion

Subject Co-ordinator - Prof. R.I. Sujith

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Thermoacoustic Instabilities  
Lecture 2 - Part I  
Lecture 3 - Wave Equation and its Solution in Time Domain  
Lecture 4 - Part I  
Lecture 5 - Standing Waves - 1  
Lecture 6 - Standing Waves - 2  
Lecture 7 - Power Flow and Acoustic Admittance  
Lecture 8 - Impedance Tube Technique  
Lecture 9 - Admittance and Standing Waves  
Lecture 10 - Admittance, Stability and Attenuation  
Lecture 11 - Attenuation  
Lecture 12 - Sound Propagation Through Inhomogeneous Media - 2  
Lecture 13 - Sound Propagation Through Inhomogeneous Media - 3  
Lecture 14 - Multidimensional Acoustic Fields - 1  
Lecture 15 - Multidimensional Acoustic Fields - 2  
Lecture 16 - Interaction between Sound and Combustion  
Lecture 17 - Reference Books Derivation of Rayleigh Criteria  
Lecture 18 - Effect of Heat release on the Acoustic Field  
Lecture 19 - Modal Analysis of Thermoacoustic Instability - 1  
Lecture 20 - Modal Analysis of Thermoacoustic Instability - 2  
Lecture 21 - Active Control of Thermoacoustic Instability  
Lecture 22 - Toy model for a Rijke tube in Time Domain  
Lecture 23 - Galerkin Technique for Thermoacoustics  
Lecture 24 - Evolution Equation for Thermoacoustics  
Lecture 25 - Non linear analysis of Thermoacoustic Instability  
Lecture 26 - Non-normality, Transient Growth and Triggering Instability - 1  
Lecture 27 - Non-normality, Transient Growth and Triggering Instability - 2  
Lecture 28 - Non-normality, Transient Growth and Triggering Instability - 3  
Lecture 29 - Bifurcations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Premixed Flame Acoustic Interaction - 1
- Lecture 31 - Premixed Flame Acoustic Interaction - 2
- Lecture 32 - Combustion instability due to Equivalence Ratio Fluctuation
- Lecture 33 - Role of Hydrodynamic Instabilities - 1
- Lecture 34 - Role of Hydrodynamic Instabilities - 2
- Lecture 35 - Role of Hydrodynamic Instabilities - 3
- Lecture 36 - Active Control of Thermoacoustic Instability Revisited
- Lecture 37 - Solid Propellant Combustion Instability - 1
- Lecture 38 - Solid Propellant Combustion Instability - 2
- Lecture 39 - Response of a Diffusion Flame to Acoustic Oscillations - 1
- Lecture 40 - Response of a Diffusion Flame to Acoustic Oscillations - 2
- Lecture 41 - Response of a Diffusion Flame to Acoustic Oscillations - 3

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Aerospace Propulsion

Subject Co-ordinator - Dr. P.A. Ramakrishna

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Air breathing Engines - Turbojet I
- Lecture 3 - Air breathing Engines - Turbojet II
- Lecture 4 - Air breathing Engines - Turboprop & Turbofan
- Lecture 5 - Air breathing Engines - Ramjet & Scramjet
- Lecture 6 - Non-air breathing Engines I
- Lecture 7 - Non-air breathing Engines II
- Lecture 8 - General Performance Parameters I
- Lecture 9 - General Performance Parameters II
- Lecture 10 - Cycle Analysis - Ramjet
- Lecture 11 - Cycle Analysis - Turbojet I
- Lecture 12 - Cycle Analysis - Turbojet II
- Lecture 13 - Cycle Analysis - Turbojet III
- Lecture 14 - Cycle Analysis - Turbojet IV
- Lecture 15 - Cycle Analysis - Turbojet V
- Lecture 16 - Cycle Analysis - Turbojet VI
- Lecture 17 - Cycle Analysis - Turbofan
- Lecture 18 - Rocket Nozzles - 1D Analysis I
- Lecture 19 - Rocket Nozzles - 1D Analysis II
- Lecture 20 - Rocket Nozzles - 1D Analysis III
- Lecture 21 - Rocket Nozzles - Real Effects I
- Lecture 22 - Rocket Nozzles - Real Effects II
- Lecture 23 - Rocket Nozzles - Thrust Vectoring
- Lecture 24 - Solid Rockets - Propellants
- Lecture 25 - Solid Rockets - Burn rate
- Lecture 26 - Solid Rockets - Performance
- Lecture 27 - Solid Rockets - Grain
- Lecture 28 - Solid Rockets - Ignition, Quenching
- Lecture 29 - Solid Rockets - Igniter, Depressurization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Propellant Combustion - Combustion Modelling
- Lecture 31 - Liquid Rocket - Propellants
- Lecture 32 - Liquid Rocket - Nozzle Cooling I
- Lecture 33 - Liquid Rocket - Nozzle Cooling II
- Lecture 34 - Liquid Rocket - Nozzle Cooling III
- Lecture 35 - Liquid Rocket - Pressure fed system
- Lecture 36 - Liquid Rocket - Pump fed system
- Lecture 37 - Liquid Rocket - Pumps
- Lecture 38 - Liquid Rocket - Fuel Injection
- Lecture 39 - Hybrid Rocket - Basics
- Lecture 40 - Hybrid Rocket Performance
- Lecture 41 - Hybrid Rocket Combustion
- Lecture 42 - Chemical Equilibrium Analyser - SP 273

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Combustion

Subject Co-ordinator - Prof. S.R. Chakravarthy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Chemical Reactions, Heats of Reaction and Formation

Lecture 3 - Sensible Enthalpy and Adiabatic Flame Temperature

Lecture 4 - Dissociation of Products, Role of Pressure

Lecture 5 - Numerical Calculation of Adiabatic Flame Temperature, Chemical Kinetics 1

Lecture 6 - Chemical Kinetics 2

Lecture 7 - Equilibrium Reactions, Global Kinetics, Order of Reaction

Lecture 8 - Reduced Chemistry, Steady State Approximation

Lecture 9 - Steady State Approximation, Partial Equilibrium Approximation

Lecture 10 - Partial Equilibrium Approximation, Chemical Explosions

Lecture 11 - Combining Chemical and Thermal Processes 1

Lecture 12 - Combining Chemical and Thermal Processes 2

Lecture 13 - Combining Chemical and Thermal Processes 3

Lecture 14 - Combining Chemical and Thermal Processes 4

Lecture 15 - Mass and Molar Diffusion, Fick's Law

Lecture 16 - Conservation Equations for Multi-Component Mixtures

Lecture 17 - Multi-Component Diffusion Equation

Lecture 18 - Multi-Component Momentum Equation

Lecture 19 - Energy Equation

Lecture 20 - One Dimensional Steady Flow

Lecture 21 - Schvab-Zeldovich Formulation 1

Lecture 22 - Schvab-Zeldovich Formulation 2

Lecture 23 - Rankine-Hugoniot Relations 1

Lecture 24 - Rankine-Hugoniot Relations 2

Lecture 25 - Rankine-Hugoniot Relations 3

Lecture 26 - Velocity, Temperature and Entropy Variation along Hugoniot Curve

Lecture 27 - Laminar Premixed Flames

Lecture 28 - Laminar Premixed Flames - Corrections

Lecture 29 - Laminar Premixed Flames - Rigorous Analysis 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Laminar Premixed Flames - Rigorous Analysis 2
- Lecture 31 - Flame Speed Dependencies, G-Equation
- Lecture 32 - Bunsen Burner 1
- Lecture 33 - Bunsen Burner 2
- Lecture 34 - Flame Stabilisation 1
- Lecture 35 - Flame Stabilisation 2
- Lecture 36 - Ignition
- Lecture 37 - Burke-Schumann Problem 1
- Lecture 38 - Burke-Schumann Problem 2
- Lecture 39 - Burke-Schumann Problem 3
- Lecture 40 - Flame Structure
- Lecture 41 - Mixture Fraction Formulation 1
- Lecture 42 - Mixture Fraction Formulation 2
- Lecture 43 - Droplet Burning 1
- Lecture 44 - Droplet Burning 2
- Lecture 45 - Spray Combustion 1
- Lecture 46 - Spray Combustion 2
- Lecture 47 - Turbulent Combustion 1
- Lecture 48 - Turbulent Combustion 2
- Lecture 49 - Combustion Instabilities
- Lecture 50 - Detonations
- Lecture 51 - Detonation Wave - ZND Structure

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Flight Dynamics II (Stability)

Subject Co-ordinator - Dr. Nandan Kumar Sinha

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Earth Atmosphere, Aircraft components, Aircraft nomenclature
- Lecture 2 - Basic aerodynamics
- Lecture 3 - Equilibrium and stability
- Lecture 4 - Static vs dynamic stability
- Lecture 5 - Criterion for stability, Wing contribution
- Lecture 6 - Horizontal tail contribution
- Lecture 7 - Wing plus tail contribution
- Lecture 8 - Static margin and CG limits
- Lecture 9 - Fuselage contribution
- Lecture 10 - Powerplant contribution
- Lecture 11 - Power effects on neutral point
- Lecture 12 - Elevator
- Lecture 13 - Stick free stability, Most fwd CG location
- Lecture 14 - Longitudinal stick force per 'g', Ground effect
- Lecture 15 - Control requirement, Pull-up maneuver, Maneuver point
- Lecture 16 - Elevator per 'g', Maneuver point
- Lecture 17 - Example problems
- Lecture 18 - Lateral-Directional Stability Derivatives, Fuselage/Vertical fin contribution
- Lecture 19 - Roll stability, Wing sweep effect, Rudder
- Lecture 20 - Dihedral effect, Various contributions
- Lecture 21 - Power effects, Roll control, Aileron
- Lecture 22 - Example problems
- Lecture 23 - Derivation of Translational Motion Equations
- Lecture 24 - Derivation of Angular Motion Equations
- Lecture 25 - Description of various forces and moments
- Lecture 26 - Nonlinearities and Associated Aircraft Behavior
- Lecture 27 - Small perturbation method, Linearization of equations
- Lecture 28 - Aerodynamic force and Moment Derivatives
- Lecture 29 - Contribution of Aircraft components to Aerodynamic Derivatives

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Model and Aircraft Dynamics Modes
- Lecture 31 - Short Period, Phugoid (Lanchester's formulation)
- Lecture 32 - Short period mode approximation
- Lecture 33 - Flying and Handling Qualities, Cooper Harper Scale
- Lecture 34 - Pure rolling motion, Pure yawing motion, Spiral approximation
- Lecture 35 - Spiral, Roll, Dutch roll Mode approximations
- Lecture 36 - Lateral directional Flying Qualities, Routh's Stability criterion
- Lecture 37 - Stability in Steady Roll Maneuver
- Lecture 38 - Wind Effect on Aircraft Pure Plunging Motion
- Lecture 39 - Wind Profiles, Longitudinal Mode Response to Wind Shear
- Lecture 40 - Stability control/Augmentation
- Lecture 41 - Autopilots, Automatic Landing System

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Gas Dynamics

Subject Co-ordinator - Dr. T.M. Muruganandam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
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Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44  
Lecture 45  
Lecture 46  
Lecture 47  
Lecture 48  
Lecture 49  
Lecture 50  
Lecture 51  
Lecture 52  
Lecture 53  
Lecture 54

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Introduction to CFD

Subject Co-ordinator - Prof. M. Ramakrishna

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Why and how we need computers
- Lecture 2 - Representing Arrays and functions on computers
- Lecture 3 - Representing functions - Box functions
- Lecture 4 - Representing functions - Polynomials and Hat functions
- Lecture 5 - Hat functions, Quadratic and Cubic representations
- Lecture 6 - Demo - Hat functions, Aliasing
- Lecture 7 - Representing Derivatives - finite differences
- Lecture 8 - Finite differences, Laplace equation
- Lecture 9 - Laplace equation - Jacobi iterations
- Lecture 10 - Laplace equation - Iteration matrices
- Lecture 11 - Laplace equation - convergence rate
- Lecture 12 - Laplace equation - convergence rate Continued
- Lecture 13 - Demo - representation error, Laplace equation
- Lecture 14 - Demo - Laplace equation, SOR
- Lecture 15 - Laplace equation - final, Linear Wave equation
- Lecture 16 - Linear wave equation - Closed form and numerical solution, stability analysis
- Lecture 17 - Generating a stable scheme and Boundary conditions
- Lecture 18 - Modified equation
- Lecture 19 - Effect of higher derivative terms on Wave equation
- Lecture 20 - Artificial dissipation, upwinding, generating schemes
- Lecture 21 - Demo - Modified equation, Wave equation
- Lecture 22 - Demo - Wave equation / Heat Equation
- Lecture 23 - Quasi-linear One-Dimensional. wave equation
- Lecture 24 - Shock speed, stability analysis, Derive Governing equations
- Lecture 25 - One-Dimensional Euler equations - Attempts to decouple
- Lecture 26 - Derive Eigenvectors, Writing Programs
- Lecture 27 - Applying Boundary conditions
- Lecture 28 - Implicit Boundary conditions
- Lecture 29 - Flux Vector Splitting, setup froms averaging

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Roes averaging
- Lecture 31 - Demo - One Dimensional flow
- Lecture 32 - Accelerating convergence - Preconditioning, dual time stepping
- Lecture 33 - Accelerating convergence - Intro to Multigrid method
- Lecture 34 - Multigrid method
- Lecture 35 - Multigrid method - final, Parallel Computing
- Lecture 36 - Calculus of Variations - Three Lemmas and a Theorem
- Lecture 37 - Calculus of Variations - Application to Laplace Equation
- Lecture 38 - Calculus of Variations - Final and Random Walk
- Lecture 39 - Overview and Recap of the course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Advanced Control System Design for Aerospace Vehicles

Subject Co-ordinator - Dr. Radhakant Padhi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Motivation for Advanced Control Design
- Lecture 2 - Classical Control Overview - I
- Lecture 3 - Classical Control Overview - II
- Lecture 4 - Classical Control Overview - III
- Lecture 5 - Classical Control Overview - IV
- Lecture 6 - Basic Principles of Atmospheric Flight Mechanics
- Lecture 7 - Overview of Flight Dynamics - I
- Lecture 8 - Overview of Flight Dynamics - II
- Lecture 9 - Representation of Dynamical Systems - I
- Lecture 10 - Representation of Dynamical Systems - II
- Lecture 11 - Representation of Dynamical Systems - III
- Lecture 12 - Review of Matrix Theory - I
- Lecture 13 - Review of Matrix Theory - II
- Lecture 14 - Review of Matrix Theory - III
- Lecture 15 - Review of Numerical Methods
- Lecture 16 - Linearization of Nonlinear Systems
- Lecture 17 - First and Second Order Linear Differential Equations
- Lecture 18 - Time Response of Linear Dynamical Systems
- Lecture 19 - Stability of Linear Time Invariant Systems
- Lecture 20 - Controllability and Observability of linear Time Invariant Systems
- Lecture 21 - Pole Placement Control Design
- Lecture 22 - Pole Placement Observer Design
- Lecture 23 - Static Optimization
- Lecture 24 - Calculus of Variations
- Lecture 25 - Optimal Control Formulation using Calculus of Variations
- Lecture 26 - Classical Numerical Methods for Optimal Control
- Lecture 27 - Linear Quadratic Regulator (LQR) Design - 1
- Lecture 28 - Linear Quadratic Regulator (LQR) Design - 2
- Lecture 29 - Linear Control Design Techniques in Aircraft Control - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Control Design Techniques in Aircraft Control - II
- Lecture 31 - Lyapunov Theory - I
- Lecture 32 - Lyapunov Theory - II
- Lecture 33 - Constructions of Lyapunov Functions
- Lecture 34 - Dynamic Inversion - I
- Lecture 35 - Dynamic Inversion - II
- Lecture 36 - Neuro-Adaptive Design - I
- Lecture 37 - Neuro-Adaptive Design - II
- Lecture 38 - Neuro-Adaptive Design for Flight Control
- Lecture 39 - Integrator Back-Stepping; Linear Quadratic (lQ) Observer
- Lecture 40 - An Overview of Kalman Filter Theory

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Optimal Control, Guidance and Estimation

Subject Co-ordinator - Dr. Radhakant Padhi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction, Motivation and Overview

Lecture 2 - Overview of SS Approach and Matrix Theory

Lecture 3 - Review of Numerical Methods

Lecture 4 - An Overview of Static Optimization - I

Lecture 5 - An Overview of Static Optimization - II

Lecture 6 - Review of Calculus of Variations - I

Lecture 7 - Review of Calculus of Variations - II

Lecture 8 - Optimal Control Formulation Using Calculus of Variations

Lecture 9 - Classical Numerical Methods to Solve Optimal Control Problems

Lecture 10 - Linear Quadratic Regulator (LQR) - I

Lecture 11 - Linear Quadratic Regulator (LQR) - II

Lecture 12 - Linear Quadratic Regulator (LQR) - III

Lecture 13 - Linear Quadratic Regulator (LQR) - III

Lecture 14 - Discrete-time Optimal Control

Lecture 15 - Overview of Flight Dynamics - I

Lecture 16 - Overview of Flight Dynamics - II

Lecture 17 - Overview of Flight Dynamics - III

Lecture 18 - Linear Optimal Missile Guidance using LQR

Lecture 19 - SDRE and  $\hat{I}$ , - D Designs

Lecture 20 - Dynamic Programming

Lecture 21 - Approximate Dynamic Programming (ADP), Adaptive Critic (AC) and Single Network Adaptive Critic (SNA-C)

Lecture 22 - Transcription Method to Solve Optimal Control Problems

Lecture 23 - Model Predictive Static Programming (MPSP) and Optimal Guidance of Aerospace Vehicles

Lecture 24 - MPSP for Optimal Missile Guidance

Lecture 25 - Model Predictive Spread Control (MPSC) and Generalized MPSP (G-MPSP) Designs

Lecture 26 - Linear Quadratic Observer & An Overview of State Estimation

Lecture 27 - Review of Probability Theory and Random Variables

Lecture 28 - Kalman Filter Design - I

Lecture 29 - Kalman Filter Design - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Kalman Filter Design - III
- Lecture 31 - Integrated Estimation, Guidance & Control - I
- Lecture 32 - Integrated Estimation, Guidance & Control - II
- Lecture 33 - LQG Design; Neighboring Optimal Control & Sufficiency Condition
- Lecture 34 - Constrained Optimal Control - I
- Lecture 35 - Constrained Optimal Control - II
- Lecture 36 - Constrained Optimal Control - III
- Lecture 37 - Optimal Control of Distributed Parameter Systems - I
- Lecture 38 - Optimal Control of Distributed Parameter Systems - II
- Lecture 39 - Take Home Material
- Lecture 40 - Take Home Material

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Combustion in Air Breathing Aero Engines

Subject Co-ordinator - Prof. Swetaprovo Chaudhuri

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Chemical Equilibrium - I
- Lecture 3 - Chemical Equilibrium - II
- Lecture 4 - Chemical Kinetics - I
- Lecture 5 - Chemical Kinetics - II
- Lecture 6 - Chemical Kinetics - III
- Lecture 7 - Chemical Kinetics - IV
- Lecture 8 - Oxidation Mechanism of Fuels - I
- Lecture 9 - Oxidation Mechanism of Fuels - II
- Lecture 10 - Oxidation Mechanism of Fuels - III
- Lecture 11 - Oxidation Mechanism of Fuels - IV
- Lecture 12 - Transport Phenomena
- Lecture 13 - Governing Equations - I
- Lecture 14 - Governing Equations - II
- Lecture 15 - Governing Equations - III
- Lecture 16 - Governing Equations - IV
- Lecture 17 - Governing Equations - V
- Lecture 18 - Laminar Non-Premixed Flames - I
- Lecture 19 - Laminar Non-Premixed Flames - II
- Lecture 20 - Laminar Non-Premixed Flames - III
- Lecture 21 - Laminar Non-Premixed Flames - IV
- Lecture 22 - Laminar Premixed Flames - I
- Lecture 23 - Laminar Premixed Flames - II
- Lecture 24 - Laminar Premixed Flames - III
- Lecture 25 - Laminar Premixed Flames - IV
- Lecture 26 - Laminar Premixed Flames - V
- Lecture 27 - Laminar Premixed Flames - VI
- Lecture 28 - Laminar Premixed Flames - VII
- Lecture 29 - Limit Phenomena - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Limit Phenomena - II
- Lecture 31 - Introduction to turbulent flows
- Lecture 32 - Non-reacting turbulent flows - I
- Lecture 33 - Non-reacting turbulent flows - II
- Lecture 34 - Reacting turbulent flows - III
- Lecture 35 - Reacting turbulent flows - IV
- Lecture 36 - Reacting turbulent flows - V
- Lecture 37 - Reacting turbulent flows - VI
- Lecture 38 - Reacting turbulent flows - VII
- Lecture 39 - Turbulent Non-Premixed Flames - I
- Lecture 40 - Turbulent Non-Premixed Flames - II
- Lecture 41 - Turbulent Non-Premixed Flames - III
- Lecture 42 - Turbulent Premixed Flames - I
- Lecture 43 - Turbulent Premixed Flames - II
- Lecture 44 - Turbulent Premixed Flames - III
- Lecture 45 - Turbulent Premixed Flames - IV
- Lecture 46 - Turbulent Premixed Flames - V
- Lecture 47 - Turbulent Premixed Flames - VI
- Lecture 48 - Aero Gas Turbine Combustors - I
- Lecture 49 - Aero Gas Turbine Combustors - II
- Lecture 50 - Aero Gas Turbine Combustors - III
- Lecture 51 - Aero Gas Turbine Combustors - IV
- Lecture 52 - Aero Gas Turbine Combustors - V
- Lecture 53 - Flame Stabilization and Blow off - I
- Lecture 54 - Flame Stabilization and Blow off - II
- Lecture 55 - Flame Stabilization and Blow off - III
- Lecture 56 - Flame Stabilization and Blow off - IV
- Lecture 57 - Flame Stabilization and Blow off - V
- Lecture 58 - Combustion in Scramjets - I
- Lecture 59 - Combustion in Scramjets - II
- Lecture 60 - Combustion in Scramjets - III
- Lecture 61 - Combustion in Scramjets - IV
- Lecture 62 - Review

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Biomathematics

Subject Co-ordinator - Dr. Ranjith Padinhateeri

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Graphs and functions - I  
Lecture 3 - Graphs and functions - II  
Lecture 4 - Functions and derivatives  
Lecture 5 - Calculation of derivatives  
Lecture 6 - Differentiation and its application in Biology - I  
Lecture 7 - Differentiation and its application in Biology - II  
Lecture 8 - Differentiation and its application in Biology - III  
Lecture 9 - Differentiation and its application in Biology - IV  
Lecture 10 - Integration - I  
Lecture 11 - Integration - II  
Lecture 12 - Differential equations - I  
Lecture 13 - Differential equations - II  
Lecture 14 - Vectors - I  
Lecture 15 - Vectors - II  
Lecture 16 - Vectors - III  
Lecture 17 - Nernst equation  
Lecture 18 - Diffusion - I  
Lecture 19 - Diffusion - II  
Lecture 20 - Diffusion - III  
Lecture 21 - Statistics  
Lecture 22 - Statistics  
Lecture 23 - Understanding Normal distribution  
Lecture 24 - Fitting a function to experimental data  
Lecture 25 - Size of a flexible protein  
Lecture 26 - Uniform and Poisson distributions; Knudson's analysis  
Lecture 27 - Fourier Series - I  
Lecture 28 - Fourier Series - II  
Lecture 29 - Fourier transform

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Master equation
- Lecture 31 - Evolution
- Lecture 32 - Tutorial - I
- Lecture 33 - Tutorial - II
- Lecture 34 - Temperature, Energy and Entropy
- Lecture 35 - Partition function, Free energy
- Lecture 36 - Bending fluctuations of DNA and spring-like proteins
- Lecture 37 - Force-extension and looping of DNA
- Lecture 38 - Thermodynamics of protein organization along DNA
- Lecture 39 - Learning mathematics with the help of a computer

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Proteomics and Genomics

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Proteins and Gel-Based Proteomics

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 0 - Proteins and Gel-Based Proteomics; Course Introduction
- Lecture 1 - Introduction to amino acids
- Lecture 2 - Introduction to proteins
- Lecture 3 - Protein folding & misfolding
- Lecture 4 - Protein purification techniques
- Lecture 5 - Introduction to proteomics
- Lecture 6 - Systems biology and proteomics
- Lecture 7 - Sample preparation and pre-analytical factors
- Lecture 8 - Sample preparation
- Lecture 9 - Sample preparation
- Lecture 10 - One-dimensional electrophoresis
- Lecture 11 - 2-DE
- Lecture 12 - 2-DE
- Lecture 13 - 2-DE
- Lecture 14 - 2-DE
- Lecture 15 - 2-DE
- Lecture 16 - 2D-DIGE
- Lecture 17 - 2D-DIGE
- Lecture 18 - 2D-DIGE
- Lecture 19 - Protein identification using MALDI-TOF/TOF
- Lecture 20 - Proteomics experiment data analysis & challenges

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Mass spectrometry based proteomics

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 0 - Introductory lecture
- Lecture 1 - Introduction to proteomics
- Lecture 2 - Proteomics and sample preparation
- Lecture 3 - Bacterial protein extraction
- Lecture 4 - In-gel digestion
- Lecture 5 - Fundamentals of mass spectrometry
- Lecture 6 - Chromatography technologies
- Lecture 7 - Liquid chromatography
- Lecture 8 - Mass spectrometry
- Lecture 9 - Mass spectrometry
- Lecture 10 - MALDI sample preparation and analysis
- Lecture 11 - Introduction to quantitative proteomics
- Lecture 12 - Hybrid mass spectrometry configurations
- Lecture 13 - SILAC
- Lecture 14 - iTRAQ
- Lecture 15 - TMT
- Lecture 16 - Quantitative proteomics data analysis
- Lecture 17 - Proteomics and Systems biology I
- Lecture 18 - Proteomics & Systems biology II
- Lecture 19 - Proteomics applications
- Lecture 20 - Advances and challenges in proteomics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Interactomics: Protein Arrays and Label-free Biosensors

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Interactomics
- Lecture 2 - An overview of label-free technologies
- Lecture 3 - An overview of surface plasmon resonance (SPR)
- Lecture 4 - An overview of surface plasmon resonance imaging (SPRi)
- Lecture 5 - Basics of SPR
- Lecture 6 - Basics of SPR
- Lecture 7 - Protein immobilization for protein-protein interaction studies
- Lecture 8 - Protein-protein interaction study
- Lecture 9 - Protein-protein interaction study
- Lecture 10 - Protein-small molecule interaction study
- Lecture 11 - Protein-small molecule interaction study
- Lecture 12 - SPR
- Lecture 13 - SPR
- Lecture 14 - An overview of ellipsometry and interferometry techniques
- Lecture 15 - An introduction to BioLayer Interferometry (BLI) and its applications in protein research
- Lecture 16 - Kinetic analysis of protein-protein interaction using BLI
- Lecture 17 - Label-free quantification of proteins using BLI
- Lecture 18 - Diffraction-based biosensors - I
- Lecture 19 - Diffraction-based biosensors - II
- Lecture 20 - Nanotechniques in proteomics - I
- Lecture 21 - Nanotechniques in proteomics - II
- Lecture 22 - High throughput platforms of interactomics
- Lecture 23 - Conventional label based detection techniques for Protein microarrays
- Lecture 24 - Novel detection techniques for Protein microarrays
- Lecture 25 - Recombinational cloning and its application for Protein microarrays
- Lecture 26 - An introduction to Cell-free protein synthesis
- Lecture 27 - Cell-free synthesis based protein microarrays
- Lecture 28 - Cell-free synthesis based protein microarrays
- Lecture 29 - Digging deeper into NAPPA

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Digging deeper into NAPPA
- Lecture 31 - Application of cell free expression protein microarrays in biomarker discovery
- Lecture 32 - Application of cell free expression protein microarrays in immunological studies
- Lecture 33 - Basics of microarray image scanning
- Lecture 34 - Software for Image scanning and data processing
- Lecture 35 - Microarray Data Analysis - Part I
- Lecture 36 - Microarray Data Analysis - Part II
- Lecture 37 - Application of protein microarray in biomarker discovery - I
- Lecture 38 - Application of protein microarray in biomarker discovery - II
- Lecture 39 - Systems biology and networks
- Lecture 40 - Challenges in proteomics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Proteomics

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to amino acids

Lecture 2 - Introduction to proteins

Lecture 3 - Protein folding and misfolding

Lecture 4 - Introduction to proteomics

Lecture 5 - Lab session â Protein-protein interaction using label-free biosensors

Lecture 6 - Sample preparation and pre-analytical factors

Lecture 7 - Sample preparation

Lecture 8 - Sample preparation

Lecture 9 - One-dimensional electrophoresis

Lecture 10 - Introduction to 2-DE

Lecture 11 - 2-DE

Lecture 12 - 2-DE

Lecture 13 - 2-DE Applications

Lecture 14 - 2-DE Applications (Continued...) and Challenges

Lecture 15 - Lab session - Protein/peptide pre-fractionation using OFFGEL FRACTIONATOR and data analysis

Lecture 16 - 2D-DIGE

Lecture 17 - 2D-DIGE

Lecture 18 - 2D-DIGE

Lecture 19 - Systems biology and proteomics - I

Lecture 20 - Systems biology and proteomics - II

Lecture 21 - Fundamentals of mass spectrometry

Lecture 22 - Chromatography technologies

Lecture 23 - Liquid chromatography

Lecture 24 - Mass spectrometry

Lecture 25 - Mass spectrometry

Lecture 26 - MALDI sample preparation and analysis

Lecture 27 - Hybrid mass spectrometry configurations

Lecture 28 - Lab session - Demonstration of Q-TOF MS technology

Lecture 29 - In-gel and in-solution digestion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lab session - Sample preparation
- Lecture 31 - Introduction to quantitative proteomics
- Lecture 32 - SILAC
- Lecture 33 - iTRAQ
- Lecture 34 - TMT
- Lecture 35 - Quantitative proteomics data analysis
- Lecture 36 - Proteomics applications
- Lecture 37 - Challenges in proteomics
- Lecture 38 - OMICS and translational research
- Lecture 39 - Lab session â Targeted proteomics using triple quadrupole mass spectrometry
- Lecture 40 - Lab session â Targeted proteomics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Biostatistics

Subject Co-ordinator - Prof. Shamik Sen

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Data representation and plotting
- Lecture 3 - Arithmetic mean
- Lecture 4 - Geometric mean
- Lecture 5 - Measure of Variability, Standard deviation
- Lecture 6 - SME, Z-Score, Box plot
- Lecture 7 - Moments, Skewness
- Lecture 8 - Kurtosis, R programming
- Lecture 9 - R programming
- Lecture 10 - Correlation
- Lecture 11 - Correlation and Regression - Part-I
- Lecture 12 - Correlation and Regression - Part-II
- Lecture 13 - Interpolation and extrapolation
- Lecture 14 - Nonlinear data fitting
- Lecture 15 - Concept of Probability
- Lecture 16 - Counting principle, Permutations, and Combinations
- Lecture 17 - Conditional probability
- Lecture 18 - Conditional probability and Random variables
- Lecture 19 - Random variables, Probability mass function, and Probability density function
- Lecture 20 - Expectation, Variance and Covariance - Part-I
- Lecture 21 - Expectation, Variance and Covariance - Part-II
- Lecture 22 - Binomial random variables and Moment generating function
- Lecture 23 - Probability distribution
- Lecture 24 - Uniform distribution Part-II and Normal distribution Part-I
- Lecture 25 - Normal distribution Part-II and Exponential distribution
- Lecture 26 - Sampling distributions and Central limit theorem - Part-I
- Lecture 27 - Sampling distributions and Central limit theorem - Part-II
- Lecture 28 - Central limit theorem - Part-III and Sampling distributions of sample mean
- Lecture 29 - Central limit theorem - Part-IV and Confidence intervals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Confidence intervals Part- II
- Lecture 31 - Test of Hypothesis - 1
- Lecture 32 - Test of Hypothesis - 2 (1 tailed and 2 tailed Test of Hypothesis, p-value)
- Lecture 33 - Test of Hypothesis - 3 (1 tailed and 2 tailed Test of Hypothesis, p-value)
- Lecture 34 - Test of Hypothesis - 4 (Type -1 and Type -2 error)
- Lecture 35 - T-test
- Lecture 36 - 1 tailed and 2 tailed T-distribution, Chi-square test
- Lecture 37 - ANOVA - 1
- Lecture 38 - ANOVA - 2
- Lecture 39 - ANOVA - 3
- Lecture 40 - ANOVA for linear regression, Block Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Mechanobiology

Subject Co-ordinator - Prof. Shamik Sen

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Need to Study Mechanobiology
- Lecture 2 - Cell as a Tent, Individual Components
- Lecture 3 - Cell-ECM Crosstalk
- Lecture 4 - ECM Proteins
- Lecture 5 - Measuring Properties of Collagen Networks
- Lecture 6 - Properties of Collagen Networks
- Lecture 7 - Rheology
- Lecture 8 - Rheology of Biopolymer Networks
- Lecture 9 - Atomic Force Microscopy (AFM)
- Lecture 10 - Design of Protein Constructs for AFM
- Lecture 11 - Protein Unfolding using AFM
- Lecture 12 - Protein Unfolding using AFM
- Lecture 13 - Focal Adhesions
- Lecture 14 - Focal Adhesion Organization
- Lecture 15 - Focal Adhesions
- Lecture 16 - Cytoskeleton
- Lecture 17 - Force-velocity Relationships of Actin Networks
- Lecture 18 - Mesenchymal Cell Migration
- Lecture 19 - Actin Dynamics during Mesenchymal Migration
- Lecture 20 - Actin Dynamics during Mesenchymal Migration
- Lecture 21 - Adhesion Independent Migration
- Lecture 22 - Adhesion Independent and Collective Cell Migration
- Lecture 23 - Collective Cell Migration
- Lecture 24 - Mechanobiology of Stem Cell Fate - I
- Lecture 25 - Mechanobiology of Stem Cell Fate - II
- Lecture 26 - Mechanobiology of Stem Cell Fate - III
- Lecture 27 - Mechanobiology of Diseases
- Lecture 28 - Mechanobiology of Diseases
- Lecture 29 - Mechanobiology of Diseases

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Mechanobiology of Diseases
- Lecture 31 - Mechanobiology of Diseases
- Lecture 32 - Nuclear Mechanotransduction
- Lecture 33 - Nuclear Mechanotransduction
- Lecture 34 - Nuclear Mechanotransduction
- Lecture 35 - Mechanical Forces and DNA damage
- Lecture 36 - Techniques in Mechanobiology
- Lecture 37 - Techniques in Mechanobiology
- Lecture 38 - Techniques in Mechanobiology
- Lecture 39 - Techniques in Mechanobiology
- Lecture 40 - Techniques in Mechanobiology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC: Introductory Mathematical Methods for Biologists

Subject Co-ordinator - Dr. Ranjith Padinhateeri

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Graphs and Functions
- Lecture 3 - Equations as Graphs
- Lecture 4 - Graphs
- Lecture 5 - Graphs
- Lecture 6 - Images as 2D/3D Functions
- Lecture 7 - Functions and its Derivatives
- Lecture 8 - Computing Derivatives of Curves
- Lecture 9 - Rules for Calculating Derivatives
- Lecture 10 - Understanding Derivatives
- Lecture 11 - Curvature and Second Derivative
- Lecture 12 - Plotting Curves
- Lecture 13 - Numerical Calculation of Derivatives
- Lecture 14 - Function, Derivatives and Series Expansion
- Lecture 15 - L'Hopital's Rule and Partial Derivatives
- Lecture 16 - Integration
- Lecture 17 - Integration
- Lecture 18 - Integration
- Lecture 19 - Integration
- Lecture 20 - Integration
- Lecture 21 - Exponential Growth and Decay
- Lecture 22 - Scalars and Vectors
- Lecture 23 - Vectors
- Lecture 24 - Cell Symmetry
- Lecture 25 - Gradient, Forces and Flows
- Lecture 26 - Gradient, Forces and Flows
- Lecture 27 - Understanding Diffusion
- Lecture 28 - Diffusion Constant and Einstein Relation 1905
- Lecture 29 - Diffusion Equation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diffusion vs. Active Transport
- Lecture 31 - Nernst Equation
- Lecture 32 - Fourier Series
- Lecture 33 - Fourier Series
- Lecture 34 - Fourier Transform
- Lecture 35 - Introduction to Statistics
- Lecture 36 - Mean, Standard deviation and Distribution
- Lecture 37 - Frequency Distribution and Probability Distribution
- Lecture 38 - Binomial Distribution
- Lecture 39 - Normal Distribution
- Lecture 40 - Hypothesis Testing and Mathematical Modeling

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Bioengineering: An Interface with Biology and Medicine

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Why biology for engineers - Part I
- Lecture 2 - Why biology for engineers - Part II
- Lecture 3 - Life processes and Cell
- Lecture 4 - Cell and its properties
- Lecture 5 - Clinician's Perspective - I
- Lecture 6 - Nucleic Acid and Central Dogma
- Lecture 7 - DNA Tools
- Lecture 8 - DNA Tools
- Lecture 9 - DNA Tools and Biotechnology - I
- Lecture 10 - DNA Tools and Biotechnology - II
- Lecture 11 - DNA Tools and Biotechnology - III
- Lecture 12 - DNA Tools and Biotechnology - IV
- Lecture 13 - DNA Tools and Biotechnology - V
- Lecture 14 - DNA Tools and Biotechnology - VI
- Lecture 15 - Clinician's Perspective - II
- Lecture 16 - Genetics - I
- Lecture 17 - Genetics - II
- Lecture 18 - Genetics - III
- Lecture 19 - Genetics - IV
- Lecture 20 - Clinician's Perspective - III
- Lecture 21 - Chromosomal basis of inheritance
- Lecture 22 - Linkage, chromosomal disorders
- Lecture 23 - Classical Genetics Experiments
- Lecture 24 - Bacteria and Viruses
- Lecture 25 - Clinician's Perspective - IV
- Lecture 26 - Cell cycle dysregulation and Cancer
- Lecture 27 - Developmental Biology
- Lecture 28 - Principles and application of Animal Cloning
- Lecture 29 - Evolution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Clinician's Perspective - V
- Lecture 31 - Amino acids and proteins
- Lecture 32 - Proteins and Proteomics
- Lecture 33 - Techniques to Study Protein and Proteome - I
- Lecture 34 - Techniques to Study Protein and Proteome - II
- Lecture 35 - Bioinformatics - I
- Lecture 36 - Techniques to Study Protein and Proteome - III
- Lecture 37 - Protein Interactions and Microarrays
- Lecture 38 - Protein interactions and Systems biology
- Lecture 39 - Bioinformatics - II
- Lecture 40 - Ethics in Research and Publications

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Enzyme Science and Engineering

Subject Co-ordinator - Prof. Subhash Chand

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Scope to Enzyme Science and Engineering
- Lecture 2 - Characteristic Features of Enzymes
- Lecture 3 - Enzymes as Biocatalysts
- Lecture 4 - Enzymatic Catalysis
- Lecture 5 - Specificity of Enzyme Action
- Lecture 6 - Kinetics of Enzyme Catalyzed Reactions
- Lecture 7 - Kinetics of Enzyme Catalyzed Reactions
- Lecture 8 - Deviation from Hyperbolic Enzyme Kinetics
- Lecture 9 - Role of Effector Molecules in Enzyme Kinetics
- Lecture 10 - Reversible Inhibition
- Lecture 11 - Effect of PH and Temperature on Enzyme
- Lecture 12 - Kinetics of Bi substrate Enzyme
- Lecture 13 - Kinetics of Bi substrate Enzyme
- Lecture 14 - Immobilized Enzymes - I
- Lecture 15 - Immobilized Enzymes - II
- Lecture 16 - Immobilized Enzymes - III
- Lecture 17 - Immobilization of Enzymes by Entrapment
- Lecture 18 - Effect of Immobilization
- Lecture 19 - Reactors for Enzyme Catalyzed Reactions
- Lecture 20 - Idealized Enzyme Reactor Performance
- Lecture 21 - Idealized Enzyme Reactor Performance
- Lecture 22 - Kinetic Parameters for IME Systems
- Lecture 23 - Steady State Analysis of Mass Transfer
- Lecture 24 - Steady State Analysis of Mass Transfer
- Lecture 25 - Non Ideal Flow in Continuous Immobilized Enzyme
- Lecture 26 - Applications of Immobilized Enzymes in Process
- Lecture 27 - Analytical Applications
- Lecture 28 - Enzyme Technology Challenges

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Dynamical Models in Biology

Subject Co-ordinator - Prof. Biplab Bose

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Mathematical modeling in Biology
- Lecture 2 - How to Start Modeling
- Lecture 3 - Modeling the spread of infectious disease
- Lecture 4 - Modeling population growth
- Lecture 5 - Numerical solution of ODE-1
- Lecture 6 - Numerical solution of ODE-2
- Lecture 7 - Simulating ODE-based models
- Lecture 8 - Simulating ODE-based models
- Lecture 9 - Steady state and stability analysis
- Lecture 10 - Steady state and stability analysis
- Lecture 11 - Phase Plane Analysis - I
- Lecture 12 - Phase Plane Analysis - II
- Lecture 13 - Concepts of Bifurcation
- Lecture 14 - Concepts of Bifurcation
- Lecture 15 - Modeling Molecular Processes in Cell
- Lecture 16 - Modeling Molecular Processes in Cell
- Lecture 17 - Modeling Molecular Processes in Cell
- Lecture 18 - Modeling Molecular Processes in Cell
- Lecture 19 - Modeling Cell Signaling
- Lecture 20 - Modeling Cell Signaling
- Lecture 21 - Modeling Cell Signaling
- Lecture 22 - Modeling Transcriptional Circuits-1
- Lecture 23 - Modeling Transcriptional Circuits-2
- Lecture 24 - Online Resources for Mathematical Modeling in Biology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Animal Physiology

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Animal Physiology  
Lecture 2 - Animal Physiology  
Lecture 3 - Animal Physiology  
Lecture 4 - Animal Physiology  
Lecture 5 - Animal Physiology  
Lecture 6 - Animal Physiology  
Lecture 7 - Animal Physiology  
Lecture 8 - Animal Physiology  
Lecture 9 - Animal Physiology  
Lecture 10 - Animal Physiology  
Lecture 11 - Animal Physiology  
Lecture 12 - Animal Physiology  
Lecture 13 - Animal Physiology  
Lecture 14 - Animal Physiology  
Lecture 15 - Animal Physiology  
Lecture 16 - Animal Physiology  
Lecture 17 - Animal Physiology  
Lecture 18 - Animal Physiology  
Lecture 19 - Animal Physiology  
Lecture 20 - Animal Physiology  
Lecture 21 - Animal Physiology  
Lecture 22 - Animal Physiology  
Lecture 23 - Animal Physiology  
Lecture 24 - Animal Physiology  
Lecture 25 - Animal Physiology  
Lecture 26 - Animal Physiology  
Lecture 27 - Animal Physiology  
Lecture 28 - Animal Physiology  
Lecture 29 - Animal Physiology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Animal Physiology  
Lecture 31 - Animal Physiology  
Lecture 32 - Animal Physiology  
Lecture 33 - Animal Physiology  
Lecture 34 - Animal Physiology  
Lecture 35 - Animal Physiology  
Lecture 36 - Animal Physiology  
Lecture 37 - Animal Physiology  
Lecture 38 - Animal Physiology  
Lecture 39 - Animal Physiology  
Lecture 40 - Animal Physiology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Bio electricity

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Bio electricity  
Lecture 2 - Bio electricity  
Lecture 3 - Bio electricity  
Lecture 4 - Bio electricity  
Lecture 5 - Bio electricity  
Lecture 6 - Bio electricity  
Lecture 7 - Bio electricity  
Lecture 8 - Bio electricity  
Lecture 9 - Bio electricity  
Lecture 10 - Bio electricity  
Lecture 11 - Bio electricity  
Lecture 12 - Bio electricity  
Lecture 13 - Bio electricity  
Lecture 14 - Bio electricity  
Lecture 15 - Bio electricity  
Lecture 16 - Bio electricity  
Lecture 17 - Bio electricity  
Lecture 18 - Bio electricity  
Lecture 19 - Bio electricity  
Lecture 20 - Bio electricity  
Lecture 21 - Bio electricity  
Lecture 22 - Bio electricity  
Lecture 23 - Bio electricity  
Lecture 24 - Bio electricity  
Lecture 25 - Bio electricity  
Lecture 26 - Bio electricity  
Lecture 27 - Bio electricity  
Lecture 28 - Bio electricity  
Lecture 29 - Bio electricity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Bio electricity  
Lecture 31 - Bio electricity  
Lecture 32 - Bio electricity  
Lecture 33 - Bio electricity  
Lecture 34 - Bio electricity  
Lecture 35 - Bio electricity  
Lecture 36 - Bio electricity  
Lecture 37 - Bio electricity  
Lecture 38 - Bio electricity  
Lecture 39 - Bio electricity  
Lecture 40 - Bio electricity

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Human Molecular Genetics

Subject Co-ordinator - Mr.S. Ganesh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of central dogma, Part 1
- Lecture 2 - Fundamentals of central dogma, Part 2
- Lecture 3 - Fundamentals of central dogma, Part 3
- Lecture 4 - Chromosome Structure and Function
- Lecture 5 - Pedigree Analysis
- Lecture 6 - Complications in Mendelian Pedigree Patterns
- Lecture 7 - DNA Cloning and Hybridization Techniques - Part 1
- Lecture 8 - DNA Cloning and Hybridization Techniques - Part 2
- Lecture 9 - Practice Session 1
- Lecture 10 - Practice Session 2
- Lecture 11 - Mutations and instability of human DNA (Part 1)
- Lecture 12 - Mutations and instability of human DNA (Part 2)
- Lecture 13 - Animal Models for Human Diseases
- Lecture 14 - Positional cloning of genes for monogenic disorders
- Lecture 15 - Human Genome Project and HapMap project



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Functional Genomics

Subject Co-ordinator - S. Ganesh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Functional Genomics

Lecture 2 - The Genomics Era

Lecture 3 - Epigenetics

Lecture 4 - Forward Genetics vs Reverse Genetics

Lecture 5 - Genome Editing Approaches - Part 1

Lecture 6 - Genome Editing Approaches - Part 2

Lecture 7 - Transcriptomics - Part 1

Lecture 8 - Transcriptomics - Part 2

Lecture 9 - Genome Sequence Databases

Lecture 10 - DNA Sequencing Methods - Part 1

Lecture 11 - DNA Sequencing Methods - Part 2

Lecture 12 - Applications of Next-Generation Sequencing (NGS)

Lecture 13 - Tutorial - Session 1

Lecture 14 - Tutorial - Session 2

Lecture 15 - Genomic Insight into Evolution

Lecture 16 - Genome sequence

Lecture 17 - Outcome of Comparative Genomics

Lecture 18 - Laboratory - Session 1

Lecture 19 - Laboratory - Session 2

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Bioenergy

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Oil Economy of the World

Lecture 3 - Unit of Energy and Introduction of Bioenergy

Lecture 4 - How Biomass Formed on the Earth

Lecture 5 - Road Map of Bioenergy

Lecture 6 - Basic Biomass Technology (Resources and Production)

Lecture 7 - Basics of Mechanism of Light Reaction

Lecture 8 - Exploration of Photosynthesis Process

Lecture 9 - In Photosynthesis Oxygen Comes from Water Molecule

Lecture 10 - Hill Reaction

Lecture 11 - Electron Transport Process in Light Reaction

Lecture 12 - How Carbon dioxide converted in Carbohydrate

Lecture 13 - From Carbon dioxide to two Molecules of 3 - Phospho Glycerate by RUBISCO

Lecture 14 - RUBISCO enzyme

Lecture 15 - Photo respiration and Calvin Cycle

Lecture 16 - Efficiency Calculation of Photosynthesis Process

Lecture 17 - C3 and C4 Plant Structure and Photosynthesis Process

Lecture 18 - Biomass production System and their Categorization

Lecture 19 - Important Parameters for Selecting Biomass Crops

Lecture 20 - Factors Determining the Conversion Process - I

Lecture 21 - Factors Determining the Conversion Process - II

Lecture 22 - Factors Determining the Conversion Process - III

Lecture 23 - Conversion Technology

Lecture 24 - Conversion Process- (Combustion Process)

Lecture 25 - Pyrolysis Process

Lecture 26 - Classification of Pyrolysis

Lecture 27 - Bio Oil - (Solution for Thermal Instability and Corrosivity)

Lecture 28 - Spark Ignition Engine

Lecture 29 - Compression Ignition Engine

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Carbonization - Graphene like material
- Lecture 31 - Introduction of Gasification
- Lecture 32 - Thermo Chemical Process of Gasification
- Lecture 33 - Feed Stock Treatment of Gasification
- Lecture 34 - Feed Stock Property
- Lecture 35 - Gasification Types - Up Drift Gasifier
- Lecture 36 - Down drift and Cross Flow Gasifier
- Lecture 37 - Operation and Performance of Fixed Bed Gasifier
- Lecture 38 - Fluidized Bed Gasification
- Lecture 39 - Operation and Performance of Fluidized Bed Gasifier
- Lecture 40 - Biological Root of Gasification and Summary of Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Animal Physiology

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction to Anatomy and Physiology
- Lecture 2 - Organization of living system
- Lecture 3 - Homeostasis and system integration
- Lecture 4 - Positive feedback loop in homeostasis
- Lecture 5 - Chemical basis of organization of the body
- Lecture 6 - Integumentary System - I
- Lecture 7 - Integumentary system - II
- Lecture 8 - Integumentary System - III
- Lecture 9 - Bone and Cartilage - I
- Lecture 10 - Bone and Cartilage - II
- Lecture 11 - Introduction of muscle
- Lecture 12 - Skeletal muscle formation
- Lecture 13 - Anatomy of skeletal muscle
- Lecture 14 - Contraction in muscle
- Lecture 15 - Function of actin and myosin
- Lecture 16 - Length tension relationship of skeletal muscle
- Lecture 17 - Excitation contraction coupling with nervous system
- Lecture 18 - Stretch reflex phenomena
- Lecture 19 - Nervous system anatomy and signaling
- Lecture 20 - Structure and circuit of neurons
- Lecture 21 - Origin of biological cell
- Lecture 22 - Excitability in cell
- Lecture 23 - Ion transportation in the cell
- Lecture 24 - Signal propagation in neurons
- Lecture 25 - Neurotransmitter and action potential
- Lecture 26 - Spatial temporal summation of signal in mesh neurons
- Lecture 27 - Anatomy of Hippo-campus
- Lecture 28 - Epilepsy and memory
- Lecture 29 - Long term potentiation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Long term depression
- Lecture 31 - Alzheimers disease
- Lecture 32 - Parkinsons disease
- Lecture 33 - Amyotrophic lateral sclerosis
- Lecture 34 - Spinal cord injury
- Lecture 35 - Glial cells
- Lecture 36 - Stretch reflex circuit - I
- Lecture 37 - Stretch reflex arc circuit - II
- Lecture 38 - Neuro muscular junction
- Lecture 39 - Hearing system
- Lecture 40 - Olfaction system

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Cell Culture Technologies

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of Cell Culture Technology
- Lecture 2 - Philosophy and complexity in cell culture
- Lecture 3 - To grow the cell outside the body
- Lecture 4 - Cell cycle concept
- Lecture 5 - Dividing cells
- Lecture 6 - Biology of cell culture
- Lecture 7 - Layout(s) and design(s) of cell culture facility
- Lecture 8 - Precautions during designing the lab layout - I
- Lecture 9 - Precautions during designing the lab layout - II
- Lecture 10 - Precautions during designing the lab layout - III
- Lecture 11 - State of the art facility in cell culture lab - I
- Lecture 12 - State of the art facility in cell culture lab - II
- Lecture 13 - Specialized facility in cell culture lab
- Lecture 14 - Interaction of cell and glass/polycarbonate surface - I
- Lecture 15 - Interaction of cell and glass/polycarbonate surface - II
- Lecture 16 - Poly D lysine deposition
- Lecture 17 - Surface chemical analysis
- Lecture 18 - Cell growth process
- Lecture 19 - Cell surface interface
- Lecture 20 - Cell culture substrate patterning
- Lecture 21 - Introduction of define system
- Lecture 22 - Mechanical dissociation of hippocampal tissue
- Lecture 23 - Rules for mechanical dissociation of tissue
- Lecture 24 - Drum molecule testing
- Lecture 25 - Adult hippocampal neuron dissociation
- Lecture 26 - Cell separation and In vitro myelination cell culture mode - I
- Lecture 27 - Cell separation and In vitro myelination cell culture mode - II
- Lecture 28 - Cell separation and In vitro myelination cell culture mode - III
- Lecture 29 - Cell Separation and In vitro myelination cell culture mode - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cell separation and in vitro myelination cell culture mode - V
- Lecture 31 - Fluorescent assisted cell sorting
- Lecture 32 - Condition for regenerated cells
- Lecture 33 - Introduction of skeletal muscle cell culture
- Lecture 34 - Skeletal muscle cell culture
- Lecture 35 - Cardiac muscle cell culture
- Lecture 36 - Advance cell culture modules - I
- Lecture 37 - Advance cell culture modules - II
- Lecture 38 - Advance cell culture modules - III
- Lecture 39 - Advance cell culture modules - IV
- Lecture 40 - Advance cell culture modules - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Forest Biometry

Subject Co-ordinator - Prof. Mainak Das, Dr. Ankur Awadhiya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Recap of formulae
- Lecture 3 - Recap of trigonometry
- Lecture 4 - Measurement of central tendency and dispersion
- Lecture 5 - Graphical presentation of data
- Lecture 6 - Shape of a tree
- Lecture 7 - Metzgers theory
- Lecture 8 - Form factor and form quotients
- Lecture 9 - Taper equations
- Lecture 10 - Making the cuts
- Lecture 11 - Cross-section of a tree
- Lecture 12 - Where to measure the diameter
- Lecture 13 - Callipers - Usages and Issues
- Lecture 14 - Tape
- Lecture 15 - Measurement of bark and growth rings
- Lecture 16 - Tree height
- Lecture 17 - Method of similar triangles
- Lecture 18 - Distance measurements
- Lecture 19 - Angular measurement
- Lecture 20 - LIDAR
- Lecture 21 - Canopy attributes - Part I
- Lecture 22 - Canopy attributes - Part II
- Lecture 23 - Canopy attributes - Part III
- Lecture 24 - Canopy cover and closure
- Lecture 25 - Photogrammetry
- Lecture 26 - Basal area of a tree and stand
- Lecture 27 - Stand basal area, crop diameter and crop age
- Lecture 28 - Point sampling - I
- Lecture 29 - Point sampling - II

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- Lecture 30 - Number density and sample calculations
- Lecture 31 - Volume
- Lecture 32 - The Quarter - girth formula
- Lecture 33 - Volume computations in the field
- Lecture 34 - Volume Table
- Lecture 35 - Forest Sampling
- Lecture 36 - Density and mass measurement
- Lecture 37 - Normalized difference vegetation Index (NDVI)
- Lecture 38 - Site quality
- Lecture 39 - Recap - I
- Lecture 40 - Recap - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Professional and Scientific Communication

Subject Co-ordinator - Mr. S. Ganesh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the topic

Lecture 2 - Where do research ideas come from?

Lecture 3 - Inductive vs Deductive Reasoning

Lecture 4 - Scientific Hypothesis

Lecture 5 - Scientific Hypothesis (Continued...)

Lecture 6 - Testing the Hypothesis

Lecture 7 - Introduction to Scientific Writing

Lecture 8 - Writing an Abstract

Lecture 9 - Title for a Research Paper

Lecture 10 - Title and Keywords

Lecture 11 - Mileposts for the Article Writing

Lecture 12 - Writing the Methods Section

Lecture 13 - Writing the Results Section

Lecture 14 - Writing Results Section (Continued...)

Lecture 15 - How to Prepare Figures

Lecture 16 - How to Prepare Schematics

Lecture 17 - How to write Introduction and Discussion Sections

Lecture 18 - Finalizing the Manuscript and Ethics in Research

Lecture 19 - Writing a Research Proposal and Preparing for a Presentation

Lecture 20 - Tutorial Session

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Bioelectrochemistry

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Concepts - I

Lecture 2 - Basic Concepts - II

Lecture 3 - Key Terms

Lecture 4 - Galvanic Cells - I

Lecture 5 - Galvanic Cells - II

Lecture 6 - Salt Bridge

Lecture 7 - Standard Potentials - I

Lecture 8 - Standard Potentials - II

Lecture 9 - Standard Potentials - III

Lecture 10 - Nernst Equation

Lecture 11 - Relationship between Standard electrode potential ( $E^{\circ}$ ) and Equilibrium constant (K)

Lecture 12 - Cell as chemical probe and Biochemist's formal potential

Lecture 13 - Concept of Concentration Cell - I

Lecture 14 - Concept of Concentration Cell - II

Lecture 15 - Bio-electrochemistry of excitable cells (nerve cells)

Lecture 16 - Types of electrodes

Lecture 17 - Critical care profile and metal electrode

Lecture 18 - pH measurement

Lecture 19 - Redox indicators amperometry

Lecture 20 - Redox proteins, Metalloproteins and Cyclic Voltammetry

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Bioenergetics of Life Processes

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Bioenergetics of Life Processes
- Lecture 2 - Bioenergetics
- Lecture 3 - Iron-Sulfur world
- Lecture 4 - Evolution of complex cellular membranes
- Lecture 5 - Charge transfer across membrane
- Lecture 6 - Biological order and energy - I
- Lecture 7 - Biological order and energy - II
- Lecture 8 - Biological order and energy - III
- Lecture 9 - Summary of thermodynamical parameters - I
- Lecture 10 - Summary of thermodynamical parameters - II
- Lecture 11 - Photosynthesis - I
- Lecture 12 - Photosynthesis - II
- Lecture 13 - Photosynthesis - III
- Lecture 14 - Photosynthesis - IV
- Lecture 15 - Photosynthesis - V
- Lecture 16 - Photosynthesis - VI
- Lecture 17 - Photosynthesis - VII
- Lecture 18 - Photosynthesis - VIII
- Lecture 19 - ATP Synthesis
- Lecture 20 - Mitochondria and Chemiosmotic hypothesis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:WildLife Conservation

Subject Co-ordinator - Dr. Ankur Awadhiya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Preliminaries
- Lecture 2 - A closer look at Biodiversity
- Lecture 3 - Economics Valuation of Biodiversity
- Lecture 4 - Threats to Biodiversity
- Lecture 5 - Preliminaries
- Lecture 6 - Basics of Sampling
- Lecture 7 - Distance Sampling - I
- Lecture 8 - Distance Sampling - II
- Lecture 9 - Radio-telemetry
- Lecture 10 - Behavioural monitoring
- Lecture 11 - What is a habitat
- Lecture 12 - Habitat degradation, loss, fragmentation and displacement
- Lecture 13 - Reserve selection and design
- Lecture 14 - Habitat management and improvement
- Lecture 15 - Some terminologies
- Lecture 16 - Some common wildlife diseases
- Lecture 17 - Principles of disease management
- Lecture 18 - Preliminaries
- Lecture 19 - Mechanical capture
- Lecture 20 - Chemical capture
- Lecture 21 - Capture myopathy
- Lecture 22 - Care of immobilised animal
- Lecture 23 - Legal aspects of capture and restraint
- Lecture 24 - Other topics in capture and restraint
- Lecture 25 - Preliminaries and introduction to genetics
- Lecture 26 - Population genetics
- Lecture 27 - Chromosomal and genetic disorders, inbreeding
- Lecture 28 - Population viability analysis
- Lecture 29 - Reintroductions and outbreeding

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fundamentals
- Lecture 31 - Zoos and their management
- Lecture 32 - Botanical gardens
- Lecture 33 - Other aspects
- Lecture 34 - Impacts of climate change
- Lecture 35 - Plastics and biodiversity
- Lecture 36 - Oil spills
- Lecture 37 - Crisis and learnings
- Lecture 38 - Revision - I
- Lecture 39 - Revision - II
- Lecture 40 - Revision - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Nanotechnology in Agriculture

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - What is Nanotechnology
- Lecture 3 - An outline
- Lecture 4 - Agriculture
- Lecture 5 - Modern Agriculture
- Lecture 6 - A Restart
- Lecture 7 - Classifying nanomaterials Based on Shape and Geometry
- Lecture 8 - Classifying Nanomaterials Based on Chemical Nature
- Lecture 9 - Physical Approaches to Nanomaterial Synthesis
- Lecture 10 - Biological and Chemical Approaches to Nanomaterial Synthesis
- Lecture 11 - Detailed Physical Techniques - I
- Lecture 12 - Detailed Physical Techniques - II
- Lecture 13 - Detailed Chemical Techniques
- Lecture 14 - Detailed Biological Techniques
- Lecture 15 - Basic Characterisation Techniques of Nanomaterials
- Lecture 16 - Characterisation techniques for physical and chemical surface properties of a material
- Lecture 17 - Nanomaterials in Agriculture
- Lecture 18 - Iron pyrite and seed pre-treatment
- Lecture 19 - nano-Pyrite and its lab trial with chickpea
- Lecture 20 - nano-Pyrite field trial with spinach and its mechanistic details
- Lecture 21 - Mechanistic details of the action of Pyrite nano-particle
- Lecture 22 - Application of Pyrite nano-particle in different crops
- Lecture 23 - Application of different nano-particles in Agriculture - I
- Lecture 24 - Benefits of nanoparticles in Agriculture
- Lecture 25 - Nanotechnology in animal production
- Lecture 26 - Antioxidant nanomaterial in animal production - I
- Lecture 27 - Antioxidant nanomaterial in animal production - II
- Lecture 28 - Antioxidant nanomaterial in animal production - III
- Lecture 29 - Antioxidant nanomaterial in skeletal muscle development - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Antioxidant nanomaterial in skeletal muscle development - II
- Lecture 31 - Skeletal muscle development and nanomaterial intervention
- Lecture 32 - Fabrication of nano-micro devices to study force generation in muscles
- Lecture 33 - Summarising role of nanomaterials in animal production
- Lecture 34 - Nanomaterials in food processing and preservation - I
- Lecture 35 - Nanomaterials in food processing and preservation - II
- Lecture 36 - Multifunctionality of nanomaterial
- Lecture 37 - Futuristic multifunctional, sustainable and green nanomaterial
- Lecture 38 - Case study of Titanium dioxide - I
- Lecture 39 - Case study of Titanium dioxide - II
- Lecture 40 - The future



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - BioChemistry I

Subject Co-ordinator - Prof. S. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Amino Acids - I  
Lecture 2 - Amino Acids - II  
Lecture 3 - Protein Structure - I  
Lecture 4 - Protein structure - II  
Lecture 5 - Protein Structure - III  
Lecture 6 - Protein Structure - IV  
Lecture 7 - Enzymes - I  
Lecture 8 - Enzymes - II  
Lecture 9 - Enzymes - III  
Lecture 10 - Enzymes Mechanisms - I  
Lecture 11 - Enzymes Mechanisms - II  
Lecture 12 - Myoglobin and Hemoglobin  
Lecture 13 - Lipids and Membranes - I  
Lecture 14 - Lipids and Membranes - II  
Lecture 15 - Membrane Transport  
Lecture 16 - Carbohydrates - I  
Lecture 17 - Carbohydrates - II  
Lecture 18 - Vitamins and Coenzymes - I  
Lecture 19 - Vitamins and Coenzymes - II  
Lecture 20 - Nucleic Acids - I  
Lecture 21 - Nucleic Acids - II  
Lecture 22 - Nucleic Acids - III  
Lecture 23 - Bioenergetics - I  
Lecture 24 - Bioenergetics - II  
Lecture 25 - Metabolism - I  
Lecture 26 - Metabolism - II  
Lecture 27 - Metabolism - III  
Lecture 28 - Overview of the Course

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Industrial Biotechnology

Subject Co-ordinator - Prof. Debabrata Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Industrial Biotechnology

Lecture 2 - Development of industrial strain

Lecture 3 - Medium characteristics and biochemical pathways

Lecture 4 - Chemical reaction kinetics

Lecture 5 - Chemical reaction analysis (Continued...)

Lecture 6 - Different types of reactors

Lecture 7 - Reactor analysis

Lecture 8 - Reactor analysis (Continued...)

Lecture 9 - Stoichiometry of bioprocesses

Lecture 10 - Stoichiometry of bioprocesses (Continued...)

Lecture 11 - Enzymatic reaction Kinetics

Lecture 12 - Enzymatic reaction Kinetics (Continued...)

Lecture 13 - Immobilization techniques

Lecture 14 - Immobilization techniques (Continued...)

Lecture 15 - Life cycle of the microbial cell, Microbial growth kinetics, product formation and substrate degradation

Lecture 16 - Microbial growth kinetics, product formation and substrate degradation (Continued...)

Lecture 17 - Microbial growth kinetics, product formation and substrate degradation (Continued...)

Lecture 18 - Overview of the fermenter

Lecture 19 - Flow diagrams and pumps and valves used in fermentation industries

Lecture 20 - Flow diagrams and pumps and valves used in fermentation industries (Continued...)

Lecture 21 - Upstream processing

Lecture 22 - Upstream processing

Lecture 23 - Upstream processing

Lecture 24 - Downstream processing

Lecture 25 - Downstream processing

Lecture 26 - Downstream processing

Lecture 27 - Ethanol fermentation

Lecture 28 - Ethanol fermentation (Continued...)

Lecture 29 - Brewing industry

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- Lecture 30 - Brewing industry (Continued...)
- Lecture 31 - Wine industry
- Lecture 32 - Vinegar production
- Lecture 33 - Citric acid production
- Lecture 34 - Citric acid production (Continued...)
- Lecture 35 - Citric acid production (Continued...)
- Lecture 36 - Lactic acid production
- Lecture 37 - Lactic acid production (Continued...)
- Lecture 38 - Glutamic acid production
- Lecture 39 - Penicillin production
- Lecture 40 - Penicillin production (Continued...)
- Lecture 41 - Cephalosporin production
- Lecture 42 - Streptomycin production
- Lecture 43 - Baker's yeast fermentation
- Lecture 44 - Baker's yeast fermentation (Continued...)
- Lecture 45 - Fodder yeast production
- Lecture 46 - Spirulina production
- Lecture 47 - Alpha amylase production
- Lecture 48 - High fructose corn syrup production
- Lecture 49 - Metal leaching
- Lecture 50 - Cheese production
- Lecture 51 - Cheese production (Continued...)
- Lecture 52 - Biodiesel production
- Lecture 53 - Butanol production
- Lecture 54 - Biofertilizer
- Lecture 55 - Aerobic effluent treatment process
- Lecture 56 - Aerobic effluent treatment process (Continued...)
- Lecture 57 - Anaerobic effluent treatment process
- Lecture 58 - Anaerobic effluent treatment process
- Lecture 59 - 10 m<sup>3</sup> Pilot Plant operation for Biohydrogen production
- Lecture 60 - Summary and conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Aspects Of Biochemical Engineering

Subject Co-ordinator - Prof. Debabrata Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Microbiology - I  
Lecture 3 - Microbiology - II  
Lecture 4 - Fundamentals of Biochemistry  
Lecture 5 - Bioproducts and their market values  
Lecture 6 - Stoichiometry of Biochemical Processes - I  
Lecture 7 - Stoichiometry of Biochemical Processes - II  
Lecture 8 - Stoichiometry of Biochemical Processes - III  
Lecture 9 - Reaction Thermodynamics - I  
Lecture 10 - Reaction Thermodynamics - II  
Lecture 11 - Kinetics of homogeneous chemical reactions - I  
Lecture 12 - Kinetics of homogeneous chemical reactions - II  
Lecture 13 - Kinetics of homogeneous chemical reactions - III  
Lecture 14 - Kinetics of homogeneous chemical reactions - IV  
Lecture 15 - Kinetics of homogeneous chemical reactions - V  
Lecture 16 - Different types of reactors  
Lecture 17 - Reactor analysis - I  
Lecture 18 - Reactor analysis - II  
Lecture 19 - Reactor analysis - III  
Lecture 20 - Reactor analysis - IV  
Lecture 21 - Kinetics of enzyme catalyzed reactions using free enzymes - I  
Lecture 22 - Kinetics of enzyme catalyzed reactions using free enzymes - II  
Lecture 23 - Kinetics of enzyme catalyzed reactions using free enzymes - III  
Lecture 24 - Kinetics of enzyme catalyzed reactions using free enzymes - IV  
Lecture 25 - Kinetics of enzyme catalyzed reactions using free enzymes - V  
Lecture 26 - Kinetics of enzyme catalyzed reactions using free enzymes - VI  
Lecture 27 - Immobilization of Enzymes - I  
Lecture 28 - Immobilization of Enzymes - II  
Lecture 29 - Kinetics of enzyme catalyzed reactions using immobilized enzymes - I

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- Lecture 30 - Kinetics of enzyme catalyzed reactions using immobilized enzymes - II
- Lecture 31 - Kinetics of substrate utilization, product formation and biomass production of microbial cells - I
- Lecture 32 - Kinetics of substrate utilization, product formation and biomass production of microbial cells - II
- Lecture 33 - Kinetics of substrate utilization, product formation and biomass production of microbial cells - III
- Lecture 34 - Kinetics of substrate utilization, product formation and biomass production of microbial cells - IV
- Lecture 35 - Kinetics of substrate utilization, product formation and biomass production of microbial cells - V
- Lecture 36 - Kinetics of substrate utilization, product formation and biomass production of microbial cells - VI
- Lecture 37 - Kinetics of substrate utilization, product formation and biomass production of microbial cells - VII
- Lecture 38 - Kinetics of substrate utilization, product formation and biomass production of microbial cells - VIII
- Lecture 39 - Kinetics of substrate utilization, product formation and biomass production of microbial cells - IX
- Lecture 40 - Kinetics of substrate utilization, product formation and biomass production of microbial cells - X
- Lecture 41 - Kinetics of substrate utilization, product formation and biomass production of microbial cells - XI
- Lecture 42 - Design and analysis of activated sludge process - I
- Lecture 43 - Design and analysis of activated sludge process - II
- Lecture 44 - Design and analysis of anaerobic digestion process
- Lecture 45 - Scale up of Bioreactor - I
- Lecture 46 - Scale up of Bioreactor - II
- Lecture 47 - Transport Phenomenon in Bioprocess - I
- Lecture 48 - Transport Phenomenon in Bioprocess - II
- Lecture 49 - Transport Phenomenon in Bioprocess - III
- Lecture 50 - Transport Phenomenon in Bioprocess - IV
- Lecture 51 - Air sterilization - I
- Lecture 52 - Air sterilization - II
- Lecture 53 - Medium sterilization - I
- Lecture 54 - Medium sterilization - II
- Lecture 55 - Operation of industrial fermenter and material analysis
- Lecture 56 - Process control of the biochemical processes
- Lecture 57 - Downstream processing - I
- Lecture 58 - Downstream processing - II
- Lecture 59 - Economic analysis of the biochemical processes
- Lecture 60 - Summary and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Biomicrofluidics

Subject Co-ordinator - Prof. Tapas Kumar Maiti, Prof. Suman Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Biomicrofluidics
- Lecture 2 - Introduction to Biomicrofluidics (Continued...)
- Lecture 3 - Engineers' guide to the cell
- Lecture 4 - Fluidics in living systems and mechanobiology
- Lecture 5 - Pressure Driven Flows
- Lecture 6 - Surface tension driven flows
- Lecture 7 - Modulating surface tension
- Lecture 8 - Lab on a CD
- Lecture 9 - Introduction to Electrokinetics - Part I
- Lecture 10 - Introduction to Electrokinetics - Part II
- Lecture 11 - Microfluidic cell culture - Part I
- Lecture 12 - Microfluidic cell culture - Part II
- Lecture 13 - On-chip cellular assay techniques - Part I
- Lecture 14 - On-chip cellular assay techniques - Part II
- Lecture 15 - Microfluidics for understanding biology
- Lecture 16 - Organ-on-a-chip
- Lecture 17 - Lab-on-a-chip for genetic analysis
- Lecture 18 - Microfluidic technology for monoclonal antibody production
- Lecture 19 - Microfluidics for Healthcare
- Lecture 20 - Microfluidics for Healthcare

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Downstream Processing

Subject Co-ordinator - Prof. Mukesh Doble

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Mass Balance, Heat Balance, Flow sheet
- Lecture 3 - Costing
- Lecture 4 - Costing (Continued...) Physical and Chemical Principles in Down Stream
- Lecture 5 - Problems in Mass Balance, Flow sheet
- Lecture 6 - Cell Breakage
- Lecture 7 - Cell Breakage (Continued...)
- Lecture 8 - Solid Liquid Separation
- Lecture 9 - Solid Liquid Separation (Continued...)
- Lecture 10 - Solid Liquid Separation - Problems
- Lecture 11 - Pre-Treatment and Filters
- Lecture 12 - Adsorption
- Lecture 13 - Adsorption (Continued...)
- Lecture 14 - Adsorption (Continued...)
- Lecture 15 - Adsorption (Continued...)
- Lecture 16 - Liquid Liquid Extraction
- Lecture 17 - Liquid Liquid Extraction (Continued...)
- Lecture 18 - Liquid Liquid Extraction (Continued...)
- Lecture 19 - Liquid Liquid Extraction (Continued...)
- Lecture 20 - Reversed Micellar and Aqueous Two Phase Extraction
- Lecture 21 - Membranes
- Lecture 22 - Membranes (Continued...)
- Lecture 23 - Membranes (Continued...)
- Lecture 24 - Membranes (Continued...)
- Lecture 25 - Precipitation
- Lecture 26 - Chromatography
- Lecture 27 - Chromatography (Continued...)
- Lecture 28 - Chromatography (Continued...)
- Lecture 29 - Chromatography (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Chromatography (Continued...)
- Lecture 31 - Chromatography (Continued...)
- Lecture 32 - Chromatography (Continued...)
- Lecture 33 - HPLC
- Lecture 34 - HPLC
- Lecture 35 - Crystallisation
- Lecture 36 - Drying
- Lecture 37 - Drying and Distillation
- Lecture 38 - Stabilisation, Utilities and Other Auxiliary Processes And Absorption
- Lecture 39 - Absorption, Electrophoresis/SDS PAGE
- Lecture 40 - Future Trends, Summary of Course



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Thermodynamics

Subject Co-ordinator - Prof. G.K. Suraishkumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Review

Lecture 2 - Need for Analysis Additional Thermodynamic Functions State and Path Variables

Lecture 3 - Equations for a Closed system Chemical Potential Concept Gibbs-Duhem Equation

Lecture 4 - Maxwell's relations

Lecture 5 - Inter-Relationships between Thermodynamic Variables

Lecture 6 - Some Useful Mathematical Manipulations

Lecture 7 - Thermodynamic Relations for a Closed System with 1 mole of a pure Substances

Lecture 8 - Maximum Work, Lost Work Review of Closed Systems

Lecture 9 - Open Systems

Lecture 10 - Equations of State - Virial Equations

Lecture 11 - Equations of State - Cubic Equations

Lecture 12 - Volume Estimation

Lecture 13 - Volume Estimation (Continued...) Generalized correlations

Lecture 14 - Generalized correlations (Continued...) Residual Properties

Lecture 15 - Residual Properties (Continued...)

Lecture 16 - Generalized Correlations and Residual Properties

Lecture 17 - Fugacity Coefficient Estimation

Lecture 18 - Review of Module 3

Lecture 19 - Learning Aspects Chemical Potential Formulations

Lecture 20 - Lewis and Randall rule partial Molar Properties

Lecture 21 - Partial Molar Property Estimation from Mixing Experiments

Lecture 22 - Partial Molar Property Estimation (Continued...) Excess Property

Lecture 23 - Activity Coefficient from Excess Property

Lecture 24 - Activity Coefficient from Excess Property (Continued...)

Lecture 25 - Activity Coefficient from Excess Property (Continued...) Models for Activity Coefficient in Binary

Lecture 26 - Models for Activity Coefficient in Binary Systems (Continued...)

Lecture 27 - Review of Module 4

Lecture 28 - Criteria for Phase Equilibrium Phase Rule for Non-reacting Biosystems

Lecture 29 - Clausius - Clayperon Equation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Clausius - Clayperon Equation (Continued...) vapour-Liquid Equilibrium
- Lecture 31 - Vapour-Liquid Equilibrium (Continued...) Estimation of Fugacity coefficient from Equilibrium P-V
- Lecture 32 - Liquid/Liquid and Solid/Liquid Equilibria
- Lecture 33 - Review of Module 5
- Lecture 34 - Criteria for Bio-reaction Equilibria
- Lecture 35 - Phase rule for Reacting Biosystems Equilibrium constants
- Lecture 36 - Effect of Temperature and Pressure on the Equilibrium constants
- Lecture 37 - Reaction in Liquid or Solid Phases
- Lecture 38 - Free energy Changes for some Bioreactions
- Lecture 39 - Electrolytes
- Lecture 40 - Course Review

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Principles of Downstream techniques in Bioprocess

Subject Co-ordinator - Prof. Mukesh Doble

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Mass balance, Heat Balance, Flow sheet
- Lecture 3 - Costing
- Lecture 4 - Cell Breakage
- Lecture 5 - Solid Liquid Separation
- Lecture 6 - Pre-treatment and Filters/centrifuge
- Lecture 7 - Liquid-Liquid Extraction
- Lecture 8 - Liquid-Liquid extraction (Continued...)
- Lecture 9 - Adsorption
- Lecture 10 - Reversed micellar and aqueous two phase extraction
- Lecture 11 - Membranes
- Lecture 12 - Membranes (Continued...)
- Lecture 13 - Product stabilization, Drying, Lyophilisation
- Lecture 14 - Precipitation and crystallization
- Lecture 15 - Electrophoresis / SDS PAGE
- Lecture 16 - Chromatography
- Lecture 17 - Chromatography (Continued...1)
- Lecture 18 - Chromatography (Continued...2)
- Lecture 19 - Chromatography (Continued...3)
- Lecture 20 - Future trends, Other downstream operations/Summary of the course

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Biostatistics and Design of Experiments

Subject Co-ordinator - Prof. Mukesh Doble

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Experimental Design Strategy

Lecture 3 - Data types

Lecture 4 - Poisson Distribution

Lecture 5 - Normal Distribution

Lecture 6 - Standardized Normal Distribution / t-distribution

Lecture 7 - t-distribution/confidence interval

Lecture 8 - Statistical tests

Lecture 9 - t-Test

Lecture 10 - t-Tests

Lecture 11 - t-test

Lecture 12 - F-tests

Lecture 13 - F-tests

Lecture 14 - ANOVA

Lecture 15 - ANOVA

Lecture 16 - Anova

Lecture 17 - Anova

Lecture 18 - Anova

Lecture 19 - Anova

Lecture 20 - Anova

Lecture 21 - Normality test / Odds ratio

Lecture 22 - Chi square distribution

Lecture 23 - Chi square distribution / test

Lecture 24 - Chi square test

Lecture 25 - Chi square test and Weibull Distribution

Lecture 26 - Weibull Distribution

Lecture 27 - Weibull distribution.

Lecture 28 - Non-parametric test

Lecture 29 - Non parametric test/homogeneity of variance / beta distribution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Exponential / hypergeometric distributions
- Lecture 31 - Hypergeometric / Log normal distribution
- Lecture 32 - Design of experiments (DOE) - Introduction
- Lecture 33 - Factorial Design
- Lecture 34 - Full factorial design
- Lecture 35 - Fractional factorial design
- Lecture 36 - Other designs
- Lecture 37 - Second order designs
- Lecture 38 - Second order design
- Lecture 39 - Regression analysis
- Lecture 40 - Control charts

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Bioreactors

Subject Co-ordinator - Prof. G.K. Suraishkumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Sterilization  
Lecture 3 - Solution to PP 1.1  
Lecture 4 - Some important concepts  
Lecture 5 - Enzyme bioreactors, enzyme kinetics  
Lecture 6 - Solution to PP 2.1  
Lecture 7 - Inhibited enzyme kinetics  
Lecture 8 - Solution to PP 2.2  
Lecture 9 - Measurement principles and methods  
Lecture 10 - Batch growth kinetics  
Lecture 11 - Solution to PP 3.1  
Lecture 12 - Bioreactor analysis  
Lecture 13 - Solution to PP 3.2  
Lecture 14 - Bioreactor environment parameters  
Lecture 15 - Bioreactor env. par. (DO)  
Lecture 16 - Solution to PP 4.1  
Lecture 17 - Shear stress, scale-up, scale-down  
Lecture 18 - Cell view  
Lecture 19 - Solution to PP 5.1  
Lecture 20 - Culture status, metabolic flux analysis  
Lecture 21 - Course summary

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Medical Biomaterials

Subject Co-ordinator - Prof. Mukesh Doble

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Biomaterials
- Lecture 2 - Background history
- Lecture 3 - History
- Lecture 4 - Properties - Mechanical and Physico-chemical
- Lecture 5 - Properties - Mechanical and Physico-chemical
- Lecture 6 - Mechanical properties
- Lecture 7 - Mechanical Properties (Continued...)
- Lecture 8 - Resorbability, biodegradation
- Lecture 9 - Resorbability, biodegradation (Continued...)
- Lecture 10 - Biofilm
- Lecture 11 - Biofilm (Continued...)
- Lecture 12 - Biofilm (Continued...)
- Lecture 13 - Biofilm (Continued...)
- Lecture 14 - Material characterization - Analytical instruments
- Lecture 15 - Analytical instruments
- Lecture 16 - Analytical instruments (Continued...)
- Lecture 17 - Analytical instruments (Continued...)
- Lecture 18 - Biological responses, compatibility, cytotoxicity
- Lecture 19 - Proteins, Tissue and blood Response
- Lecture 20 - Cell-biomaterial interaction
- Lecture 21 - Animal trials (in vivo)
- Lecture 22 - Animal trials
- Lecture 23 - Metals-types, classifications, applications
- Lecture 24 - Metals - properties
- Lecture 25 - Metals - properties (Continued...)
- Lecture 26 - Metals - properties (Continued...)
- Lecture 27 - Metals
- Lecture 28 - Polymers-types, classifications, applications
- Lecture 29 - Polymers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Polymers (Continued...)
- Lecture 31 - Polymer blends
- Lecture 32 - Natural biopolymers
- Lecture 33 - Natural biopolymers - (Continued...)
- Lecture 34 - Biopolymers- proteins / hydrogels
- Lecture 35 - Hydrogels
- Lecture 36 - Experiments
- Lecture 37 - surface modification-Demonstration
- Lecture 38 - Ceramics
- Lecture 39 - Cardiovascular and ocular biomaterials
- Lecture 40 - Sterilisation/Device failure



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:BioInformatics - Algorithms and Applications

Subject Co-ordinator - Prof. M. Michael Gromiha

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Concepts and importance of Bioinformatics  
Lecture 2 - Complexities in biological systems  
Lecture 3 - DNA sequence analysis  
Lecture 4 - Sequence based parameters  
Lecture 5 - Database  
Lecture 6 - Database categories  
Lecture 7 - Protein structure and function - I  
Lecture 8 - Protein structure and function - II  
Lecture 9 - Protein sequence databases - I  
Lecture 10 - Protein sequence databases - II  
Lecture 11 - Pairwise alignment - I  
Lecture 12 - Pairwise alignment - II  
Lecture 13 - Uniprot Demo  
Lecture 14 - Sequence alignment - I  
Lecture 15 - Sequence alignment - II  
Lecture 16 - Sequence alignment  
Lecture 17 - Sequence alignment  
Lecture 18 - Conservation score - I  
Lecture 19 - Conservation score - II  
Lecture 20 - Blast Demo  
Lecture 21 - Phylogenetic trees - I  
Lecture 22 - Phylogenetic trees - II  
Lecture 23 - Protein sequence analysis - I  
Lecture 24 - Protein sequence analysis - II  
Lecture 25 - Hydrophobicity profiles  
Lecture 26 - Patterns and PSSM profiles  
Lecture 27 - Construction of Non-redundant datasets - I  
Lecture 28 - Non-redundant datasets - II  
Lecture 29 - Protein secondary structure

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Secondary structure prediction - I
- Lecture 31 - Secondary structure prediction - II
- Lecture 32 - Secondary structure prediction - III
- Lecture 33 - Protein tertiary structure - I
- Lecture 34 - Protein tertiary structure - II
- Lecture 35 - Protein structure analysis - I
- Lecture 36 - Protein structure analysis - II
- Lecture 37 - Protein structure analysis - III
- Lecture 38 - Demo
- Lecture 39 - Protein structure analysis - IV
- Lecture 40 - Protein structure prediction - I
- Lecture 41 - Protein structure prediction - II
- Lecture 42 - Protein stability - I
- Lecture 43 - Protein stability - II
- Lecture 44 - Demo
- Lecture 45 - Stabilizing residues
- Lecture 46 - Thermodynamic database
- Lecture 47 - Stability of proteins upon mutations - I
- Lecture 48 - Stability of proteins upon mutations - II
- Lecture 49 - Demo
- Lecture 50 - Protein folding rate - I
- Lecture 51 - Protein folding rate - II
- Lecture 52 - Protein interactions - I
- Lecture 53 - Protein interactions - II
- Lecture 54 - Computer aided drug design - I
- Lecture 55 - Computer aided drug design - II
- Lecture 56 - Virtual screening - I
- Lecture 57 - Virtual screening - II
- Lecture 58 - QSAR - I
- Lecture 59 - QSAR - II
- Lecture 60 - Demo
- Lecture 61 - awk programming - I
- Lecture 62 - awk programming - II
- Lecture 63 - Development of algorithms - I
- Lecture 64 - Development of algorithms - II
- Lecture 65 - Applications of bioinformatics - I
- Lecture 66 - Applications of bioinformatics - II
- Lecture 67 - Overview - I
- Lecture 68 - Overview - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Demo

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Demystifying the Brain

Subject Co-ordinator - Dr. V Srinivasa Chakravarthy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - The Whole and Its Parts

Lecture 2 - Understanding Brain's Shape - Segment 1 - Brain size and intelligence

Lecture 3 - Understanding Brain's Shape - Segment 2 - Save Wire Principle

Lecture 4 - Understanding Brain's Shape - Segment 3 - Brain Evolution

Lecture 5 - Neurons and Neural Signaling

Lecture 6 - Neural Signalling

Lecture 7 - Networks that Learn - Segment 1

Lecture 8 - Multilayer Perceptrons Applications in Psychology and Neuroscience

Lecture 9 - Organization of the Central Nervous System-Segment 1 - Cortex

Lecture 10 - Organization of the Central Nervous System-Segment 2 - Subcortical Structures

Lecture 11 - Maps in the Brain - Segment 1

Lecture 12 - Maps in the Brain - Segment 2

Lecture 13 - Emotions in the Brain - Segment 1

Lecture 14 - Emotions in the Brain - Segment 2

Lecture 15 - Memories and Holograms - Segment 1

Lecture 16 - Memories and Holograms - Segment 2

Lecture 17 - Consciousness - Segment 1

Lecture 18 - Consciousness - Segment 2

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Computational Systems Biology

Subject Co-ordinator - Prof. Karthik Raman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction to Modelling  
Lecture 3 - Introduction to Modelling  
Lecture 4 - Fundamentals of Mathematical Modelling  
Lecture 5 - Fundamentals of Mathematical Modelling  
Lecture 6 - Fundamentals of Mathematical Modelling  
Lecture 7 - Some Example Models  
Lecture 8 - Representation of Biological Networks  
Lecture 9 - Lab  
Lecture 10 - Lab  
Lecture 11 - Lab  
Lecture 12 - Lab  
Lecture 13 - Introduction to Networks  
Lecture 14 - Introduction to Networks  
Lecture 15 - Introduction to Network Biology  
Lecture 16 - Introduction to Network Biology  
Lecture 17 - Introduction to Network Biology  
Lecture 18 - Network Biology  
Lecture 19 - Network Models  
Lecture 20 - Network Models  
Lecture 21 - Biological Networks  
Lecture 22 - Network Perturbations  
Lecture 23 - Community Detection  
Lecture 24 - Network Motifs  
Lecture 25 - Lab  
Lecture 26 - Lab  
Lecture 27 - Lab  
Lecture 28 - Network Biology  
Lecture 29 - Lab

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- Lecture 30 - Lab
- Lecture 31 - Reconstruction of Gene Regulatory Networks
- Lecture 32 - Reconstruction of Protein Networks
- Lecture 33 - Reconstruction of Signalling Networks
- Lecture 34 - Reconstruction of Signalling Networks
- Lecture 35 - Introduction to Dynamic Modelling
- Lecture 36 - Introduction to Dynamic Modelling
- Lecture 37 - Introduction to Dynamic Modelling
- Lecture 38 - Lab
- Lecture 39 - Lab
- Lecture 40 - Parameter Estimation
- Lecture 41 - Parameter Estimation
- Lecture 42 - Parameter Estimation
- Lecture 43 - Methods for Parameter Estimation
- Lecture 44 - Direct Search Methods
- Lecture 45 - Genetic Algorithms
- Lecture 46 - Genetic Algorithms
- Lecture 47 - Other Evolutionary Algorithms
- Lecture 48 - PyGMO
- Lecture 49 - Dynamic Modelling Recap
- Lecture 50 - Lab
- Lecture 51 - Guest Lecture
- Lecture 52 - Guest Lecture
- Lecture 53 - Guest Lecture
- Lecture 54 - Guest Lecture
- Lecture 55 - Guest Lecture
- Lecture 56 - Constraint-based Modelling of Metabolic Networks
- Lecture 57 - Flux Balance Analysis
- Lecture 58 - Flux Balance Analysis
- Lecture 59 - Flux Balance Analysis
- Lecture 60 - Other Constraint-Based Approaches
- Lecture 61 - Other Constraint-Based Approaches
- Lecture 62 - Lab
- Lecture 63 - Perturbations to Metabolic Networks
- Lecture 64 - Lab
- Lecture 65 - Understanding FBA
- Lecture 66 - Understanding FBA
- Lecture 67 - Perturbations to Metabolic Networks
- Lecture 68 - Perturbations to Metabolic Networks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Perturbations to Metabolic Networks
- Lecture 70 - Constraint-based Modelling of Metabolic Networks
- Lecture 71 - Lab
- Lecture 72 - Integrating Regulatory Information into Constraint-Based Models
- Lecture 73 - Elementary Modes
- Lecture 74 - Elementary Modes
- Lecture 75 - Constraint-based Modelling of Metabolic Networks
- Lecture 76 - Constraint-based Modelling of Metabolic Networks
- Lecture 77 - Constraint-based Modelling of Metabolic Networks
- Lecture 78 - Lab
- Lecture 79 - Constraint-based Modelling of Metabolic Networks
- Lecture 80 - Constraint-based Modelling of Metabolic Networks
- Lecture 81 - Constraint-based Modelling of Metabolic Networks
- Lecture 82 -  $^{13}\text{C}$ -Metabolic Flux Analysis using Mass Spectrometry
- Lecture 83 -  $^{13}\text{C}$ -Metabolic Flux Analysis using Mass Spectrometry
- Lecture 84 -  $^{13}\text{C}$ -Metabolic Flux Analysis using Mass Spectrometry
- Lecture 85 - Lab
- Lecture 86 - Modelling Gene Regulatory Networks
- Lecture 87 - Modelling Gene Regulatory Networks
- Lecture 88 - Modelling Gene Regulatory Networks
- Lecture 89 - Lab
- Lecture 90 - Lab
- Lecture 91 - Computational Modelling of Host-Pathogen Interactions
- Lecture 92 - Computational Modelling of Host-Pathogen Interactions
- Lecture 93 - Robustness in Biological Systems
- Lecture 94 - Robustness in Biological Systems
- Lecture 95 - Robustness in Biological Systems
- Lecture 96 - Robustness in Biological Systems
- Lecture 97 - Robustness and Evolvability
- Lecture 98 - Robustness and Evolvability
- Lecture 99 - Introduction to Synthetic Biology
- Lecture 100 - Advanced Topics
- Lecture 101 - Advanced Topics
- Lecture 102 - Advanced Topics
- Lecture 103 - Course Recap

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Material and Energy Balances

Subject Co-ordinator - Prof.Vignesh Muthuvijayan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Fundamentals of Engineering Calculations  
Lecture 2 - Process Parameters and Variables  
Lecture 3 - Fundamentals of Material Balances  
Lecture 4 - Material Balance Calculations for Single Units Without Reactions - Part 1  
Lecture 5 - Material Balance Calculations for Single Units Without Reactions - Part 2  
Lecture 6 - Material Balance Calculations for Single Units Without Reactions - Part 3  
Lecture 7 - Material Balance Calculations for Single Units Without Reactions - Part 4  
Lecture 8 - Material Balance Calculations for Multiple Units Without Reactions - Part 1  
Lecture 9 - Material Balance Calculations for Multiple Units Without Reactions - Part 2  
Lecture 10 - Fundamentals of Reactive Processes  
Lecture 11 - Material Balance Calculations For Single Units With A Single Reaction  
Lecture 12 - Material Balance Calculations for Single Units with A Single Reaction (Continued...)  
Lecture 13 - Material Balance Calculations for Single Units with Multiple Reactions - Part 1  
Lecture 14 - Material Balance Calculations for Single Units with Multiple Reactions - Part 2  
Lecture 15 - Material Balance Calculations for Single Units with Multiple Reactions - Part 3  
Lecture 16 - Material Balance Calculations for Multiple Units with Reactions - Part 1  
Lecture 17 - Material Balance Calculations for Multiple Units with Reactions - Part 2  
Lecture 18 - Material Balances on Reactive Processes - Tutorials  
Lecture 19 - Combustion Reactions  
Lecture 20 - Material Balances for Combustion Reactions  
Lecture 21 - Biochemical Reactions  
Lecture 22 - Biochemical Reactions  
Lecture 23 - Recycle Without Reactions  
Lecture 24 - Recycle with Reactions  
Lecture 25 - Recycle  
Lecture 26 - Bypass  
Lecture 27 - Purge  
Lecture 28 - Material Balance  
Lecture 29 - Material Balance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Material Balance
- Lecture 31 - The Unreasonable Effectiveness of Material Balance
- Lecture 32 - Constraint-based modelling
- Lecture 33 - Flux balance analysis - Part 1
- Lecture 34 - Flux balance analysis - Part 2
- Lecture 35 - Energy Balance Terminologies and Concepts
- Lecture 36 - Introduction to Energy Balances - Part 1
- Lecture 37 - Introduction to Energy Balances - Part 2
- Lecture 38 - Introduction to Energy Balances
- Lecture 39 - Mechanical Energy Balances
- Lecture 40 - Mechanical Energy Balances
- Lecture 41 - Energy Balance Objectives and Procedures
- Lecture 42 - Introduction to Nonreactive Processes Without Phase Change
- Lecture 43 - Energy Balances on Single-Phase Nonreactive Processes
- Lecture 44 - Energy Balances on Single-Phase Nonreactive Processes
- Lecture 45 - Fundamentals of Nonreactive Phase Change Processes
- Lecture 46 - Estimating Latent Heats
- Lecture 47 - Energy Balances on Nonreactive Processes With Phase Change
- Lecture 48 - Energy Balances on Nonreactive Processes With Phase Change
- Lecture 49 - Energy Balances on Nonreactive Processes With Phase Change
- Lecture 50 - Psychrometric Charts
- Lecture 51 - Energy Balances Using Psychrometric Charts
- Lecture 52 - Mixing and Solution
- Lecture 53 - Mixing and Solution
- Lecture 54 - Mixing and Solution
- Lecture 55 - Fundamentals for Energy Balances on Reactive Processes - Part 1
- Lecture 56 - Fundamentals for Energy Balances on Reactive Processes - Part 1 and Part 2
- Lecture 57 - Fundamentals for Energy Balances on Reactive Processes - Tutorials
- Lecture 58 - Energy Balances on Reactive Processes - Part 1
- Lecture 59 - Energy Balances on Reactive Processes - Part 2
- Lecture 60 - Energy Balances on Reactive Processes - Part 3
- Lecture 61 - Energy Balances on Reactive Processes - Part 4
- Lecture 62 - Energy Balances on Reactive Processes - Part 5
- Lecture 63 - Energy Balances on Reactive Processes - Part 6
- Lecture 64 - Energy Balances
- Lecture 65 - Energy Balances
- Lecture 66 - Energy Balances
- Lecture 67 - Energy Balances
- Lecture 68 - Unsteady State Material Balances

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Unsteady State Energy Balances

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Computer Aided Drug Design

Subject Co-ordinator - Prof. Mukesh Doble

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Drug Discovery - Issues
- Lecture 3 - Target and Lead Identification
- Lecture 4 - Drug And Data bases
- Lecture 5 - Drug Properties
- Lecture 6 - Drug - Properties / SMILES
- Lecture 7 - Drug Solubility
- Lecture 8 - Drug Solubility / permeability
- Lecture 9 - ADME
- Lecture 10 - Drug - ADME
- Lecture 11 - Drug - ADME
- Lecture 12 - Drug - BBB
- Lecture 13 - Pgp efflux/Drug Likeness
- Lecture 14 - Drug Likeness
- Lecture 15 - Molecular Modelling
- Lecture 16 - Molecular Mechanics / Force Field
- Lecture 17 - Molecular Mechanics / Force Field
- Lecture 18 - Molecular Mechanics / Force Field
- Lecture 19 - Molecular Mechanics / Force Field
- Lecture 20 - ODES and Numerical methods
- Lecture 21 - ODES and Numerical methods
- Lecture 22 - Conformational Search / MD
- Lecture 23 - Quantum Mechanics
- Lecture 24 - Quantum Mechanics
- Lecture 25 - Quantitative Structure Activity Relationship (QSAR)
- Lecture 26 - Quantitative Structure Activity Relationship (QSAR)
- Lecture 27 - Quantitative Structure Activity Relationship (QSAR)
- Lecture 28 - Quantitative Structure Activity Relationship (QSAR)
- Lecture 29 - Quantitative Structure Activity Relationship (QSAR)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quantitative Structure Activity Relationship (QSAR)
- Lecture 31 - 3D QSAR
- Lecture 32 - Pharmacophore modelling
- Lecture 33 - Target based drug design
- Lecture 34 - Target based drug design
- Lecture 35 - Target based drug design
- Lecture 36 - Target based drug design
- Lecture 37 - Docking
- Lecture 38 - Docking
- Lecture 39 - Pharmacokinetics / pharmacodynamics
- Lecture 40 - Pharmacokinetics / pharmacodynamics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Analytical Technologies in Biotechnology

Subject Co-ordinator - Dr. Ashwani K. Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic concepts in microscopy - 1
- Lecture 2 - Basic concepts in microscopy - 2
- Lecture 3 - Dark-field and phase contrast microscopy
- Lecture 4 - Differential interference contrast and polarization
- Lecture 5 - Fluorescence and confocal microscopy
- Lecture 6 - Transmission electron microscopy
- Lecture 7 - Transmission electron microscopy cont. and scanning electron microscopy
- Lecture 8 - Basic concepts - 1
- Lecture 9 - Basic concepts - 2
- Lecture 10 - GM counting and Scintillation counting
- Lecture 11 - Scintillation counting continued
- Lecture 12 - Autoradiography and RIA
- Lecture 13 - Safety aspects and applications
- Lecture 14 - Introduction and Basic concepts in chromatography - 1
- Lecture 15 - Basic concepts in chromatography - 2
- Lecture 16 - Low-pressure liquid chromatography (LPLC) and high performance liquid chromatography (HPLC)
- Lecture 17 - Ion-exchange chromatography
- Lecture 18 - Gel-filtration chromatography
- Lecture 19 - Affinity chromatography
- Lecture 20 - Gas-liquid chromatography
- Lecture 21 - Basic concepts in electrophoresis
- Lecture 22 - Horizontal and vertical gel electrophoresis
- Lecture 23 - Native gel electrophoresis and SDS-PAGE
- Lecture 24 - Isoelectric focusing (IEF), 2-D gel electrophoresis and protein detection methods
- Lecture 25 - Electrophoresis of nucleic acids
- Lecture 26 - Immunoelectrophoresis and capillary electrophoresis
- Lecture 27 - Introduction and Basic Concepts - 1
- Lecture 28 - Basic concepts - 2
- Lecture 29 - Types of centrifuges and analytical ultracentrifugation method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Separation methods in preparative ultracentrifuges
- Lecture 31 - Types of rotors
- Lecture 32 - Types of rotors cont. and care of rotors
- Lecture 33 - Introduction and basic concepts
- Lecture 34 - UV-Visible spectroscopy
- Lecture 35 - Infrared and fluorescence spectroscopy
- Lecture 36 - Circular dichroism (CD) spectroscopy
- Lecture 37 - Nuclear magnetic resonance (NMR) spectroscopy and X-ray crystallography
- Lecture 38 - Atomic spectroscopy and mass spectrometry
- Lecture 39 - Polymerase chain reaction(PCR)
- Lecture 40 - DNA sequencing methods
- Lecture 41 - Enzyme linked immunosorbent assay (ELISA)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Biomedical Nanotechnology

Subject Co-ordinator - Prof. P.Gopinath

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Nano

Lecture 2 - Nano-Biomimicry

Lecture 3 - Synthesis of nanomaterials by Physical and Chemical Methods

Lecture 4 - Synthesis of nanomaterials by Biological Methods

Lecture 5 - Characterisation of Nanomaterials

Lecture 6 - DNA Nanotechnology

Lecture 7 - Protein and Glyco Nanotechnology

Lecture 8 - Lipid Nanotechnology

Lecture 9 - Bio-Nanomachines

Lecture 10 - Carbon nanotubes and Its Bio-Applications

Lecture 11 - Nanomaterials for Cancer Diagnosis

Lecture 12 - Nanomaterials for Cancer therapy

Lecture 13 - Nanotechnology in Tissue Engineering

Lecture 14 - Nano artificial cells

Lecture 15 - Nanotechnology in Organ Printing

Lecture 16 - Nanotechnology in Point-of-Care Diagnostics

Lecture 17 - Nano-Pharmacology and Drug Targeting

Lecture 18 - Cellular uptake mechanisms of nanomaterials

Lecture 19 - In vitro Methods to study antibacterial and anticancer properties of nanomaterials

Lecture 20 - Nanotoxicology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Advanced Chemical Reaction Engineering (PG)

Subject Co-ordinator - Prof. H.S. Shankar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview - I  
Lecture 2 - Course Overview - II  
Lecture 3 - Design Equations - I  
Lecture 4 - Design Equations - Illustrative Examples  
Lecture 5 - Design Equations - II  
Lecture 6 - Illustrative Examples  
Lecture 7 - Illustrative Examples  
Lecture 8 - Multiple Reactions - II  
Lecture 9 - Modelling Multiple Reactions in Soil Environment - III  
Lecture 10 - Semi Continuous Reactor Operation  
Lecture 11 - Catalyst Deactivation - I  
Lecture 12 - Catalyst Deactivation - II  
Lecture 13 - Illustrative Example  
Lecture 14 - Energy Balance - I  
Lecture 15 - Energy Balance - II  
Lecture 16 - Reacting Fluids as Energy Carrier  
Lecture 17 - Illustrative Example  
Lecture 18 - Energy Balance - III  
Lecture 19 - Energy Balance - IV  
Lecture 20 - Energy Balance - V  
Lecture 21 - Illustrative Example  
Lecture 22 - Energy Balance - VI  
Lecture 23 - Illustrative Example  
Lecture 24 - Illustrative Example  
Lecture 25 - Illustrative Example  
Lecture 26 - Residence Time Distribution Methods  
Lecture 27 - Residence Time Distribution Models  
Lecture 28 - Shrinking core Gas-Solid reactions Model  
Lecture 29 - Shrinking core Ash Diffusion Model & Combination of Resistances

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - 1) Gas Solid Reactions Temperature Effects on Rate & Equilibria 2) Introduction to Population Balance
- Lecture 31 - Illustrative Example
- Lecture 32 - Population Balance Modelling - II
- Lecture 33 - Population Balance Modelling - III
- Lecture 34 - Illustrative Examples
- Lecture 35 - Introduction to Environmental Reactions
- Lecture 36 - Reaction Engineering Examples in Biochemical & Environmental Engineering
- Lecture 37 - Illustrative Examples
- Lecture 38 - Illustrative Examples
- Lecture 39 - Oxygen Sag Analysis in Rivers
- Lecture 40 - Illustrative Examples
- Lecture 41 - Illustrative Example

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Advanced Process Control

Subject Co-ordinator - Prof. Sachin C. Patwardhan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Motivation

Lecture 2 - Linearization of Mechanistic Models

Lecture 3 - Linearization of Mechanistic Models (Continued...)

Lecture 4 - Introduction to z-transforms and Development of Grey-box models

Lecture 5 - Introduction to Stability Analysis and Development of Output Error Models

Lecture 6 - Introduction to Stochastic Processes

Lecture 7 - Introduction to Stochastic Processes (Continued...)

Lecture 8 - Development of ARX models

Lecture 9 - Statistical Properties of ARX models and Development of ARMAX models

Lecture 10 - Development of ARMAX models (Continued...) and Issues in Model Development

Lecture 11 - Model Structure Selection and Issues in Model Development (Continued...)

Lecture 12 - Issues in Model Development (Continued...) and State Realizations of Transfer Function Models

Lecture 13 - Stability Analysis of Discrete Time Systems

Lecture 14 - Lyapunov Functions and Interaction Analysis and Multi-loop Control

Lecture 15 - Interaction Analysis and Multi-loop Control (Continued...)

Lecture 16 - Multivariable Decoupling Control and Soft Sensing and State Estimation

Lecture 17 - Development of Luenberger Observer

Lecture 18 - Development of Luenberger Observer (Continued...) and Introduction to Kalman Filtering

Lecture 19 - Kalman Filtering

Lecture 20 - Kalman Filtering (Continued...)

Lecture 21 - Kalman Filtering (Continued...)

Lecture 22 - Pole Placement State Feedback Control Design and Introduction to Linear Quadratic Gaussian (LQG)

Lecture 23 - Linear Quadratic Gaussian (LQG) Regulator Design

Lecture 24 - Linear Quadratic Gaussian (LQG) Controller Design

Lecture 25 - Model Predictive Control (MPC)

Lecture 26 - Model Predictive Control (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Reaction Engineering II

Subject Co-ordinator - Prof. A.K. Suresh, Prof. Ganesh A. Viswanathan, Prof. Sanjay M. Mahajani

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to catalysts and catalysis
- Lecture 2 - Steps in catalytic reaction
- Lecture 3 - Derivation of the rate equation
- Lecture 4 - Heterogenous data analysis for reactor design - I
- Lecture 5 - Heterogenous data analysis for reactor design - II
- Lecture 6 - Catalyst deactivation and accounting for it in design - I
- Lecture 7 - Catalyst deactivation and accounting for it in design - II
- Lecture 8 - Synthesize the rate equation
- Lecture 9 - Introduction to intraparticle diffusion
- Lecture 10 - Intraparticle diffusion
- Lecture 11 - Intraparticle diffusion
- Lecture 12 - Intraparticle diffusion
- Lecture 13 - Effectiveness factor and Introduction to external mass transfer
- Lecture 14 - External Mass Transfer
- Lecture 15 - Implications to rate data interpretation and design - I
- Lecture 16 - Implications to rate data interpretation and design - II
- Lecture 17 - Packed-bed reactor design
- Lecture 18 - Fluidized bed reactor design - I
- Lecture 19 - Fluidized bed reactor design - II
- Lecture 20 - Gas-liquid reactions-1
- Lecture 21 - GLR-2
- Lecture 22 - GLR-3
- Lecture 23 - GLR-4
- Lecture 24 - GLR-5
- Lecture 25 - GLR-6
- Lecture 26 - GLR-7
- Lecture 27 - Fluid-solid non-catalytic reactions - I
- Lecture 28 - Fluid-solid non-catalytic reactions - II
- Lecture 29 - Fluid-solid non-catalytic reactions - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Distribution of residence time
- Lecture 31 - Measurement of residence time distribution
- Lecture 32 - Residence time distribution function
- Lecture 33 - Reactor diagnostics and troubleshooting
- Lecture 34 - Modeling non-ideal reactors
- Lecture 35 - Residence time distribution
- Lecture 36 - Non-ideal Reactors
- Lecture 37 - Non-ideal Reactors
- Lecture 38 - Non-ideal Reactors
- Lecture 39 - Non-ideal Reactors

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Advanced Numerical Analysis

Subject Co-ordinator - Prof. Sachin C. Patwardhan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Overview

Lecture 2 - Fundamentals of Vector Spaces

Lecture 3 - Basic Dimension and Sub-space of a Vector Space

Lecture 4 - Introduction to Normed Vector Spaces

Lecture 5 - Examples of Norms, Cauchy Sequence and Convergence, Introduction to Banach Spaces

Lecture 6 - Introduction to Inner Product Spaces

Lecture 7 - Cauchy Schwarz Inequality and Orthogonal Sets

Lecture 8 - Gram-Schmidt Process and Generation of Orthogonal Sets

Lecture 9 - Problem Discretization Using Appropriation Theory

Lecture 10 - Weierstrass Theorem and Polynomial Approximation

Lecture 11 - Taylor Series Approximation and Newton's Method

Lecture 12 - Solving ODE - BVPs Using Finite Difference Method

Lecture 13 - Solving ODE - BVPs and PDEs Using Finite Difference Method

Lecture 14 - Finite Difference Method (Continued...) and Polynomial Interpolations

Lecture 15 - Polynomial and Function Interpolations, Orthogonal Collocations Method for Solving ODE -BVPs

Lecture 16 - Orthogonal Collocations Method for Solving ODE - BVPs and PDEs

Lecture 17 - Least Square Approximations, Necessary and Sufficient Conditions for Unconstrained Optimization

Lecture 18 - Least Square Approximations -Necessary and Sufficient Conditions for Unconstrained Optimization

Lecture 19 - Linear Least Square Estimation and Geometric Interpretation of the Least Square Solution

Lecture 20 - Geometric Interpretation of the Least Square Solution (Continued...) and Projection Theorem in a

Lecture 21 - Projection Theorem in a Hilbert Spaces (Continued...) and Approximation Using Orthogonal Basis

Lecture 22 - Discretization of ODE-BVP using Least Square Approximation

Lecture 23 - Discretization of ODE-BVP using Least Square Approximation and Galerkin Method

Lecture 24 - Model Parameter Estimation using Gauss-Newton Method

Lecture 25 - Solving Linear Algebraic Equations and Methods of Sparse Linear Systems

Lecture 26 - Methods of Sparse Linear Systems (Continued...) and Iterative Methods for Solving Linear Algebra

Lecture 27 - Iterative Methods for Solving Linear Algebraic Equations

Lecture 28 - Iterative Methods for Solving Linear Algebraic Equations

Lecture 29 - Iterative Methods for Solving Linear Algebraic Equations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Iterative Methods for Solving Linear Algebraic Equations
- Lecture 31 - Iterative Methods for Solving Linear Algebraic Equations
- Lecture 32 - Optimization Based Methods for Solving Linear Algebraic Equations
- Lecture 33 - Conjugate Gradient Method, Matrix Conditioning and Solutions of Linear Algebraic Equations
- Lecture 34 - Matrix Conditioning and Solutions and Linear Algebraic Equations (Continued...)
- Lecture 35 - Matrix Conditioning (Continued...) and Solving Nonlinear Algebraic Equations
- Lecture 36 - Solving Nonlinear Algebraic Equations
- Lecture 37 - Solving Nonlinear Algebraic Equations
- Lecture 38 - Solving Nonlinear Algebraic Equations
- Lecture 39 - Solving Nonlinear Algebraic Equations
- Lecture 40 - Solving Ordinary Differential Equations - Initial Value Problems (ODE-IVPs)
- Lecture 41 - Solving Ordinary Differential Equations - Initial Value Problems (ODE-IVPs)
- Lecture 42 - Solving ODE-IVPs
- Lecture 43 - Solving ODE-IVPs
- Lecture 44 - Solving ODE-IVPs
- Lecture 45 - Solving ODE-IVPs
- Lecture 46 - Solving ODE-IVPs
- Lecture 47 - Solving ODE-IVPs
- Lecture 48 - Methods for Solving System of Differential Algebraic Equations
- Lecture 49 - Methods for Solving System of Differential Algebraic Equations (Continued...) and Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Evolutionary Dynamics

Subject Co-ordinator - Prof. Supreet Saini

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - History of the theory of Natural Selection - 1
- Lecture 2 - History of the theory of Natural Selection - 2
- Lecture 3 - Exponential growth models
- Lecture 4 - Logistic Growth Models - 1
- Lecture 5 - Logistic Growth Models - 2
- Lecture 6 - Modelling selection - 1
- Lecture 7 - Modelling Selection - 2
- Lecture 8 - Modelling Selection - 3
- Lecture 9 - Modelling Mutations - 1
- Lecture 10 - Modelling Mutations - 2
- Lecture 11 - Modelling Mutations - 3
- Lecture 12 - Genetic Code and Sequence Spaces
- Lecture 13 - Sequence Spaces as Networks
- Lecture 14 - Sequence Space to Fitness Landscape
- Lecture 15 - Properties of Fitness Landscapes and Quasi-species
- Lecture 16 - Integrating Reproduction, Selection and Mutation
- Lecture 17 - Obtaining Fitness Landscapes Experimentally
- Lecture 18 - NK Model of Fitness Landscape
- Lecture 19 - Modelling Evolution on Fitness Landscapes - 1
- Lecture 20 - Modelling Evolution on Fitness Landscapes - 2
- Lecture 21 - Modelling Evolution on Fitness Landscapes - 3
- Lecture 22 - Role of Randomness in Evolution
- Lecture 23 - Genetic Drift in Evolution of Microbial Populations
- Lecture 24 - Dynamics of a Moran Process without Selection
- Lecture 25 - Dynamics of a Moran Process without Selection
- Lecture 26 - Evolution, Selection, and Genetic Drift
- Lecture 27 - Representing Microbial Evolution
- Lecture 28 - Estimating Timescales of Evolution
- Lecture 29 - Estimating the Speed of Microbial Evolution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Evolutionary Dynamics when Mutations are Rare
- Lecture 31 - Evolutionary Dynamics when Mutations are Rapid - 1
- Lecture 32 - Evolutionary Dynamics when Mutations are Rapid - 2
- Lecture 33 - Evolutionary Dynamics when Mutations are Rapid - 3
- Lecture 34 - Evolutionary Game Theory - 1
- Lecture 35 - Evolutionary Game Theory - 2
- Lecture 36 - Evolutionary Game Theory - 3
- Lecture 37 - Evolutionary Game Theory - 4
- Lecture 38 - Evolutionary Game Theory Applied to Moran Process
- Lecture 39 - Evolutionary Games During Weak Selection
- Lecture 40 - Evolutionary Dynamics of HIV



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Heat Transfer

Subject Co-ordinator - Prof. Ganesh A. Viswanathan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction to Conduction
- Lecture 3 - Energy Balance
- Lecture 4 - 1D Steadystate Conduction - Resistance Concept
- Lecture 5 - Resistances in Composite Wall Case
- Lecture 6 - Resistances in Radial Systems
- Lecture 7 - Heat Generation - I Plane and Cylindrical Wall
- Lecture 8 - Heat Generation - II Problem; Introduction to Extended Surfaces
- Lecture 9 - Extended Surfaces I - General Formulation
- Lecture 10 - Extended Surfaces II - Fixed Cross-section Area
- Lecture 11 - Extended Surfaces III - Varying Cross-section Area
- Lecture 12 - 2D Plane Wall
- Lecture 13 - Transient Analyses I
- Lecture 14 - Transient Analyses II
- Lecture 15 - Transient Analyses
- Lecture 16 - Introduction to Convective Heat Transfer
- Lecture 17 - Heat and Mass Transport Coefficients
- Lecture 18 - Boundary Layer
- Lecture 19 - Laminar and Turbulent Flows; Momentum Balance
- Lecture 20 - Energy and Mass Balances; Boundary Layer Approximations
- Lecture 21 - Order of Magnitude Analysis
- Lecture 22 - Transport Coefficients
- Lecture 23 - Relationship between Momentum, Thermal and Concentration Boundary Layer
- Lecture 24 - Reynolds and Chilton-Colburn Analogies
- Lecture 25 - Forced Convection
- Lecture 26 - Flow Past Flat Plate I - Method of Blasius
- Lecture 27 - Flow Past Flat Plate II - Correlations for Heat and Mass Transport
- Lecture 28 - Flow Past Cylinders
- Lecture 29 - Flow through Pipes - I

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- Lecture 30 - Flow through Pipes - II
- Lecture 31 - Flow through Pipes - III
- Lecture 32 - Flow through Pipes - IV - Mixing-cup Temperature
- Lecture 33 - Flow through Pipes - V - Log mean Temperature Difference
- Lecture 34 - Flow through Pipes - VI - Correlations for Laminar and Turbulent Conditions
- Lecture 35 - Example problems
- Lecture 36 - Introduction to Free/Natural Convection
- Lecture 37 - Heated Plate in a Quiescent Fluid - I
- Lecture 38 - Heated Plate in a Quiescent Fluid - II
- Lecture 39 - Boiling - I
- Lecture 40 - Boiling - II
- Lecture 41 - Condensation - I
- Lecture 42 - Condensation - II
- Lecture 43 - Radiation
- Lecture 44 - Spectral Intensity
- Lecture 45 - Radiation
- Lecture 46 - Properties of a Blackbody
- Lecture 47 - Surface Adsorption
- Lecture 48 - Kirchoff's Law
- Lecture 49 - Radiation Exchange - View Factor
- Lecture 50 - View Factor Examples
- Lecture 51 - View Factor - Inside Sphere Method, Blackbody Radiation Exchange
- Lecture 52 - Diffuse, Gray Surfaces in an Enclosure
- Lecture 53 - Resistances - Oppenheim Matrix Method
- Lecture 54 - Resistances - Examples
- Lecture 55 - More Examples
- Lecture 56 - Introduction and Examples
- Lecture 57 - Parallel Flow Heat Exchangers
- Lecture 58 - LMTD I
- Lecture 59 - Shell and Tube Heat Exchangers
- Lecture 60 - Epsilon-NTU Method

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Heterogeneous Catalysis and Catalytic Processes

Subject Co-ordinator - Dr. K.K. Pant

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Mass Transfer Operations I

Subject Co-ordinator - Dr. B. Mandal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Mass Transfer
- Lecture 2 - Molecular Diffusion
- Lecture 3 - Fick's Law of Diffusion
- Lecture 4 - Steady state molecular diffusion in fluids - Part I
- Lecture 5 - Steady state molecular diffusion in fluids - Part II
- Lecture 6 - Diffusion coefficient
- Lecture 7 - Diffusion Coefficient
- Lecture 8 - Multicomponent Diffusion and Diffusivity in Solids
- Lecture 9 - Concept of Mass Transfer Coefficient
- Lecture 10 - Dimensionless Groups and Co-relations for Convective
- Lecture 11 - Mass Transfer coefficient in Laminar Flow Condition
- Lecture 12 - Boundary Layer Theory and Film Theory in Mass Transfer
- Lecture 13 - Mass Transfer Coefficients in Turbulent Flow
- Lecture 14 - Interphase Mass Transfer and Mass Transfer Theories - Part I
- Lecture 15 - Interphase Mass Transfer and Mass Transfer Theories - Part II
- Lecture 16 - Interphase Mass Transfer and Mass Transfer Theories - Part III
- Lecture 17 - Agitated and Sparged Vessels
- Lecture 18 - Tray Column - Part I
- Lecture 19 - Tray Column - Part II
- Lecture 20 - Packed Tower
- Lecture 21 - Introduction to Absorption and Solvent selection
- Lecture 22 - Packed Tower Design - Part I
- Lecture 23 - Packed Tower Design - Part II
- Lecture 24 - Packed Tower Design - Part III
- Lecture 25 - Mass Transfer Coefficients Correlation and HETP Concept
- Lecture 26 - Tray Tower Design and Introduction to Multicomponent System
- Lecture 27 - Introduction to Distillation and Phase diagrams
- Lecture 28 - Azeotropes and Enthalpy Concentration Diagrams
- Lecture 29 - Flash Distillation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Batch and Steam Distillation
- Lecture 31 - Fractional Distillation
- Lecture 32 - Fractional Distillation
- Lecture 33 - Fractional Distillation
- Lecture 34 - Fractional Distillation
- Lecture 35 - Fractional Distillation
- Lecture 36 - Multistage Batch Distillation with Reflux
- Lecture 37 - Fractional Distillation
- Lecture 38 - Ponchan and Savarit Method and Packed Tower Distillation
- Lecture 39 - Multicomponent Distillation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Process Design Decisions and Project Economics

Subject Co-ordinator - Dr. Vijay S. Moholkar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Introduction to the Course and Syllabus
- Lecture 2 - Hierarchical Approach to Process Design - I
- Lecture 3 - Hierarchical Approach to Process Design - Examples
- Lecture 4 - Input Information and Design Aspects of Batch vs. Continuous Process
- Lecture 5 - Input / Output Structure of Flowsheet - Part I
- Lecture 6 - Input / Output Structure of Flowsheet - Part II
- Lecture 7 - Input / Output Structure of Flowsheet - Part III and Recycle Structure of Flowsheet - Part I
- Lecture 8 - Recycle Structure of Flowsheet - Part II
- Lecture 9 - Recycle Structure of Flowsheet - Part III
- Lecture 10 - Recycle Structure of Flowsheet - Part IV and Tutorial - Part I
- Lecture 11 - Tutorial - Part II
- Lecture 12 - Tutorial - Part III
- Lecture 13 - Algorithm and Basic Principles of Reactor Design
- Lecture 14 - Reactor Non-ideality, Residence Time Distribution (RTD) and Types of Chemical Reactions & Catalysis
- Lecture 15 - Types of Reactors and Selection Criteria
- Lecture 16 - Tutorial on Reactor Design and Cost Estimation
- Lecture 17 - General Introduction (Types of Separation Processes and Criteria for Selection of the Processes)
- Lecture 18 - Guidelines for Design of Separation Systems
- Lecture 19 - Design of Distillation Columns - Part I (Sequencing of Columns, Energy Integration / Thermal Coupling)
- Lecture 20 - Design of Distillation Columns - Part II (Plate and Packed Towers, Number of Plates, Diameter and Height)
- Lecture 21 - Tutorial - Part I (Design of Absorption Column)
- Lecture 22 - Tutorial - Part II (Design of Distillation Column)
- Lecture 23 - Concepts and Basic Principles of Energy (or Heat) Integration - Part 1 (Composite Curves and ?T<sub>min</sub>)
- Lecture 24 - Concepts and Basic Principles of Heat Integration - Part 2 (Problem Table Algorithm and Identification of Heat Recovery Targets)
- Lecture 25 - Identification of Area and Cost Targets
- Lecture 26 - Pinch Technology for Heat Exchanger Network Design
- Lecture 27 - Tutorial - I (Composite Curves, Problem Table Algorithm and Enthalpy Intervals)
- Lecture 28 - Tutorial - II (Heat Exchanger Network Synthesis Using Pinch Technology)
- Lecture 29 - Selection of Process, Design of Flowsheet and Materials Balance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Energy Balance, Process Alternatives and Design of the Absorber
- Lecture 31 - Rules of Thumb & Their Limitations and Tutorial
- Lecture 32 - General Concepts & Principles and Cost Allocation Procedure
- Lecture 33 - Lumped Cost Diagram and Cost Allocation Diagram (Case Study of Hydro-dealkylation Process)
- Lecture 34 - Assessment of Process Alternatives with Cost Allocation Diagram (Case Study of Hydrodealkylation)
- Lecture 35 - Tutorial on Lumped Cost Diagram and Cost Allocation Diagram
- Lecture 36 - Introduction to Chemical Projects and Their Economic Aspects
- Lecture 37 - Selection of the Process and Project Site - Part I
- Lecture 38 - Selection of the Process and Project Site - Part II
- Lecture 39 - Project Cost Estimation - Part I
- Lecture 40 - Project Cost Estimation - Part II
- Lecture 41 - Simplified Cost Model and Depreciation
- Lecture 42 - Time Value of Money
- Lecture 43 - Measures of Profitability and Project Evaluation - Part I
- Lecture 44 - Measures of Profitability and Project Evaluation - Part II
- Lecture 45 - Tutorial on Project Economics - Part I
- Lecture 46 - Tutorial on Project Economics - Part II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Fluidization Engineering

Subject Co-ordinator - Dr. S.K. Majumder

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Particle properties
- Lecture 3 - Particle / Powder Classifications
- Lecture 4 - Minimum Fluidization Velocity
- Lecture 5 - Minimum Fluidization Velocity
- Lecture 6 - Flow regime and its map
- Lecture 7 - Flow regime and its map
- Lecture 8 - Frictional pressure drop in fluidized bed-fluid-solid system
- Lecture 9 - Frictional pressure drop in fluidized Bed-Gas-liquid-solid system
- Lecture 10 - Analysis of Frictional Pressure Drop in Fluidized Bed By Different Models
- Lecture 11 - Gas Distribution Through Distributor
- Lecture 12 - Calculation of gas pumping power consumption in fluidized bed
- Lecture 13 - Bubbling Fluidization Part 1
- Lecture 14 - Bubbling Fluidization Part 2
- Lecture 15 - Bubbling Fluidization Part 3
- Lecture 16 - Bubbling Fluidization Part 4
- Lecture 17 - Bubbling Fluidization Part 5
- Lecture 18 - Bubbling Fluidization Part 6
- Lecture 19 - Entrainment Characteristics (Part 1)
- Lecture 20 - Entrainment Characteristics (Part 2)
- Lecture 21 - Entrainment Characteristics (Part 2)
- Lecture 22 - Entrainment Characteristics (Part 2)
- Lecture 23 - Attrition in Fluidized Bed (Part 2)
- Lecture 24 - Solid movement, mixing
- Lecture 25 - Solid segregation
- Lecture 26 - Solid mixing and segregation
- Lecture 27 - Gas Dispersion and Interchange
- Lecture 28 - Mass transfer in fluidized Bed-Gas-solid system
- Lecture 29 - Mass transfer in fluidized Bed-Gas-liquid-solid system (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Heat transfer Characteristics

Lecture 31 - Fluidized bed reactor design and its performance

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:An Introduction to Cardiovascular Fluid Mechanics

Subject Co-ordinator - Dr. Raghvendra Gupta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - An Introduction

Lecture 2 - Fluid Mechanics

Lecture 3 - Solid Mechanics

Lecture 4 - Rheology of blood

Lecture 5 - Blood morphology

Lecture 6 - Blood flow in a channel

Lecture 7 - Viscometers and Rheometers

Lecture 8 - Viscoelasticity

Lecture 9 - Flow Bifurcation

Lecture 10 - Pulsatile Flow 1

Lecture 11 - Pulsatile Flow 2

Lecture 12 - Flow in Elastic Tubes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Multiphase Microfluidics

Subject Co-ordinator - Dr. Raghvendra Gupta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction
- Lecture 2 - Interface and Surface Tension
- Lecture 3 - Flow Regimes 1
- Lecture 4 - Flow Regimes 2
- Lecture 5 - Taylor Flow 1
- Lecture 6 - Taylor Flow 2
- Lecture 7 - Computational Techniques
- Lecture 8 - Bubble and Droplet Generation
- Lecture 9 - Interface and Surface tension 2
- Lecture 10 - Void Fraction and Pressure Drop
- Lecture 11 - Liquid-Liquid Flow
- Lecture 12 - Ideal annular Flow
- Lecture 13 - Taylor Flow
- Lecture 14 - Taylor Flow
- Lecture 15 - Taylor Flow
- Lecture 16 - Taylor Flow
- Lecture 17 - Flow boiling in microchannels
- Lecture 18 - Flow boiling in microchannels (Continued...)
- Lecture 19 - Flow Measurement Techniques
- Lecture 20 - Particle image Velocimetry
- Lecture 21 - Inertial Microfluidics
- Lecture 22 - Microfluidic applications
- Lecture 23 - Microfluidic applications (Continued...)
- Lecture 24 - Concluding Remarks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Measurement Technique in Multiphase Flows

Subject Co-ordinator - Prof. Rajesh Kumar Upadhyay

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Multiphase flow Measurement Techniques

Lecture 2 - Invasive and Non-invasive Techniques

Lecture 3 - Hot Wire Anemometry

Lecture 4 - Optical Fiber Probe

Lecture 5 - Laser Doppler Anemometry (LDA)

Lecture 6 - LDA Post Processing and Particle Image Velocimetry (PIV)

Lecture 7 - PIV and Positron Emission Particle Tracking

Lecture 8 - Radioactive Particle Tracking - I

Lecture 9 - Radioactive Particle Tracking - II

Lecture 10 - Capacitance Probe, Optical Fiber Probe and ECT

Lecture 11 - Gamma-ray and X-ray Tomography, MRI

Lecture 12 - Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Multiphase Flows

Subject Co-ordinator - Prof. Rajesh Kumar Upadhyay

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Multiphase flow introduction
- Lecture 2 - Fundamental definitions and terminology used in Multiphase - I
- Lecture 3 - Fundamental definitions and terminology used in Multiphase - II
- Lecture 4 - Flow Regime Map for Gas-Liquid System
- Lecture 5 - Flow Regime Map for Fluid-Solid System
- Lecture 6 - Pneumatic Conveying
- Lecture 7 - Momentum Equation through Reynolds Transport Theorem
- Lecture 8 - Lockhart Martinelli Correlation
- Lecture 9 - Pressure Drop Calculation for Homogeneous Flow
- Lecture 10 - Pressure Drop Calculation for Separated and Annular Flow Regime
- Lecture 11 - Lagrangian Tracking of Single Particle Under Different Forces
- Lecture 12 - Multiphase Interactions
- Lecture 13 - Multiphase Interactions
- Lecture 14 - Introduction to Multiphase Flow Modeling
- Lecture 15 - Algebraic Slip Method and Euler-Euler Method
- Lecture 16 - KTGF and Euler-Lagrangian Model
- Lecture 17 - Measurement Techniques
- Lecture 18 - Measurement Techniques
- Lecture 19 - Bubble Column
- Lecture 20 - Packed Bed Reactor
- Lecture 21 - Fluidized Bed Reactor
- Lecture 22 - Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Polymer Physics (IIT-G)

Subject Co-ordinator - Prof. Amit Kumar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Polymers
- Lecture 2 - Ideal Chain Models
- Lecture 3 - Ideal and Real Chains
- Lecture 4 - Thermodynamics of Polymer Solutions - I
- Lecture 5 - Thermodynamics of Polymer Solutions - II
- Lecture 6 - Thermodynamics of Polymer Solutions - III
- Lecture 7 - Phase Behaviour of Polymer Solutions and Blends
- Lecture 8 - Phase Behaviour of Polymer Blends and Copolymers
- Lecture 9 - Determination of Polymer Molar Mass
- Lecture 10 - Determination of Polymer Molar Mass
- Lecture 11 - Determination of Polymer Molar Mass
- Lecture 12 - Determination of Polymer Molar Mass
- Lecture 13 - Branching
- Lecture 14 - Branching, Network Formation and Gelation
- Lecture 15 - Gelation and Swelling of Network Polymers
- Lecture 16 - Amorphous State of Polymers
- Lecture 17 - Crystalline State of Polymers
- Lecture 18 - Mechanical Properties of Polymers
- Lecture 19 - Viscoelasticity
- Lecture 20 - Viscoelasticity, Dynamic Mechanical Analysis and Rheology
- Lecture 21 - Rubber Elasticity
- Lecture 22 - Unentangled Polymer Dynamics
- Lecture 23 - Entangled Polymer Dynamics
- Lecture 24 - Review

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Natural Gas Engineering

Subject Co-ordinator - Prof. Pankaj Tiwari

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Natural Gas - I
- Lecture 2 - Introduction to Natural Gas - II
- Lecture 3 - Introduction to Natural Gas - III
- Lecture 4 - Wellbore Performance Relationship (WPR)
- Lecture 5 - Choke Performance Relationship (CPR)
- Lecture 6 - Nodal Analysis
- Lecture 7 - Inflow Performance Relationship (IPR) - I
- Lecture 8 - Inflow Performance Relationship (IPR) - II
- Lecture 9 - Gas Well Testing
- Lecture 10 - Wellbore Performance Relationship (WPR)
- Lecture 11 - Choke Performance Relationship (CPR)
- Lecture 12 - Nodal Analysis
- Lecture 13 - Natural Gas Separation - I
- Lecture 14 - Natural Gas Separation - II
- Lecture 15 - Dehydration of Natural Gas
- Lecture 16 - Sweetening of Natural Gas
- Lecture 17 - Compressor Design
- Lecture 18 - Measurement of Natural Gas
- Lecture 19 - Transportation of Natural Gas - I
- Lecture 20 - Transportation of Natural Gas - II
- Lecture 21 - Unconventional production of Natural Gas
- Lecture 22 - Review

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Fluid Mechanics

Subject Co-ordinator - Dr. V. Shankar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
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Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 40

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Mass Transfer II

Subject Co-ordinator - Prof. Nishith Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
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Lecture 9  
Lecture 10  
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Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
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Lecture 27  
Lecture 28  
Lecture 29

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Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Plantwide Control of Chemical Processes

Subject Co-ordinator - Dr. Nitin Kaistha

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Process Dynamics and Negative Feedback
- Lecture 3 - PID control
- Lecture 4 - Common Industrial Control Loops and advanced loops
- Lecture 5 - Advanced loops (Continued...) and multivariable systems
- Lecture 6 - Systematic Tuning Using Frequency Domain Analysis
- Lecture 7 - Frequency Domain Analysis
- Lecture 8 - Multivariable Systems
- Lecture 9 - RGA and dynamic decoupling
- Lecture 10 - Model based control
- Lecture 11 - Dynamic Matrix Control
- Lecture 12 - Control of Distillation Columns
- Lecture 13 - Temperature inferential distillation control
- Lecture 14 - Considerations in temperature inferential control
- Lecture 15 - Control of Complex Column Configurations
- Lecture 16 - Control of Heat Integrated Columns
- Lecture 17 - Homogenous extractive distillation
- Lecture 18 - More on complex columns and reactive distillation
- Lecture 19 - Control of reactors
- Lecture 20 - PFR controls (Continued..) & CSTRs
- Lecture 21 - CSTR heat management
- Lecture 22 - Heat Exchangers and Miscellaneous Systems
- Lecture 23 - Degrees of freedom analysis
- Lecture 24 - Degrees of freedom (Continued...)
- Lecture 25 - Illustration of considerations in control structure synthesis
- Lecture 26 - Two column recycle process
- Lecture 27 - Throughput manipulator selection
- Lecture 28 - Plantwide control structure design
- Lecture 29 - Systematizing plantwide control design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Luyben design procedure
- Lecture 31 - Role of equipment capacity constraints
- Lecture 32 - Recycle process case study
- Lecture 33 - Recycle process case study (Continued...)
- Lecture 34 - C4 isomerization process case study
- Lecture 35 - C4 isomerization process case study (Continued...)
- Lecture 36 - C4 isomerization process case study
- Lecture 37 - Systematic economic plantwide control design procedure
- Lecture 38 - Ethyl benzene process case study
- Lecture 39 - C4 isomerization process revisited
- Lecture 40 - Contrasting conventional and top-down approach
- Lecture 41 - Cumene process plantwide control

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Thermodynamics Of Fluid Phase Equilibria

Subject Co-ordinator - Dr. Jayant K. Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review - 1
- Lecture 2 - Review - Temperature and Pressure
- Lecture 3 - Review - Energy Conservation
- Lecture 4 - Properties - Part 1
- Lecture 5 - Properties - Part 2
- Lecture 6 - Mass-energy analysis of open system
- Lecture 7 - Energy analysis of closed system
- Lecture 8 - The Second Law of Thermodynamics
- Lecture 9 - Entropy
- Lecture 10 - Thermodynamic Calculus - 1
- Lecture 11 - Thermodynamic Calculus - 2
- Lecture 12 - Thermodynamic Calculus - 3
- Lecture 13 - Thermodynamic Calculus - 4
- Lecture 14 - Legendre Transformation and Free-energy
- Lecture 15 - Criteria for phase equilibria
- Lecture 16 - Maxwell Relation
- Lecture 17 - Stability Criteria
- Lecture 18 - Thermodynamics of phase equilibrium
- Lecture 19 - Chemical potential and fugacity
- Lecture 20 - General discussion on fugacity
- Lecture 21 - Ideal Gas Mixture - Part 1
- Lecture 22 - Ideal Gas Mixture - Part 2
- Lecture 23 - Partial Molar Properties
- Lecture 24 - Partial Molar Properties from experimental data
- Lecture 25 - Thermodynamics properties from volumetric data - 1
- Lecture 26 - Thermodynamics properties from volumetric data - 2
- Lecture 27 - Fugacity of pure liquids and solids
- Lecture 28 - Thermodynamics properties from volumetric data
- Lecture 29 - Approaches to phase equilibria calculation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Traditional Approaches to phase equilibria calculations
- Lecture 31 - Algorithms for vapor-liquid equilibria
- Lecture 32 - Probability and Multiplicity
- Lecture 33 - Multiplicity and maximising the multiplicity
- Lecture 34 - Introduction to statistical mechanics
- Lecture 35 - Partition function for independent particles
- Lecture 36 - Lecture 36
- Lecture 37 - Models of Molecular Pair Potentials
- Lecture 38 - Molecular Theory of Corresponding States
- Lecture 39 - Molecular Interactions in Dense Fluid Media
- Lecture 40 - Models for Electrolyte Systems
- Lecture 41 - Membrane Osmometry
- Lecture 42 - Fugacity of liquid mixture - 1
- Lecture 43 - Fugacity of liquid mixture - 2
- Lecture 44 - Models for fugacity of liquid mixtures - 1
- Lecture 45 - Models for fugacity of liquid mixtures - 2
- Lecture 46 - Examples of Fugacity of liquids
- Lecture 47 - Stability of the Fluid Phases
- Lecture 48 - Theories of Solution - I
- Lecture 49 - Theories of Solution - II
- Lecture 50 - Polymer Solutions
- Lecture 51 - Example Problems on Polymer Solutions



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Biochemical Engineering

Subject Co-ordinator - Dr. Saikat Chakraborty, Dr. Rintu Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Biology & Biotechnology
- Lecture 2 - Glimpses of Microbial World - Bacteria
- Lecture 3 - Virus and Cell Organelles
- Lecture 4 - Carbohydrate
- Lecture 5 - Nucleic Acid
- Lecture 6 - Lipids
- Lecture 7 - Proteins
- Lecture 8 - Biochemistry & Thermodynamics of Enzymes
- Lecture 9 - Enzyme Kinetics
- Lecture 10 - Regulation of Enzyme Activity
- Lecture 11 - Regulation of Enzyme Activity
- Lecture 12 - Effects of Substrate and Inhibition, pH and Temperature on Enzyme Activity
- Lecture 13 - Immobilized Enzymes
- Lecture 14 - Immobilized Enzymes (Continued...)
- Lecture 15 - Interphase Mass Transfer and Reaction in Immobilized Enzymes
- Lecture 16 - Interphase Mass Transfer and Reaction in Immobilized Enzymes (Continued...)
- Lecture 17 - Effectiveness Factor in Immobilized Enzymes
- Lecture 18 - Bioenergetics and Glycolysis
- Lecture 19 - TCA Cycle
- Lecture 20 - Electron Transport Chain & Oxidative Phosphorylation
- Lecture 21 - Pentose Phosphate Pathways Glycogenesis & Glycogenolysis
- Lecture 22 - Urea Cycle, Gluconeogenesis and Glyoxalate Cycle
- Lecture 23 - Microbial Growth
- Lecture 24 - Effect of Mass Transfer on Microbial & Fungal Growth
- Lecture 25 - Effect of Multiple Substrates and Inhibition on Microbial Growth
- Lecture 26 - Design of Bioreactors
- Lecture 27 - Design of Chemostats
- Lecture 28 - Stability of Bioreactors
- Lecture 29 - Stability of Bioreactors (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Receptor - Ligand Binding
- Lecture 31 - Effects of Ligand Depletion and Multiple Receptors on Binding Kinetics
- Lecture 32 - Effects of Ligand Depletion and Multiple Receptors on Binding Kinetics (Continued...)
- Lecture 33 - Receptors-Mediated Endocytosis
- Lecture 34 - Kinetics of Receptor-Mediated Endocytosis
- Lecture 35 - General Model for Receptor-Mediated Endocytosis
- Lecture 36 - Multiple Interacting Microbial Population
- Lecture 37 - Manufacture of Biochemicals
- Lecture 38 - Manufacture of Biochemicals (Continued...) & Strategies for Biomolecules Separation
- Lecture 39 - Strategies for Biomolecules Separation (Continued...)
- Lecture 40 - Strategies for Biomolecules Separation (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Microscale Transport Processes

Subject Co-ordinator - Dr. Somnath Ganguly, Prof. S. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Lab on Chip  
Lecture 4 - Lab on Chip (Continued...)  
Lecture 5 - Microscale manufacturing practices  
Lecture 6 - Photolithography  
Lecture 7 - Photolithography (Continued...)  
Lecture 8 - Deposition  
Lecture 9 - Plastic microfluidic devices  
Lecture 10 - Mixing  
Lecture 11 - Micro Heat Pipes  
Lecture 12 - Mixing (Continued...)  
Lecture 13 - Mixing (Continued...)  
Lecture 14 - Micro Heat Pipes (Continued...)  
Lecture 15 - Mixing (Continued...)  
Lecture 16 - Dispersion  
Lecture 17 - Dispersion (Continued...)  
Lecture 18 - Dispersion (Continued...)  
Lecture 19 - Electrowetting  
Lecture 20 - Electro osmosis  
Lecture 21 - Electrowetting (Continued...)  
Lecture 22 - Electro osmosis (Continued...)  
Lecture 23 - Dielectrophoresis  
Lecture 24 - Dielectrophoresis (Continued...)  
Lecture 25 - Dielectrophoresis (Continued...)  
Lecture 26 - Scaling dimension and issues  
Lecture 27 - Slip flow  
Lecture 28 - Microstructured reactor  
Lecture 29 - Immiscible flow in microchannel

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Immiscible flow in microchannel (Continued...)
- Lecture 31 - Immiscible flow in microchannel (Continued...)
- Lecture 32 - Scaling dimension and issues (Continued...)
- Lecture 33 - Immiscible flow in microchannel (Continued...)
- Lecture 34 - Plastic device making
- Lecture 35 - Transport processes and their descriptions
- Lecture 36 - Convective fluid dynamics in microchannels
- Lecture 37 - Microfluidic networks
- Lecture 38 - Electrohydrodynamic atomization
- Lecture 39 - Electrohydrodynamic atomization (Continued...)
- Lecture 40 - Interfacial phenomena in thin liquid films

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Multiphase Flow

Subject Co-ordinator - Prof. P.K. Das, Prof. Gargi Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Estimation of Flow Patterns  
Lecture 3 - Estimation of Flow Patterns (Continued...)  
Lecture 4 - Flow Pattern Maps Fascinating Taylor Bubbles  
Lecture 5 - Definitions and Common Terminologies  
Lecture 6 - Definitions and Common Terminologies (Continued...)  
Lecture 7 - Simple Analytical Models  
Lecture 8 - The Homogeneous Flow Theory  
Lecture 9 - The Homogeneous Flow Theory (Continued...)  
Lecture 10 - Compressible Flow A Recapitulation  
Lecture 11 - Compressible Flow A Recapitulation (Continued...)  
Lecture 12 - Choked Flow Condition for Homogeneous Flow  
Lecture 13 - Drift Flux Model  
Lecture 14 - Drift Flux Model (Continued...)  
Lecture 15 - Drift Flux Model (Continued...)  
Lecture 16 - Drift Flux Model (Continued...)  
Lecture 17 - Separated Flow Model  
Lecture 18 - Separated Flow Model (Continued...)  
Lecture 19 - Separated Flow Model (Continued...)  
Lecture 20 - Separated Flow Model - Condition of Choking  
Lecture 21 - Separated Flow Model - Condition of Choking (Continued...)  
Lecture 22 - Separated Flow Model - Estimation of Frictional Pressure Drop and Void Fraction  
Lecture 23 - Separated Flow Model - Estimation of Frictional Pressure Drop and Void Fraction (Continued...)  
Lecture 24 - Separated Flow Model - Estimation of Frictional Pressure Drop and Void Fraction (Continued...)  
Lecture 25 - Separated Flow Model - Estimation of Frictional Pressure Drop and Void Fraction (Continued...)  
Lecture 26 - Analysis of Specific Flow Regimes  
Lecture 27 - Analysis of Specific Flow Regimes (Continued...)  
Lecture 28 - Analysis of Specific Flow Regimes - Slug Flow (Continued...)  
Lecture 29 - Two Phase Flow with Phase Change - An Introduction to Boiling Heat Transfer

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bubble Growth
- Lecture 31 - Different Types of Nucleation
- Lecture 32 - Ibullition from Hot Surfaces
- Lecture 33 - Cycle of Bubble Growth and Departure
- Lecture 34 - Heat Transfer in Different Regimes of Boiling
- Lecture 35 - Heat Transfer in Different Regimes of Boiling (Continued...)
- Lecture 36 - Critical Heat Flux, Film Boiling
- Lecture 37 - Measurement Techniques for Two Phase flow Parameters
- Lecture 38 - Measurement Techniques for Two Phase flow Parameters - Void Fraction Measurement
- Lecture 39 - Measurement Techniques for Two Phase flow Parameters - Void Fraction Measurement (Continued...)
- Lecture 40 - Measurement Techniques for Two Phase flow Parameters - Estimation of Flow Patterns

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Novel Separation Processes

Subject Co-ordinator - Prof. S. De

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Separation Processes
- Lecture 2 - Identification of Novel Separation Processes
- Lecture 3 - Membrane Separation Processes
- Lecture 4 - Membrane Separation Processes (Continued...1)
- Lecture 5 - Membrane Separation Processes (Continued...2)
- Lecture 6 - Membrane Separation Processes (Continued...3)
- Lecture 7 - Membrane Separation Processes (Continued...4)
- Lecture 8 - Membrane Separation Processes (Continued...5)
- Lecture 9 - Membrane Separation Processes (Continued...6)
- Lecture 10 - Membrane Separation Processes (Continued...7)
- Lecture 11 - Membrane Separation Processes (Continued...8)
- Lecture 12 - Membrane Separation Processes (Continued...9)
- Lecture 13 - Membrane Separation Processes (Continued...10)
- Lecture 14 - Membrane Separation Processes (Continued...11)
- Lecture 15 - Membrane Separation Processes (Continued...12)
- Lecture 16 - Membrane Separation Processes (Continued...13)
- Lecture 17 - Membrane Separation Processes (Continued...14)
- Lecture 18 - Membrane Separation Processes (Continued...15)
- Lecture 19 - Membrane Separation Processes (Continued...16)
- Lecture 20 - Membrane Separation Processes (Continued...17)
- Lecture 21 - Membrane Separation Processes (Continued...18)
- Lecture 22 - External Field Induced Membrane Separation Processes
- Lecture 23 - External Field Induced Membrane Separation Processes (Continued...1)
- Lecture 24 - External Field Induced Membrane Separation Processes (Continued...2)
- Lecture 25 - External Field Induced Membrane Separation Processes (Continued...3)
- Lecture 26 - External Field Induced Membrane Separation Processes (Continued...4)
- Lecture 27 - Gas Separation
- Lecture 28 - Gas Separation (Continued...)
- Lecture 29 - Surfactant Based Separation Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Surfactant Based Separation Processes (Continued...)
- Lecture 31 - Micellar Enhanced Ultrafiltration
- Lecture 32 - Micellar Enhanced Ultrafiltration (Continued...)
- Lecture 33 - Liquid Membranes
- Lecture 34 - Liquid Membranes (Continued...)
- Lecture 35 - Centrifugal Separation Processes
- Lecture 36 - Chromatographic Separation Processes
- Lecture 37 - Chromatographic Separation Processes (Continued...)
- Lecture 38 - Ion Exchange Processes
- Lecture 39 - Electrophoretic Separation Methods
- Lecture 40 - Electrophoretic Separation Methods (Continued...)
- Lecture 41 - Supercritical Fluid Extraction



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Process Control and Instrumentation

Subject Co-ordinator - Dr. D. Sarkar, Dr. A.K. Jana

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Process Control
- Lecture 2 - Introduction to Process Control (Continued...)
- Lecture 3 - Mathematical Modeling (Continued...1)
- Lecture 4 - Mathematical Modeling (Continued...2)
- Lecture 5 - Mathematical Modeling (Continued...3)
- Lecture 6 - Dynamic Behavior of Chemical Processes
- Lecture 7 - Dynamic Behavior of Chemical Processes (Continued...1)
- Lecture 8 - Dynamic Behavior of Chemical Processes (Continued...2)
- Lecture 9 - Dynamic Behavior of Chemical Processes (Continued...3)
- Lecture 10 - Dynamic Behavior of Chemical Processes (Continued...4)
- Lecture 11 - Dynamic Behavior of Chemical Processes (Continued...5)
- Lecture 12 - Dynamic Behavior of Chemical Processes (Continued...6)
- Lecture 13 - Dynamic Behavior of Chemical Processes (Continued...7)
- Lecture 14 - Dynamic Behavior of Chemical Processes (Continued...8)
- Lecture 15 - Feedback Control Schemes
- Lecture 16 - Feedback Control Schemes (Continued...1)
- Lecture 17 - Feedback Control Schemes (Continued...2)
- Lecture 18 - Feedback Control Schemes (Continued...3)
- Lecture 19 - Feedback Control Schemes (Continued...4)
- Lecture 20 - Feedback Control Schemes (Continued...5)
- Lecture 21 - Feedback Control Schemes (Continued...6)
- Lecture 22 - Feedback Control Schemes (Continued...7)
- Lecture 23 - Feedback Control Schemes (Continued...8)
- Lecture 24 - Feedback Control Schemes (Continued...9)
- Lecture 25 - Feedback Control Schemes (Continued...10)
- Lecture 26 - Feedback Control Schemes (Continued...11)
- Lecture 27 - Feedback Control Schemes (Continued...12)
- Lecture 28 - Feedback Control Schemes (Continued...13)
- Lecture 29 - Feedback Control Schemes (Continued...14)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Advanced Control Schemes
- Lecture 31 - Advanced Control Schemes (Continued...1)
- Lecture 32 - Advanced Control Schemes (Continued...2)
- Lecture 33 - Advanced Control Schemes (Continued...3)
- Lecture 34 - Advanced Control Schemes (Continued...4)
- Lecture 35 - Instrumentation
- Lecture 36 - Instrumentation
- Lecture 37 - Instrumentation
- Lecture 38 - Instrumentation
- Lecture 39 - Instrumentation
- Lecture 40 - Instrumentation
- Lecture 41 - Transducer Elements
- Lecture 42 - Pressure Measurement
- Lecture 43 - Pressure Measurement (Continued...1)
- Lecture 44 - Pressure Measurement (Continued...2)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Instability and Patterning of Thin Polymer Films

Subject Co-ordinator - Dr. R. Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Some Fundamental Surface Related Concepts - I
- Lecture 4 - Surface Tension (in terms of molecular interactions)
- Lecture 5 - Effect Surface Tension
- Lecture 6 - Young Laplace Equation
- Lecture 7 - Rayleish Instability
- Lecture 8 - Meso Scale Fabrication Approaches
- Lecture 9 - Photo Lithography - I
- Lecture 10 - Photo Lithography - II
- Lecture 11 - Photo Lithography - III
- Lecture 12 - Photo Lithography - IV
- Lecture 13 - Photo Lithography - V
- Lecture 14 - Nano Imprint Lithography
- Lecture 15 - Nano Imprint Lithography (Continued...)
- Lecture 16 - Soft Lithography - I
- Lecture 17 - Soft Lithography - II
- Lecture 18 - Soft Lithography - III
- Lecture 19 - Soft Lithography - IV
- Lecture 20 - Soft Lithography - V
- Lecture 21 - Soft Lithography - VI
- Lecture 22 - Atomic Force Microscope - I
- Lecture 23 - Atomic Force Microscope - II
- Lecture 24 - Atomic Force Microscope - III
- Lecture 25 - Atomic Force Microscope - IV
- Lecture 26 - Atomic Force Microscope - V
- Lecture 27 - Intermolecular Forces between Particles and Surfaces - I
- Lecture 28 - Intermolecular Forces between Particles and Surfaces - II
- Lecture 29 - Intermolecular Forces between Particles and Surfaces - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Intermolecular Forces between Particles and Surfaces - IV
- Lecture 31 - Spontaneous instability and dewetting of thin polymer film - I
- Lecture 32 - Spontaneous instability and dewetting of thin polymer film - II
- Lecture 33 - Spontaneous instability and dewetting of thin polymer film - III
- Lecture 34 - Spontaneous instability and dewetting of thin polymer film - IV
- Lecture 35 - Spontaneous instability and dewetting of thin polymer film - V
- Lecture 36 - Spontaneous instability and dewetting of thin polymer film - VI
- Lecture 37 - Spontaneous instability and dewetting of thin polymer film - VII
- Lecture 38 - Template Guided Dewetting
- Lecture 39 - Elastic Contact Instability and Lithography
- Lecture 40 - Gradient Surfaces

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Advanced Mathematical Techniques in Chemical Engineering

Subject Co-ordinator - Prof. S. De

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to vector space
- Lecture 2 - Introduction to vector space (Continued...)
- Lecture 3 - Onto, into, one to one function
- Lecture 4 - Vectors
- Lecture 5 - Vectors (Continued...)
- Lecture 6 - Contraction Mapping
- Lecture 7 - Contraction Mapping (Continued...)
- Lecture 8 - Matrix, Determinant
- Lecture 9 - Eigenvalue Problem in Discrete Domain
- Lecture 10 - Eigenvalue Problem in Discrete Domain (Continued...)
- Lecture 11 - Eigenvalue Problem in Discrete Domain (Continued...)
- Lecture 12 - Eigenvalue Problem in Discrete Domain (Continued...)
- Lecture 13 - Stability Analysis
- Lecture 14 - Stability Analysis (Continued...)
- Lecture 15 - Stability Analysis (Continued...)
- Lecture 16 - More Examples
- Lecture 17 - Partial Differential Equations
- Lecture 18 - Partial Differential Equations (Continued...)
- Lecture 19 - Eigenvalue Problem in Continuous Domain
- Lecture 20 - Special ODEs
- Lecture 21 - Adjoint Operator
- Lecture 22 - Theorems of Eigenvalues and Eigenfunction
- Lecture 23 - Solution PDE
- Lecture 24 - Solution of Parabolic PDE
- Lecture 25 - Solution of Parabolic PDE
- Lecture 26 - Solution of Higher Dimensional PDEs
- Lecture 27 - Solution of Higher Dimensional PDEs (Continued...)
- Lecture 28 - Four Dimensional Parabolic PDE
- Lecture 29 - Solution of Elliptic and Hyperbolic PDE

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solution of Elliptic and Hyperbolic PDE (Continued...)
- Lecture 31 - PDE in Cylindrical and Spherical Coordinate
- Lecture 32 - Solution of non-homogeneous PDE
- Lecture 33 - Solution of non-homogeneous PDE (Continued...)
- Lecture 34 - Solution of non-homogeneous Parabolic PDE
- Lecture 35 - Solution of non-homogeneous Elliptic PDE
- Lecture 36 - Solution of non-homogeneous Elliptic PDE (Continued...)
- Lecture 37 - Similarity Solution
- Lecture 38 - Similarity Solution (Continued...)
- Lecture 39 - Integral Method
- Lecture 40 - Laplace Transform
- Lecture 41 - Fourier Transform

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Process Modeling in Membrane Separation Process

Subject Co-ordinator - Prof. S. De

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Separation Processes and Introduction of Membrane System
- Lecture 2 - Fundamentals of Separation Processes and Introduction of Membrane System (Continued...)
- Lecture 3 - Fundamentals of Separation Processes and Introduction of Membrane System (Continued...)
- Lecture 4 - Fundamentals of Separation Processes and Introduction of Membrane System (Continued...)
- Lecture 5 - Modeling of Reverse Osmosis
- Lecture 6 - Concentration Polarization
- Lecture 7 - Osmotic Pressure Controlling Filtration
- Lecture 8 - Osmotic Pressure Controlling Filtration (Continued...)
- Lecture 9 - Osmotic Pressure Controlling Filtration (Continued...)
- Lecture 10 - Osmotic Pressure Controlling Filtration (Continued...)
- Lecture 11 - Osmotic Pressure Controlling Filtration (Continued...)
- Lecture 12 - Osmotic Pressure Controlling Filtration (Continued...)
- Lecture 13 - Modeling of Gel Layer Controlling Filtration
- Lecture 14 - Modeling of Gel Layer Controlling Filtration (Continued...)
- Lecture 15 - Modeling of Gel Layer Controlling Filtration (Continued...) and Resistance in Series Models
- Lecture 16 - Design of Membrane Module
- Lecture 17 - Design of Membrane Module (Continued...)
- Lecture 18 - Design of Membrane Module (Continued...)
- Lecture 19 - Modeling of Dialysis
- Lecture 20 - Modeling of Dialysis (Continued...)

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Soft Nano Technology

Subject Co-ordinator - Dr. R. Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - 1  
Lecture 2 - Introduction - 2  
Lecture 3 - Introduction - 3  
Lecture 4 - Fundamental Concepts Related to Surface Tension - 1  
Lecture 5 - Fundamental Concepts Related to Surface Tension - 2  
Lecture 6 - Fundamental Concepts Related to Surface Tension - 3  
Lecture 7 - Fundamental Concepts Related to Surface Tension - 4  
Lecture 8 - Components of Surface Tension - 1  
Lecture 9 - Components of Surface Tension - 2  
Lecture 10 - Self Assembly of Surfactant Molecules  
Lecture 11 - Laplace Pressure  
Lecture 12 - Photo Lithography - 1  
Lecture 13 - Photo Lithography - 2  
Lecture 14 - Photo Lithography - 3  
Lecture 15 - Photo Lithography - 4  
Lecture 16 - Photo Lithography - 5  
Lecture 17 - Photo Lithography - 6  
Lecture 18 - Soft Lithography - I  
Lecture 19 - Soft Lithography - 2  
Lecture 20 - Soft Lithography - 3  
Lecture 21 - Soft Lithography - 4  
Lecture 22 - Soft Lithography - 5  
Lecture 23 - Soft Lithography - 6  
Lecture 24 - Atomic Force Microscope - 1  
Lecture 25 - Atomic Force Microscope - 2  
Lecture 26 - Atomic Force Microscope - 3  
Lecture 27 - Atomic Force Microscope - 4  
Lecture 28 - Atomic Force Microscope - 5  
Lecture 29 - Atomic Force Microscope - 6

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dewetting - 1
- Lecture 31 - Dewetting - 2
- Lecture 32 - VdW Interaction Between Two Surfaces
- Lecture 33 - Interaction Between Two Surfaces - 2
- Lecture 34 - Interaction Between Two Surfaces - 3
- Lecture 35 - Dewetting - 3
- Lecture 36 - Pattern Directed Dewetting - I
- Lecture 37 - Pattern Directed Dewetting - II
- Lecture 38 - Spin Dewetting
- Lecture 39 - Elastic Contact Instability - I
- Lecture 40 - Elastic Contact Instability - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Adiabatic Two-Phase Flow and Flow Boiling in Microchannel

Subject Co-ordinator - Prof. Gargi Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Brief Introduction to Multiphase Flow
- Lecture 2 - Brief Introduction to Multiphase Flow (Continued...)
- Lecture 3 - Two Phase Flow through Micro Channels
- Lecture 4 - Two Phase Flow through Micro Channels (Continued...)
- Lecture 5 - Criteria for Confinement for in Case of Two Phase Flow
- Lecture 6 - Pertinent Dimensionless Numbers in Two Phase
- Lecture 7 - Flow Pattern Maps for Milli and Micro Systems
- Lecture 8 - Pattern Transition from Energy Minimisation Principle
- Lecture 9 - Experimental Identification of Flow Regimes
- Lecture 10 - Experimental Identification of Flow Regimes (Continued...)
- Lecture 11 - Flow Regimes and Void Fraction Estimation
- Lecture 12 - Influence of Operating Parameter on Flow Patterns
- Lecture 13 - Influence of Operating Parameter on Flow Patterns (Continued...)
- Lecture 14 - Influence of Operating Parameter on Flow Patterns (Continued...)
- Lecture 15 - Influence of Operating Parameter on Flow Patterns (Continued...)
- Lecture 16 - Void Fraction Characteristic Mini and Micro Channel
- Lecture 17 - Void Fraction and Pressure Drop in Reduced Dimensions - Experimental results
- Lecture 18 - Void Fraction and Pressure Drop in Reduced Dimensions - Experimental results (Continued...)
- Lecture 19 - Theoretical Analysis of Two Phase Flow in Reduced Dimensions
- Lecture 20 - Theoretical Analysis of Two Phase Flow in Reduced Dimensions (Continued...)
- Lecture 21 - Flow Pattern based Analysis in Micro Systems - Drift Flux Model
- Lecture 22 - Flow Pattern based Modelling - Slug Flow Model
- Lecture 23 - Flow Boiling in Microchannels
- Lecture 24 - Tutorial - I
- Lecture 25 - Tutorial - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Phase Equilibrium Thermodynamics

Subject Co-ordinator - Prof. Gargi Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - First Law of Thermodynamics  
Lecture 4 - Second Law of Thermodynamics  
Lecture 5 - Second Law of Thermodynamics (Continued...)  
Lecture 6 - Entropy Change during Spontaneous Processes  
Lecture 7 - Criteria of Spontaneity  
Lecture 8 - Criteria of Spontaneity (Continued...)  
Lecture 9 - Thermodynamic Network  
Lecture 10 - Thermodynamic Network (Continued...)  
Lecture 11 - Tutorial 1  
Lecture 12 - Gibbs free energy as a function of temperature and pressure  
Lecture 13 - P-v-T behaviour of gases  
Lecture 14 - P-v-T behaviour (Continued...)  
Lecture 15 - P-v-T behaviour (Continued...)  
Lecture 16 - P-v-T behaviour (Continued...)  
Lecture 17 - Tutorial 2  
Lecture 18 - Property estimation from P-v-T behaviour  
Lecture 19 - Property estimation (Continued...)  
Lecture 20 - Concept of chemical potential  
Lecture 21 - Chemical potential (Continued...)  
Lecture 22 - Homogeneous open systems  
Lecture 23 - Homogeneous open systems (Continued...)  
Lecture 24 - Heterogeneous Closed Systems  
Lecture 25 - Tutorial 3  
Lecture 26 - Concept of fugacity  
Lecture 27 - Fugacity (Continued...)  
Lecture 28 - Estimation of fugacity coefficients  
Lecture 29 - Fugacity of condensed phase

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Mixtures
- Lecture 31 - Mixtures (Continued...)
- Lecture 32 - Tutorial 4
- Lecture 33 - Partial molar properties
- Lecture 34 - Partial molar properties (Continued...)
- Lecture 35 - Partial molar fugacity
- Lecture 36 - Ideal solutions
- Lecture 37 - Ideal solutions (Continued...)
- Lecture 38 - Ideal solutions (Continued...)
- Lecture 39 - Ideal solutions (Continued...)
- Lecture 40 - Non-ideal solutions
- Lecture 41 - Non-ideal solutions (Continued...)
- Lecture 42 - Non-ideal solutions (Continued...)
- Lecture 43 - Non-ideal solutions (Continued...)
- Lecture 44 - Non-ideal solutions (Continued...)
- Lecture 45 - Deviations from ideal dilute solutions
- Lecture 46 - Tutorial
- Lecture 47 - Tutorial
- Lecture 48
- Lecture 49
- Lecture 50
- Lecture 51
- Lecture 52

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Transport Phenomena

Subject Co-ordinator - Prof. Sunando Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Fourier and Fick's Laws
- Lecture 3 - Shell Momentum Balance
- Lecture 4 - Example of Shell Momentum Balance
- Lecture 5 - Example of Shell Momentum Balance (Continued...)
- Lecture 6 - Example of Shell Momentum Balance (Continued...)
- Lecture 7 - Example of Shell Momentum Balance (Continued...)
- Lecture 8 - Example of Shell Momentum Balance (Continued...)
- Lecture 9 - Equations of Change for Isothermal Systems
- Lecture 10 - Equations of Change for Isothermal Systems (Continued...)
- Lecture 11 - Equations of Change for Isothermal Systems (Continued...)
- Lecture 12 - Equations of Change for Isothermal Systems (Continued...)
- Lecture 13 - Equations of Change for Isothermal Systems (Continued...)
- Lecture 14 - Equations of Change for Isothermal Systems (Continued...)
- Lecture 15 - Unsteady Flow
- Lecture 16 - Boundary Layers
- Lecture 17 - Boundary Layers (Continued...)
- Lecture 18 - Boundary Layers (Continued...)
- Lecture 19 - Boundary Layers (Continued...)
- Lecture 20 - Boundary Layers (Continued...)
- Lecture 21 - Boundary Layers (Continued...)
- Lecture 22 - Boundary Layers (Continued...)
- Lecture 23 - Boundary Layers (Continued...)
- Lecture 24 - Boundary Layers (Continued...)
- Lecture 25 - Turbulent Boundary Layers
- Lecture 26 - Turbulent Boundary Layers (Continued...)
- Lecture 27 - Turbulent Boundary Layers (Continued...)
- Lecture 28 - Drag
- Lecture 29 - Drag (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heat Transfer Basics
- Lecture 31 - Heat Transfer Basics (Continued...)
- Lecture 32 - 1-D Heat Conduction - Temperature Distributions
- Lecture 33 - 1-D Heat Conduction - Shell Heat Balance
- Lecture 34 - Shell Heat Balance
- Lecture 35 - Viscous Dissipation
- Lecture 36 - Transient Conduction
- Lecture 37 - Transient Conduction (Continued...)
- Lecture 38 - Forced Convection
- Lecture 39 - Energy Equation
- Lecture 40 - Energy Equation (Continued...)
- Lecture 41 - Free Convection
- Lecture 42 - Thermal Boundary Layer
- Lecture 43 - Mass Transfer
- Lecture 44 - Mass Transfer (Continued...)
- Lecture 45 - Mass Transfer (Continued...)
- Lecture 46 - Mass Transfer (Continued...)
- Lecture 47 - Mass Transfer (Continued...)
- Lecture 48 - Mass Transfer (Continued...)
- Lecture 49 - Mass Transfer (Continued...)
- Lecture 50 - Mass Transfer (Continued...)
- Lecture 51 - (Lecture Missing)
- Lecture 52 - Boundary Layer Similarity
- Lecture 53 - Boundary Layer - Analogy
- Lecture 54 - Analogy - Tutorial I
- Lecture 55 - Analogy - Tutorial II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Chemical Process Instrumentation

Subject Co-ordinator - Prof. Debasis Sarkar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Principles and Representation of Instruments
- Lecture 2 - General Principles and Representation of Instruments (Continued...)
- Lecture 3 - General Principles and Representation of Instruments (Continued...)
- Lecture 4 - General Principles and Representation of Instruments (Continued...)
- Lecture 5 - General Principles and Representation of Instruments (Continued...)
- Lecture 6 - Performance Characteristics of Instruments and Data Analysis - I
- Lecture 7 - Performance Characteristics of Instruments and Data Analysis - I (Continued...)
- Lecture 8 - Performance Characteristics of Instruments and Data Analysis - I (Continued...)
- Lecture 9 - Performance Characteristics of Instruments and Data Analysis - I (Continued...)
- Lecture 10 - Performance Characteristics of Instruments and Data Analysis - I (Continued...)
- Lecture 11 - Performance Characteristics of Instruments and Data Analysis - II
- Lecture 12 - Performance Characteristics of Instruments and Data Analysis - II (Continued...)
- Lecture 13 - Performance Characteristics of Instruments and Data Analysis - II (Continued...)
- Lecture 14 - Performance Characteristics of Instruments and Data Analysis - II (Continued...)
- Lecture 15 - Performance Characteristics of Instruments and Data Analysis - II (Continued...)
- Lecture 16 - Transducer Elements
- Lecture 17 - Transducer Elements (Continued...)
- Lecture 18 - Transducer Elements (Continued...)
- Lecture 19 - Transducer Elements (Continued...)
- Lecture 20 - Transducer Elements (Continued...)
- Lecture 21 - Pressure Measurement
- Lecture 22 - Pressure Measurement
- Lecture 23 - Pressure Measurement
- Lecture 24 - Pressure Measurement
- Lecture 25 - Pressure Measurement
- Lecture 26 - High Vacuum Measurement
- Lecture 27 - High Vacuum Measurement (Continued...)
- Lecture 28 - High Vacuum Measurement (Continued...)
- Lecture 29 - High Vacuum Measurement (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pressure Measurement
- Lecture 31 - Temperature Measurement
- Lecture 32 - Temperature Measurement (Continued...)
- Lecture 33 - Temperature Measurement (Continued...)
- Lecture 34 - Temperature Measurement (Continued...)
- Lecture 35 - Temperature Measurement (Continued...)
- Lecture 36 - Temperature Measurement (Continued...)
- Lecture 37 - Temperature Measurement (Continued...)
- Lecture 38 - Temperature Measurement (Continued...)
- Lecture 39 - Temperature Measurement (Continued...)
- Lecture 40 - Temperature Measurement (Continued...)
- Lecture 41 - Flow Measurement
- Lecture 42 - Flow Measurement (Continued...)
- Lecture 43 - Flow Measurement (Continued...)
- Lecture 44 - Flow Measurement (Continued...)
- Lecture 45 - Flow Measurement (Continued...)
- Lecture 46 - Level Measurement
- Lecture 47 - Level Measurement (Continued...)
- Lecture 48 - Level Measurement (Continued...)
- Lecture 49 - Level Measurement (Continued...)
- Lecture 50 - Level Measurement (Continued...)
- Lecture 51 - Miscellaneous Measurements
- Lecture 52 - Miscellaneous Measurements
- Lecture 53 - Miscellaneous Measurements
- Lecture 54 - Miscellaneous Measurements
- Lecture 55 - Miscellaneous Measurements
- Lecture 56 - Pneumatic Control Valve
- Lecture 57 - Pneumatic Control Valve (Continued...)
- Lecture 58 - Pneumatic Control Valve (Continued...) and P&ID
- Lecture 59 - GATE Questions
- Lecture 60 - GATE Questions (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Optimization in Chemical Engineering

Subject Co-ordinator - Prof. Debasis Sarkar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Optimization  
Lecture 2 - Introduction to Optimization (Continued...)  
Lecture 3 - Introduction to Optimization (Continued...)  
Lecture 4 - Introduction of Optimization (Continued...)  
Lecture 5 - Introduction of Optimization (Continued...)  
Lecture 6 - Optimization Problem Formulation  
Lecture 7 - Optimization Problem Formulation (Continued...)  
Lecture 8 - Optimization Problem Formulation (Continued...)  
Lecture 9 - Optimization Problem Formulation (Continued...)  
Lecture 10 - Optimization Problem Formulation (Continued...)  
Lecture 11 - Basic Concepts of Optimization - I  
Lecture 12 - Basic Concepts of Optimization - I (Continued...)  
Lecture 13 - Basic Concepts of Optimization - I (Continued...)  
Lecture 14 - Basic Concepts of Optimization - I (Continued...)  
Lecture 15 - Basic Concepts of Optimization - I (Continued...)  
Lecture 16 - Basic Concepts of Optimization - II  
Lecture 17 - Basic Concepts of Optimization - II (Continued...)  
Lecture 18 - Basic Concepts of Optimization - II (Continued...)  
Lecture 19 - Basic Concepts of Optimization - II (Continued...)  
Lecture 20 - Basic Concepts of Optimization - II (Continued...)  
Lecture 21 - Unconstrained Single Variable Optimization  
Lecture 22 - Unconstrained Single Variable Optimization  
Lecture 23 - Unconstrained Single Variable Optimization  
Lecture 24 - Unconstrained Single Variable Optimization  
Lecture 25 - Unconstrained Single Variable Optimization  
Lecture 26 - Unconstrained Multivariable Optimization  
Lecture 27 - Unconstrained Multivariable Optimization  
Lecture 28 - Unconstrained Multivariable Optimization  
Lecture 29 - Unconstrained Multivariable Optimization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unconstrained Multivariable Optimization
- Lecture 31 - Unconstrained Multivariable Optimization
- Lecture 32 - Unconstrained Multivariable Optimization
- Lecture 33 - Unconstrained Multivariable Optimization
- Lecture 34 - Unconstrained Multivariable Optimization
- Lecture 35 - Unconstrained Multivariable Optimization
- Lecture 36 - Introduction to Linear Programming
- Lecture 37 - Introduction to Linear Programming (Continued...)
- Lecture 38 - Introduction to Linear Programming (Continued...)
- Lecture 39 - Introduction to Linear Programming (Continued...)
- Lecture 40 - Introduction to Linear Programming (Continued...)
- Lecture 41 - Linear Programming - The Simplex Method
- Lecture 42 - Linear Programming - The Simplex Method (Continued...)
- Lecture 43 - Linear Programming - The Simplex Method (Continued...)
- Lecture 44 - Linear Programming - The Simplex Method (Continued...)
- Lecture 45 - Linear Programming - The Simplex Method (Continued...)
- Lecture 46 - Constrained Nonlinear Programming
- Lecture 47 - Constrained Nonlinear Programming (Continued...)
- Lecture 48 - Constrained Nonlinear Programming (Continued...)
- Lecture 49 - Constrained Nonlinear Programming (Continued...)
- Lecture 50 - Constrained Nonlinear Programming (Continued...)
- Lecture 51 - Applications of Optimization
- Lecture 52 - Applications of Optimization (Continued...)
- Lecture 53 - Applications of Optimization (Continued...)
- Lecture 54 - Applications of Optimization (Continued...)
- Lecture 55 - Applications of Optimization (Continued...)
- Lecture 56 - Software Tools for Optimization
- Lecture 57 - Software Tools for Optimization (Continued...)
- Lecture 58 - Software Tools for Optimization (Continued...)
- Lecture 59 - Software Tools for Optimization (Continued...)
- Lecture 60 - Software Tools for Optimization (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Heat Transfer (2018)

Subject Co-ordinator - Prof. Sunando Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Heat Transfer
- Lecture 2 - Introduction to Heat Transfer
- Lecture 3 - Heat Diffusion Equation
- Lecture 4 - Relevant Boundary Conditions in Conduction
- Lecture 5 - One Dimensional Steady State Conduction
- Lecture 6 - Temperature Distribution in Radial Systems
- Lecture 7 - Tutorial Problem on Critical Insulation Thickness
- Lecture 8 - Heat Source Systems
- Lecture 9 - Tutorial Problems of Heat Generating Systems
- Lecture 10 - Transient Conduction
- Lecture 11 - Lumped Capacitance (Continued...) and Tutorial Problem
- Lecture 12 - Transient heat Conduction
- Lecture 13 - Transient Conduction - Heisler Chart
- Lecture 14 - Heat Transfer from Extended Surface
- Lecture 15 - Fins and General Conduction Analysis
- Lecture 16 - Fundamentals of Convection
- Lecture 17 - Equations of Change for Non-isothermal Systems
- Lecture 18 - Equations of Change for Non-isothermal Systems (Continued...)
- Lecture 19 - Tutorial on the Application of Energy Equation
- Lecture 20 - Nusselt Number of a heated sphere in Stagnant Air
- Lecture 21 - Momentum and Thermal Boundary Layers
- Lecture 22 - The Flat Plate in Parallel Flow - Hydrodynamics and Momentum Transfer
- Lecture 23 - The Flat Plate in Parallel Flow - Heat Transfer
- Lecture 24 - The Effects of Turbulence
- Lecture 25 - Turbulent External Flow
- Lecture 26 - Heat and Momentum Transfer Analogy
- Lecture 27 - Mixed Boundary Layers
- Lecture 28 - Tutorial Problem on External Flow and Behavior of Heat Transfer Coefficient
- Lecture 29 - Tutorial Problem in External Flow and Convection

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial Problem in External Flow and Convection
- Lecture 31 - Tutorial Problem in External Flow and Convection
- Lecture 32 - Internal Flow Heat Transfer
- Lecture 33 - Internal Flow Heat Transfer (Continued...)
- Lecture 34 - Internal Flow Heat Transfer (Continued...)
- Lecture 35 - Internal Flow and Heat Transfer (Continued...)
- Lecture 36 - Internal Flow and Heat Transfer (Tutorial)
- Lecture 37 - Free Convection
- Lecture 38 - Heat Exchangers
- Lecture 39 - Heat Exchangers
- Lecture 40 - Heat Exchangers
- Lecture 41 - Tutorial Problems on Heat Exchanger Calculations
- Lecture 42 - Tutorial Problem on LMTD and Dirt Factor
- Lecture 43 - Epsilon-NTU Method - 1
- Lecture 44 - Epsilon-NTU Method - 1 (Continued...)
- Lecture 45 - Tutorial Problems on Epsilon - NTU Methods
- Lecture 46 - Tutorial Problems on Epsilon - NTU Methods
- Lecture 47 - Boiling, Evaporation and Evaporators
- Lecture 48 - Radiation - Fundamental Concepts
- Lecture 49 - Spectral Blackbody Radiation Intensity and Emissive Power
- Lecture 50 - Wein's Law, Stephen Boltzmann Law, Blackbody Radiation Function, Tutorial Problem
- Lecture 51 - Kirchhoff's Law
- Lecture 52 - Tutorial on Emissivity, Absorptivity and Blackbody Radiation Functions
- Lecture 53 - Solar Radiation and the Concept of View Factors
- Lecture 54 - Determination of View Factors
- Lecture 55 - Radiosity Blackbody Radiation Exchanges, Relevant Problem
- Lecture 56 - Network Method for Radiation Exchange in an Enclosure
- Lecture 57 - Network Method - Two and Three Zone Enclosures
- Lecture 58 - Tutorial Problem on Radiation Exchange using the Network Method
- Lecture 59 - Radiation Shields
- Lecture 60 - Gaseous Radiation (Participating Medium)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Engineering Thermodynamics

Subject Co-ordinator - Prof. M.S. Ananth

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Thermodynamics and the Chemical Industry
- Lecture 2 - James Prescott Joule and the first law
- Lecture 3 - Sadi Carnot and the second law
- Lecture 4 - Equilibrium and Extrema in work
- Lecture 5 - Illustrative Calculations - I
- Lecture 6 - Properties of pure substances
- Lecture 7 - The p-h chart
- Lecture 8 - Work calculation
- Lecture 9 - Illustrative Calculations - II
- Lecture 10 - Heat-Work Interconversion Devices
- Lecture 11 - Refrigeration / Thermodynamics of mixtures
- Lecture 12 - The Gibbs Duhem equation
- Lecture 13 - Models for Excess Gibbs Free Energy
- Lecture 14 - Van Laar model
- Lecture 15 - Gaseous and liquid mixtures
- Lecture 16 - Separation Work / Equations of state
- Lecture 17 - Chemical potentials in gas and condensed phases
- Lecture 18 - Vapour Liquid Equilibria - I
- Lecture 19 - Vapour Liquid Equilibria - II
- Lecture 20 - Solvent-Solvent mixtures
- Lecture 21 - Solvent-Solute mixtures
- Lecture 22 - Liquid-liquid equilibria
- Lecture 23 - An industrial example
- Lecture 24 - Liquid-liquid equilibria / Reaction Equilibria
- Lecture 25 - Reaction Equilibria
- Lecture 26 - Illustrative Examples - I
- Lecture 27 - Illustrative Examples - II
- Lecture 28 - Illustrative Examples - III
- Lecture 29 - Simultaneous Relations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Thermodynamic Consistency / Reverse Osmosis
- Lecture 31 - Miscellaneous topics in phase equilibria
- Lecture 32 - Absorption Refrigeration
- Lecture 33 - Summary of Classical Thermodynamics
- Lecture 34 - Molecular basis of Thermodynamics - I
- Lecture 35 - Molecular basis of Thermodynamics - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Computational Fluid Dynamics

Subject Co-ordinator - Prof. Sreenivas Jayanti

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation for CFD and Introduction to the CFD approach
- Lecture 2 - Illustration of the CFD approach through a worked out example
- Lecture 3 - Eulerian approach, Conservation Equation, Derivation of Mass Conservation Equation and Statement
- Lecture 4 - Forces acting on a control volume; Stress tensor; Derivation of the momentum conservation equation
- Lecture 5 - Kinematics of deformation in fluid flow; Stress vs strain rate relation; Derivation of the Navier-Stokes equation
- Lecture 6 - Equations governing flow of incompressible flow; Initial and boundary conditions; Wellposedness of the problem
- Lecture 7 - Equations for some simple cases; Generic scalar transport equation form of the governing equation
- Lecture 8 - cut out the first 30s; Spatial discretization of a simple flow domain; Taylor's series expansion
- Lecture 9 - Finite difference approximation of pth order of accuracy for qth order derivative; cross-derivatives
- Lecture 10 - One-sided high order accurate approximations; Explicit and implicit formulations for the time derivative
- Lecture 11 - Numerical solution of the unsteady advection equation using different finite difference approximations
- Lecture 12 - Need for analysis of a discretization scheme; Concepts of consistency, stability and convergence
- Lecture 13 - Statement of the stability problem; von Neumann stability analysis of the first order wave equation
- Lecture 14 - Consistency and stability analysis of the unsteady diffusion equation; Analysis for two- and three-dimensional cases
- Lecture 15 - Interpretation of the stability condition; Stability analysis of the generic scalar equation and its extension to the vector case
- Lecture 16 - Template for the generic scalar transport equation and its extension to the solution of Navier-Stokes equations
- Lecture 17 - Illustration of application of the template using the MacCormack scheme for a three-dimensional flow
- Lecture 18 - Stability limits of MacCormack scheme; Limitations in extending compressible flow schemes to incompressible flow
- Lecture 19 - Artificial compressibility method and the streamfunction-vorticity method for the solution of NS equations
- Lecture 20 - Pressure equation method for the solution of NS equations
- Lecture 21 - Pressure-correction approach to the solution of NS equations on a staggered grid; SIMPLE and its variants
- Lecture 22 - Need for efficient solution of linear algebraic equations; Classification of approaches for the solution of linear algebraic equations
- Lecture 23 - Direct methods for linear algebraic equations; Gaussian elimination method
- Lecture 24 - Gauss-Jordan method; LU decomposition method; TDMA and Thomas algorithm
- Lecture 25 - Basic iterative methods for linear algebraic equations
- Lecture 26 - Convergence analysis of basic iterative schemes; Diagonal dominance condition for convergence; ITP
- Lecture 27 - Application to the Laplace equation
- Lecture 28 - Advanced iterative methods
- Lecture 29 - Advanced iterative methods; Strongly Implicit Procedure; Conjugate gradient method; Multigrid method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Illustration of the Multigrid method for the Laplace equation
- Lecture 31 - Overview of the approach of numerical solution of NS equations for simple domains; Introduction
- Lecture 32 - Derivation of the energy conservation equation
- Lecture 33 - Derivation of the species conservation equation; dealing with chemical reactions
- Lecture 34 - Turbulence; Characteristics of turbulent flow; Dealing with fluctuations and the concept of time
- Lecture 35 - Derivation of the Reynolds -averaged Navier -Stokes equations; identification of the closure problem
- Lecture 36 - Reynolds stresses in turbulent flow; Time and length scales of turbulence; Energy cascade; Mixing
- Lecture 37 - One-equation model for turbulent flow
- Lecture 38 - Two -equation model for turbulent flow; Numerical calculation of turbulent reacting flows
- Lecture 39 - Calculation of near-wall region in turbulent flow; wall function approach; near-wall turbulence
- Lecture 40 - Need for special methods for dealing with irregular flow geometry; Outline of the Body-fitted grid
- Lecture 41 - Transformation of the governing equations; Illustration for the Laplace equation; Appearance and
- Lecture 42 - Finite volume method for complicated flow domain; Illustration for the case of flow through a duct
- Lecture 43 - Finite volume method for the general case
- Lecture 44 - Generation of a structured grid for irregular flow domain; Algebraic methods; Elliptic grid generation
- Lecture 45 - Unstructured grid generation; Domain nodalization; Advancing front method for triangulation
- Lecture 46 - Delaunay triangulation method for unstructured grid generation
- Lecture 47 - Co -located grid approach for irregular geometries; Pressure correction equation for a co -located



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Computational Techniques

Subject Co-ordinator - Dr. Niket S. Kaisare

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Computational and Error Analysis  
Lecture 3 - Linear Equations - Part 1  
Lecture 4 - Linear Equations - Part 2  
Lecture 5 - Linear Equations - Part 3  
Lecture 6 - Linear Equations - Part 4  
Lecture 7 - Linear Equations - Part 5  
Lecture 8 - Linear Equations - Part 6  
Lecture 9 - Non Linear Algebraic Equations - Part 1  
Lecture 10 - Non Linear Algebraic Equations - Part 2  
Lecture 11 - Non Linear Algebraic Equations - Part 3  
Lecture 12 - Non Linear Algebraic Equations - Part 4  
Lecture 13 - Non Linear Algebraic Equations - Part 5  
Lecture 14 - Non Linear Algebraic Equations - Part 6  
Lecture 15 - Regression and Interpolation - Part 1  
Lecture 16 - Regression and Interpolation - Part 2  
Lecture 17 - Regression and Interpolation - Part 3  
Lecture 18 - Regression and Interpolation - Part 4  
Lecture 19 - Regression and Interpolation - Part 5  
Lecture 20 - Differentiation and Integration - Part 1  
Lecture 21 - Differentiation and Integration - Part 2  
Lecture 22 - Differentiation and Integration - Part 3  
Lecture 23 - Differentiation and Integration - Part 4  
Lecture 24 - Differentiation and Integration - Part 5  
Lecture 25 - Ordinary Differential Equations (initial value problems) - Part 1  
Lecture 26 - Ordinary Differential Equations (initial value problems) - Part 2  
Lecture 27 - Ordinary Differential Equations (initial value problems) - Part 3  
Lecture 28 - Ordinary Differential Equations (initial value problems) - Part 4  
Lecture 29 - Ordinary Differential Equations (initial value problems) - Part 5

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- Lecture 30 - Ordinary Differential Equations (initial value problems) - Part 6
- Lecture 31 - Ordinary Differential Equations (initial value problems) - Part 7
- Lecture 32 - Ordinary Differential Equations (initial value problems) - Part 8
- Lecture 33 - Ordinary Differential Equations (initial value problems) - Part 9
- Lecture 34 - Ordinary Differential Equations (boundary value problems) - Part 1
- Lecture 35 - Ordinary Differential Equations (boundary value problems) - Part 2
- Lecture 36 - Ordinary Differential Equations (boundary value problems) - Part 3
- Lecture 37 - Partial Differential Equations - Part 1
- Lecture 38 - Partial Differential Equations - Part 2
- Lecture 39 - Partial Differential Equations - Part 3
- Lecture 40 - Partial Differential Equations - Part 4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Particle Characterization (PG)

Subject Co-ordinator - Dr. R. Nagarajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction  
Lecture 3 - Morphological Characterization  
Lecture 4 - Morphological Characterization  
Lecture 5 - Morphological Characterization  
Lecture 6 - Morphological Characterization  
Lecture 7 - Morphological Characterization  
Lecture 8 - Morphological Characterization  
Lecture 9 - Morphological Characterization  
Lecture 10 - Morphological Characterization  
Lecture 11 - Morphological Characterization  
Lecture 12 - Morphological Characterization  
Lecture 13 - Structural Characterization  
Lecture 14 - Interfacial Characterization  
Lecture 15 - Surface Adhesion  
Lecture 16 - Surface Adhesion  
Lecture 17 - Surface Adhesion  
Lecture 18 - Particle Removal  
Lecture 19 - Particle Removal  
Lecture 20 - Particle Cohesion  
Lecture 21 - Particle Cohesion  
Lecture 22 - Transport Properties  
Lecture 23 - Transport Properties  
Lecture 24 - Transport Properties  
Lecture 25 - Transport Properties  
Lecture 26 - Chemical & Compositional Characterization  
Lecture 27 - Chemical & Compositional Characterization  
Lecture 28 - Chemical & Compositional Characterization  
Lecture 29 - Nano-particle Characterization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Nano-particle Characterization
- Lecture 31 - Nano-particle Characterization
- Lecture 32 - Nano-particle Characterization
- Lecture 33 - Practical Relevance of Particle Characterization
- Lecture 34 - Practical Relevance of Particle Characterization
- Lecture 35 - Practical Relevance of Particle Characterization
- Lecture 36 - Practical Relevance of Particle Characterization
- Lecture 37 - Practical Relevance of Particle Characterization
- Lecture 38 - Practical Relevance of Particle Characterization
- Lecture 39 - Practical Relevance of Particle Characterization
- Lecture 40 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Statistics for Experimentalists

Subject Co-ordinator - Dr. A. Kannan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Random Variables  
Lecture 3 - Discrete Probability Distributions  
Lecture 4 - Example Set - I  
Lecture 5 - Continuous probability distributions  
Lecture 6 - Normal probability distribution  
Lecture 7 - Exploratory Data Analysis - Part A  
Lecture 8 - Exploratory Data Analysis - Part B  
Lecture 9 - Example Set - II  
Lecture 10 - Example Set - III  
Lecture 11 - Random samples  
Lecture 12 - Random samples  
Lecture 13 - Point Estimation  
Lecture 14 - Sampling distributions and the Central Limit Theorem  
Lecture 15 - Example Set - IV Part A  
Lecture 16 - Estimation of Population Parameters Using Moments  
Lecture 17 - Confidence Intervals (Part A)  
Lecture 18 - Confidence Intervals (Part B)  
Lecture 19 - The T-distribution  
Lecture 20 - Chi-square distribution  
Lecture 21 - F-Distribution  
Lecture 22 - Example Set - V  
Lecture 23 - Hypothesis Testing - Part A  
Lecture 24 - Hypothesis Testing - Part B  
Lecture 25 - Hypothesis Testing - Part C  
Lecture 26 - Analysis of Experiments involving Single Factor - Part A  
Lecture 27 - Analysis of Experiments involving Single Factor - Part B  
Lecture 28 - Blocking and Randomization  
Lecture 29 - Example Set - VI - Part A

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Example Set - VI - Part B
- Lecture 31 - Factorial Design of Experiments - Part A
- Lecture 32 - Factorial Design of Experiments - Part B
- Lecture 33 - Fractional Factorial Design - Part A
- Lecture 34 - Fractional Factorial Design - Part B
- Lecture 35 - Factorial Design of Experiments
- Lecture 36 - Factorial Design of Experiments
- Lecture 37 - Factorial Design of Experiments
- Lecture 38 - Regression Analysis
- Lecture 39 - Regression Analysis
- Lecture 40 - Hypothesis Testing in Linear Regression
- Lecture 41 - Discussion on Regression Output
- Lecture 42 - Regression Analysis
- Lecture 43 - Regression Analysis
- Lecture 44 - Regression Analysis
- Lecture 45 - Orthogonal Model Fitting Concepts - Part A
- Lecture 46 - Orthogonal Model Fitting Concepts - Part B
- Lecture 47 - Experimental Design Strategies - A
- Lecture 48 - Experimental Design Strategies - B
- Lecture 49 - Experimental Design Strategies - C
- Lecture 50 - Response Surface Methodology - A
- Lecture 51 - Response Surface Methodology - B
- Lecture 52 - Optimal Designs - Part A
- Lecture 53 - Optimal Designs - Part B
- Lecture 54 - Statistics for Experimentalists - Summary Part A
- Lecture 55 - Statistics for Experimentalists - Summary Part B

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Multiphase Flows - Analytical solutions and Stability Analysis

Subject Co-ordinator - Prof. S. Pushpavanam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and overview of the course
- Lecture 2 - Stratified flow in a micro channel
- Lecture 3 - Stratified flow in a micro channel
- Lecture 4 - Flow regimes in microchannels
- Lecture 5 - Scaling Analysis
- Lecture 6 - Scaling Analysis
- Lecture 7 - Interfacial tension and its role in Multiphase flows
- Lecture 8 - Eulerian and Lagrangian approaches
- Lecture 9 - Reynolds Transport Theorem and the Equation of Continuity
- Lecture 10 - Derivation of Navier-Stokes equation
- Lecture 11 - Vector operations in general orthogonal coordinates
- Lecture 12 - Normal and shear stresses on arbitrary surfaces
- Lecture 13 - Normal and shear stresses on arbitrary surfaces
- Lecture 14 - Stresses on deforming surfaces
- Lecture 15 - Pulsatile flow
- Lecture 16 - Pulsatile flow
- Lecture 17 - Pulsatile flow
- Lecture 18 - Viscous heating
- Lecture 19 - Domain perturbation methods
- Lecture 20 - Flow between wavy walls
- Lecture 21 - Introduction to stability of dynamical systems
- Lecture 22 - Stability of distributed systems (PDEs)
- Lecture 23 - Stability of a reaction-diffusion system (Continued...)
- Lecture 24 - Rayleigh-Benard convection
- Lecture 25 - Rayleigh-Benard convection
- Lecture 26 - Rayleigh-Benard convection
- Lecture 27 - Rayleigh-Benard convection
- Lecture 28 - Rayleigh Benard convection
- Lecture 29 - Rayleigh-Taylor  $\hat{a}$  heavy over light  $\hat{a}$  instability

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rayleigh-Taylor instability (Continued...)
- Lecture 31 - Capillary jet instability
- Lecture 32 - Capillary jet instability
- Lecture 33 - Capillary jet instability
- Lecture 34 - Tutorial Session
- Lecture 35 - Turing patterns
- Lecture 36 - Turing patterns
- Lecture 37 - Marangoni convection
- Lecture 38 - Marangoni convection
- Lecture 39 - Flow in a circular curved channel
- Lecture 40 - Flow in a circular curved channel
- Lecture 41 - Stability of flow through curved channels
- Lecture 42 - Stability of flow through curved channels
- Lecture 43 - Viscous Fingering
- Lecture 44 - Viscous Fingering
- Lecture 45 - Shallow Cavity flows



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Time-Frequency Analysis and Wavelet Transform

Subject Co-ordinator - Dr. Arun K.Tangirala

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Lecture 1.1 A  
Lecture 2 - Introduction - Lecture 1.1 B  
Lecture 3 - Introduction - Lecture 1.2 A  
Lecture 4 - Introduction - Lecture 1.2 B  
Lecture 5 - Basic Definitions and concepts - Lecture 2.1 (Basic Definitions and concepts - Part I)  
Lecture 6 - Basic Definitions and concepts - Lecture 2.2 (Basic Definitions and concepts - Part II)  
Lecture 7 - Basic Definitions and concepts - Lecture 2.3 (Basic Definitions and concepts - Part III)  
Lecture 8 - A review of Fourier transforms - Lecture 3.1 (Continuous time Fourier series)  
Lecture 9 - A review of Fourier transforms - Lecture 3.2 (Continuous time Fourier transform)  
Lecture 10 - A review of Fourier transforms - Lecture 3.3 (Discrete time Fourier series)  
Lecture 11 - A review of Fourier transforms - Lecture 3.4 (Discrete time Fourier transform)  
Lecture 12 - A review of Fourier transforms - Lecture 3.5 (Properties of Fourier transforms)  
Lecture 13 - A review of Fourier transforms - Lecture 3.6 (Discrete Fourier transform)  
Lecture 14 - A review of Fourier transforms - MATLAB demo of Fourier transform and periodogram  
Lecture 15 - Duration and Bandwidth - Duration and Bandwidth  
Lecture 16 - Duration and Bandwidth - Bandwidth equation and Instantaneous frequency  
Lecture 17 - Duration and Bandwidth - Instantaneous frequency and analytic signals  
Lecture 18 - Duration and Bandwidth - Duration-Bandwidth principle  
Lecture 19 - Duration and Bandwidth - Requirements of time-frequency analysis techniques  
Lecture 20 - Duration and Bandwidth - Requirements of time-frequency analysis and techniques  
Lecture 21 - Short-time Fourier transform - Short-time Fourier transform  
Lecture 22 - Short-time Fourier transform - Auxillary (MATLAB demonstration)  
Lecture 23 - Short-time Fourier transform - Properties of STFT  
Lecture 24 - Practical aspects of STFT  
Lecture 25 - Closing Remarks  
Lecture 26 - Wigner-Ville Distributions  
Lecture 27 - Properties of WVD  
Lecture 28 - Properties of WVD 2  
Lecture 29 - Discrete WVD

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- Lecture 30 - Pseudo and Smoothed WVD
- Lecture 31 - Cohens class and smoothed WVD
- Lecture 32 - Cohens class and smoothed WVD
- Lecture 33 - Cohens class and Ambiguity functions
- Lecture 34 - Affine class and closing remarks
- Lecture 35 - Continuous Wavelet Transform
- Lecture 36 - Continuous Wavelet Transforms
- Lecture 37 - Scale to Frequency
- Lecture 38 - Computational aspects of CWT
- Lecture 39 - Scalogram and MATLAB demonstration
- Lecture 40 - Scalogram and MATLAB demonstration
- Lecture 41 - Scaling function
- Lecture 42 - Scaling Function
- Lecture 43 - Wavelets
- Lecture 44 - Wavelets
- Lecture 45 - Applications of CWT
- Lecture 46 - Applications of CWT
- Lecture 47 - Discrete Wavelet Transform
- Lecture 48 - Discrete Wavelet Transform.
- Lecture 49 - Orthogonal scaling function bases and MRA
- Lecture 50 - Orthogonal scaling function bases and MRA.
- Lecture 51 - Wavelet Filters and Fast DWT Algorithm
- Lecture 52 - Wavelet Filters and Fast DWT Algorithm (Continued...)
- Lecture 53 - Wavelet Filters and Fast DWT Algorithm (Continued...)
- Lecture 54 - Wavelets for DWT
- Lecture 55 - Wavelets for DWT (Continued...)
- Lecture 56 - Wavelets for DWT (Continued...)
- Lecture 57 - DWT computation
- Lecture 58 - DWT computation (Continued...)
- Lecture 59 - DWT computation (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Engineering Principles of CVD Processes

Subject Co-ordinator - Dr. R. Nagarajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - CVD Reactor and Process Design Fundamentals
- Lecture 3 - Overview of CVD Process Fundamentals
- Lecture 4 - Basics of Chemical Equilibrium Calculations and Flow Dynamics
- Lecture 5 - Introduction to CVD Films
- Lecture 6 - Film Structure and Properties
- Lecture 7 - Pressure Effects on CVD Processes
- Lecture 8 - CVD of Metals
- Lecture 9 - CVD of Coatings
- Lecture 10 - CVD Film Property Measurements
- Lecture 11 - CVD Film Property Measurements
- Lecture 12 - CVD in Tungsten Filament Lamps
- Lecture 13 - CVD in Tungsten Filament Lamps
- Lecture 14 - CVD in Hot Corrosion
- Lecture 15 - CVD Transport Phenomena
- Lecture 16 - CVD Transport Phenomena
- Lecture 17 - CVD Transport Phenomena
- Lecture 18 - CVD Transport Phenomena
- Lecture 19 - CVD Transport Phenomena
- Lecture 20 - CVD Applications
- Lecture 21 - CVD Applications
- Lecture 22 - CVD Applications
- Lecture 23 - CVD Applications
- Lecture 24 - CVD Applications
- Lecture 25 - CVD Overview
- Lecture 26 - Review of CVD Basics
- Lecture 27 - Review of CVD Basics
- Lecture 28 - CVD Question Bank
- Lecture 29 - Basics of Nano-Structured Material Synthesis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Basics of Nano-Structured Material Synthesis
- Lecture 31 - Undesirable CVD
- Lecture 32 - Undesirable CVD
- Lecture 33 - Undesirable CVD
- Lecture 34 - Multi-component Transport Fundamentals
- Lecture 35 - Multi-component Transport Fundamentals
- Lecture 36 - Multi-component Transport Fundamentals
- Lecture 37 - Multi-component Transport Fundamentals
- Lecture 38 - Multi-component Transport Fundamentals
- Lecture 39 - Multi-component Transport Fundamentals

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Reaction Engineering 1 (Homogeneous Reactors)

Subject Co-ordinator - Prof K. Krishnaiah

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Motivation and Introduction - Part I  
Lecture 2 - Motivation and Introduction - Part II  
Lecture 3 - What is Chemical Engineering - Part I  
Lecture 4 - What is Chemical Engineering - Part II  
Lecture 5 - What is Chemical Reaction Engineering - Part I  
Lecture 6 - What is Chemical Reaction Engineering - Part II  
Lecture 7 - Homogeneous and Heterogeneous Reactions - Part I  
Lecture 8 - Homogeneous and Heterogeneous Reactions - Part II  
Lecture 9 - Basics of Kinetics and Contacting  
Lecture 10 - Design of Batch reactors - Part I  
Lecture 11 - Design of Batch reactors - Part II  
Lecture 12 - Basics of Plug Flow Reactor - Part I  
Lecture 13 - Basics of Plug Flow Reactor - Part II  
Lecture 14 - Design of Plug Flow Reactors - Part I  
Lecture 15 - Design of Plug Flow Reactors - Part II  
Lecture 16 - Basics of Mixed Flow Reactors  
Lecture 17 - Design of Mixed Flow Reactors  
Lecture 18 - Basics of Kinetics  
Lecture 19 - Kinetics of Heterogeneous reactions - Part I  
Lecture 20 - Kinetics of Heterogeneous reactions - Part II  
Lecture 21 - Kinetics of Heterogeneous reactions - Part III  
Lecture 22 - Kinetics of Homogeneous reactions  
Lecture 23 - Reaction rate for Homogeneous reactions  
Lecture 24 - Gas Phase Homogeneous reactions  
Lecture 25 - (Continued...) And later Reactor Design of PFR  
Lecture 26 - Reactor Design for MFR and Combination of reactors  
Lecture 27 - PFR and MFR in series.  
Lecture 28 - Unsteady state MFR and PFR  
Lecture 29 - Recycle Reactors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Recycle Reactors (Autocatalytic reactions) - Part I
- Lecture 31 - Recycle Reactors (Autocatalytic reactions) - Part II
- Lecture 32 - Multiple Reactions - Part I
- Lecture 33 - Multiple Reactions - Part II
- Lecture 34 - Multiple Reactions - Part III
- Lecture 35 - Multiple Reactions - Part IV
- Lecture 36 - Multiple Reactions - Part V
- Lecture 37 - Multiple Reactions - Part VI
- Lecture 38 - Non-Isothermal Reactors - Part I
- Lecture 39 - Non-Isothermal Reactors - Part II
- Lecture 40 - Non-Isothermal Reactors (Graphical Design)
- Lecture 41 - Non-Isothermal Reactors contd. & Adiabatic Reactors
- Lecture 42 - Non-Isothermal Reactors (Graphical Design) (Continued...)
- Lecture 43 - Non-Isothermal Batch Reactors
- Lecture 44 - Non-isothermal Plug Flow Reactors - Part I
- Lecture 45 - Non-isothermal Plug Flow Reactors - Part II
- Lecture 46 - Adiabatic Plug Flow Reactors
- Lecture 47 - Non-isothermal Mixed Flow Reactors
- Lecture 48 - Non-isothermal Mixed Flow Reactors (Continued...) (Multiple steady states) - Part I
- Lecture 49 - Non-isothermal Mixed Flow Reactors (Continued...) (Multiple steady states) - Part II
- Lecture 50 - Non-Ideal Flow and Residence Time Distributions (RTD) basics - Part I
- Lecture 51 - Non-Ideal Flow and Residence Time Distributions (RTD) basics - Part II
- Lecture 52 - RTD for various reactors (Continued...) Part I
- Lecture 53 - RTD for various reactors (Continued...) Part II
- Lecture 54 - Diagnosing the ills of equipments and Various RTD Models
- Lecture 55 - Dispersion Model
- Lecture 56 - Dispersion with reaction Model and Tanks in Series Model
- Lecture 57 - Multi-parameter model (MFR with dead space and bypass)
- Lecture 58 - Direct use of RTD to predict conversion (Macro and Micro-fluid as well as Macro & Micro-mixing C
- Lecture 59 - Direct use of RTD to predict conversion (Macro and Micro-fluid as well as Macro & Micro-mixing C
- Lecture 60 - Direct use of RTD to predict conversion (Macro and Micro-fluid as well as Macro & Micro-mixing C

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Reaction Engineering 2 (Heterogeneous Reactors)

Subject Co-ordinator - Prof K. Krishnaiah

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Kinetics (Gas solid non-catalytic reaction)
- Lecture 2 - Intro to Kinetics (Continued...) for catalytic reactions in different reactors
- Lecture 3 - Heterogeneous rate of reactions and different types of kinetic models for non-catalytic reactions
- Lecture 4 - Basics of Kinetics of type A & B reactions (Shrinking core model & Porous particle homogeneous model)
- Lecture 5 - Shrinking Core Model (Continued...)
- Lecture 6 - Shrinking Core Model (Continued...)
- Lecture 7 - (Continued...) & Proof of Pseudo steady state assumption
- Lecture 8 - Shrinking core model (Continued...) for type D reactions
- Lecture 9 - Shrinking core model (Continued...) for type D reactions (Continued...)
- Lecture 10 - Reactors, Homogeneous reaction model, Design of non-catalytic gas solid reactors
- Lecture 11 - Design of non-catalytic gas solid reactors (Continued...)
- Lecture 12 - Design of non-catalytic gas solid reactors (Continued...)
- Lecture 13 - Design equation for MF of solids, uniform gas composition, const. single particle size, Shrinking core model
- Lecture 14 - Design equation for MF of solids, mixture of particles for different sizes but unchanging size, Shrinking core model
- Lecture 15 - Design equation for MF of solids with elutriation, mixture of particles of different size, uniform gas composition
- Lecture 16 - General Performance equation for non-catalytic gas solid reactions
- Lecture 17 - Catalytic reactions (LHHW Kinetic model)
- Lecture 18 - LHHW Kinetic model (Continued...) - Part I
- Lecture 19 - LHHW Kinetic model (Continued...) - Part II
- Lecture 20 - Industrially important catalytic reaction models
- Lecture 21 - Inter and Intraphase effectiveness factor
- Lecture 22 - Interface effectiveness factor & Generalized nonisothermal effectiveness factor for external mass transfer
- Lecture 23 - Generalized nonisothermal effectiveness factor for external mass transfer step (Continued...)
- Lecture 24 - Mass transfer correlations for various reactors
- Lecture 25 - Isothermal intraphase effectiveness factor - Part I
- Lecture 26 - Isothermal intraphase effectiveness factor - Part II
- Lecture 27 - Non-isothermal intraphase effectiveness factor
- Lecture 28 - Inter and Intraphase effectiveness factor (Continued...)
- Lecture 29 - Inter and Intraphase Mass transfer

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Packed (fixed) bed catalytic reactor design
- Lecture 31 - Graphical design of Fixed bed reactors
- Lecture 32 - Packed Bed Design (Continued...)
- Lecture 33 - Design equations for Packed bed reactor design
- Lecture 34 - Conservative Equations for Packed bed Reactor design
- Lecture 35 - Problem solving session
- Lecture 36 - Fluidized Bed Reactor Design - Part I
- Lecture 37 - Fluidized Bed Reactor Design - Part II
- Lecture 38 - Fluidized Bed Reactor Design - Part III
- Lecture 39 - Fluidized Bed Reactor Design - Part IV
- Lecture 40 - Continued... (Fluidized bed reactor Models)
- Lecture 41 - Continued... (Davidson Harrison model and Kunii Levenspiel model)
- Lecture 42 - Continued... (Kunii Levenspiel Model)
- Lecture 43 - Slurry Reactor Design



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:MATLAB Programming for Numerical Computation

Subject Co-ordinator - Dr. Niket S.Kaisare

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - Basics of Programming using MATLAB
- Lecture 3 - Array Operations in MATLAB
- Lecture 4 - Loops and Execution Control
- Lecture 5 - Tutorial
- Lecture 6 - MATLAB Files -- Scripts and Functions
- Lecture 7 - Plotting and Output
- Lecture 8 - How to submit MATLAB Assignment
- Lecture 9 - Errors in Numerical Computation
- Lecture 10 - Truncation Errors and Taylors Series
- Lecture 11 - Round-Off Errors; and Iterative Methods
- Lecture 12 - Step-wise Methods and Error Propagation
- Lecture 13 - How to get MATLAB Online access (for all enrolled students of this course)
- Lecture 14 - Differentiation in Single Variable
- Lecture 15 - Higher Order Differentiation Formulae
- Lecture 16 - Partial Differentials (Bonus)
- Lecture 17 - Numerical Integration
- Lecture 18 - Multiple Applications of Integration Formulae
- Lecture 19 - In-Build MATLAB Integration Functions
- Lecture 20 - Basics of Linear Algebra
- Lecture 21 - Gauss Elimination and Back-Substitution
- Lecture 22 - LU Decomposition and Partial Pivoting
- Lecture 23 - Gauss Siedel Method
- Lecture 24 - (Tutorial)
- Lecture 25 - Tri-Diagonal Matrix Algorithm
- Lecture 26 - Nonlinear Equations in Single Variable
- Lecture 27 - Using MATLAB command fzero
- Lecture 28 - Fixed Point Iteration in Single Variable
- Lecture 29 - Newton-Raphson (single variable)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Using MATLAB command fsolve (multi-variable)
- Lecture 31 - Newton-Raphson (multi Variable)
- Lecture 32 - Introduction
- Lecture 33 - Linear Least Squares Regression
- Lecture 34 - Nonlinear and Functional Regression
- Lecture 35 - Interpolation Functions in MATLAB
- Lecture 36 - Introduction and Euler\'s Method
- Lecture 37 - Runge-Kutta (RK-2) method
- Lecture 38 - MATLAB ode45 algorithm
- Lecture 39 - Higher order Runge-Kutta Methods
- Lecture 40 - Error Analysis
- Lecture 41 - Multi-Variable ODE
- Lecture 42 - Stiff Systems & Solution using ode15s
- Lecture 43 - Method of Lines for transient PDEs
- Lecture 44 - A Final Example
- Lecture 45 - Tutorial

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Computational Fluid Dynamics

Subject Co-ordinator - Prof. Sreenivas Jayanti

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation
- Lecture 2 - Flow in a rectangular duct
- Lecture 3 - Flow in a rectangular duct
- Lecture 4 - Tutorial 1
- Lecture 5 - Tutorial 1 (Continued...) Solution for algebraic equations using Gauss- Seidel Method
- Lecture 6 - Flow in a triangular duct
- Lecture 7 - Flow in a triangular duct
- Lecture 8 - Tutorial 2
- Lecture 9 - Tutorial 2 (Continued...) Description of FV method and solution using G-S Method
- Lecture 10 - Effect of grid spacing & upcoming course outline
- Lecture 11 - Mass conservation equations
- Lecture 12 - Momentum conservation equations
- Lecture 13 - Forces acting on control volume
- Lecture 14 - Kinematics of deformation in fluid flow
- Lecture 15 - Equations governing fluid flow in incompressible fluid
- Lecture 16 - Navier-Stokes equation for simple cases of flow
- Lecture 17 - Energy conservation equations
- Lecture 18 - Practical cases of fluid flow with heat transfer in CFD point of view
- Lecture 19 - Practical cases of fluid flow with mass transfer in CFD point of view
- Lecture 20 - Equations governing fluid flow with chemical reactions
- Lecture 21 - Concept of wellposedness of mathematical problems
- Lecture 22 - Introduction to finite difference methods
- Lecture 23 - Finite difference approximation on an uniform mesh
- Lecture 24 - Higher order and mixed derivatives
- Lecture 25 - Solution of Poisson equation in rectangular duct-Tutorial
- Lecture 26 - Discretization of time domain
- Lecture 27 - FD approx. on a non-uniform mesh and need of analysis of obtained discretization
- Lecture 28 - Need for the analysis of discretized equation
- Lecture 29 - Properties of Numerical Schemes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Properties of Numerical Schemes
- Lecture 31 - Tutorial on Stability Analysis
- Lecture 32 - Analysis of Generic 1-d scalar transport equation
- Lecture 33 - Introduction to the solution of coupled N-S equations
- Lecture 34 - N-S equation in compressible flow- Mac Cormack Scheme
- Lecture 35 - Stability limits of Mac-Cormack Scheme and the intro to Beam-Warming Scheme
- Lecture 36 - Implicit Beam-Warming Scheme
- Lecture 37 - Compressible flow to Incompressible flow
- Lecture 38 - Solution of coupled equations
- Lecture 39 - Artificial compressibility method, Stream function-vorticity method
- Lecture 40 - Pressure equation method, Staggered grid system
- Lecture 41 - Pressure Correction Method
- Lecture 42 - Tutorial on Pressure Correction Method
- Lecture 43 - Tutorial on Pressure Correction Method (Continued...)
- Lecture 44 - Introduction to the basic numerical methods
- Lecture 45 - Direct Methods
- Lecture 46 - Tri-diagonal Matrix Algorithm
- Lecture 47 - TDMA and other iterative methods
- Lecture 48 - Recap of basic iterative methods.
- Lecture 49 - Convergence analysis of basic iterative methods
- Lecture 50 - Successive Over Relaxation (SOR) method
- Lecture 51 - Alternating Direction Implicit (ADI) method
- Lecture 52 - Strongly Implicit Procedure (ILU) method
- Lecture 53 - Multigrid method
- Lecture 54 - Body Fitted Grid Approach
- Lecture 55 - Formulation Of Finite Volume Method
- Lecture 56 - Methods For Unstructured Grid Generation
- Lecture 57 - Triangulation
- Lecture 58 - The Advancing Front Method continuation
- Lecture 59 - Time and length scale of turbulence
- Lecture 60 - The turbulent closure problem
- Lecture 61 - The generic formulation for turbulence
- Lecture 62 - More generic formulation and summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Statistical Hypothesis Testing

Subject Co-ordinator - Dr. Arun K.Tangirala

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation
- Lecture 2 - Probability and statistics
- Lecture 3 - Probability and Statistics
- Lecture 4 - R Tutorial 1
- Lecture 5 - Statistics for Hypothesis Testing - Part 1
- Lecture 6 - Statistics for Hypothesis Testing - Part 2
- Lecture 7 - Statistics for sample mean
- Lecture 8 - Statistics for Variance and Proportion
- Lecture 9 - Type I and Type II errors
- Lecture 10 - p value
- Lecture 11 - Hypothesis testing of means
- Lecture 12 - Hypothesis testing of variance and proportions
- Lecture 13 - Confidence interval construction
- Lecture 14 - Hypothesis testing using confidence interval
- Lecture 15 - Hypothesis testing of correlation
- Lecture 16 - Statistic for linear regression
- Lecture 17 - Hypothesis testing in linear regression
- Lecture 18 - Power of hypothesis test
- Lecture 19 - Factors affecting hypothesis test

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Applied Time-Series Analysis

Subject Co-ordinator - Dr. Arun K.Tangirala

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1 - Part 1 - Motivation and Overview 1  
Lecture 2 - Lecture 1 - Part 2 - Motivation and Overview 2  
Lecture 3 - Lecture 2 - Part 1 - Motivation and Overview 3  
Lecture 4 - Lecture 2 - Part 2 - Motivation and Overview 4  
Lecture 5 - Lecture 3 - Part 1 - Motivation and Overview 5  
Lecture 6 - Lecture 3 - Part 2 - Motivation and Overview 6  
Lecture 7 - Lecture 4 - Part 1 - Probability and Statistics Review 1A  
Lecture 8 - Lecture 4 - Part 2 - Probability and Statistics Review 1B  
Lecture 9 - Lecture 5 - Part 1 - Probability and Statistics Review 1C  
Lecture 10 - Lecture 5 - Part 2 - Probability and Statistics Review 1D  
Lecture 11 - Lecture 6 - Part 1 - Probability and Statistics Review 2A  
Lecture 12 - Lecture 6 - Part 2 - Probability and Statistics Review 2B  
Lecture 13 - Lecture 6 - Part 3 - Probability and Statistics Review 2C  
Lecture 14 - Lecture 7 - Part 1 - Probability and Statistics Review 2D  
Lecture 15 - Lecture 7 - Part 2 - Probability and Statistics Review 2E  
Lecture 16 - Lecture 7 - Part 3 - Probability and Statistics Review 2F  
Lecture 17 - Lecture 8 - Part 1 - Probability and Statistics Review 2G (with R Demonstration)  
Lecture 18 - Lecture 8 - Part 2 - Probability and Statistics Review 2H (with R Demonstration)  
Lecture 19 - Lecture 9 - Part 1 - Probability and Statistics Review 2I  
Lecture 20 - Lecture 9 - Part 2 - Probability and Statistics Review 2J  
Lecture 21 - Lecture 9 - Part 3 - Introduction to Random Processes 1  
Lecture 22 - Lecture 10 - Part 1 - Introduction to Random Processes 2  
Lecture 23 - Lecture 10 - Part 2 - Introduction to Random Processes 3  
Lecture 24 - Lecture 11 - Part 1 - Introduction to Random Processes 4  
Lecture 25 - Lecture 11 - Part 2 - Introduction to Random Processes 5  
Lecture 26 - Lecture 11 - Part 3 - Autocovariance & Autocorrelation Functions 1  
Lecture 27 - Lecture 12 - Part 1 - Autocovariance & Autocorrelation Functions 2  
Lecture 28 - Lecture 12 - Part 2 - Autocovariance & Autocorrelation Functions 3  
Lecture 29 - Lecture 13 - Part 1 - Autocovariance & Autocorrelation Functions 4

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Lecture 30	-	Lecture 13	-	Part 2	-	Autocovariance & Autocorrelation Functions	5
Lecture 31	-	Lecture 13	-	Part 3	-	Autocovariance & Autocorrelation Functions	6
Lecture 32	-	Lecture 14	-	Part 1	-	Autocovariance & Autocorrelation Functions	7
Lecture 33	-	Lecture 14	-	Part 2	-	Autocovariance & Autocorrelation Functions	8
Lecture 34	-	Lecture 15	-	Part 1	-	Autocovariance & Autocorrelation Functions	9
Lecture 35	-	Lecture 15	-	Part 2	-	Partial Autocorrelation Functions	
Lecture 36	-	Lecture 16	-	Part 1	-	Autocorrelation and Partial-autocorrelation Functions (with R Demonstrations)	
Lecture 37	-	Lecture 16	-	Part 2	-	Models for Linear Stationary Processes	1
Lecture 38	-	Lecture 17	-	Part 1	-	Models for Linear Stationary Processes	2
Lecture 39	-	Lecture 17	-	Part 2	-	Models for Linear Stationary Processes	3
Lecture 40	-	Lecture 18	-	Part 1	-	Models for Linear Stationary Processes	4
Lecture 41	-	Lecture 18	-	Part 2	-	Models for Linear Stationary Processes	5
Lecture 42	-	Lecture 18	-	Part 3	-	Models for Linear Stationary Processes	6
Lecture 43	-	Lecture 19	-	Part 1	-	Models for Linear Stationary Processes	7
Lecture 44	-	Lecture 19	-	Part 2	-	Models for Linear Stationary Processes	8
Lecture 45	-	Lecture 19	-	Part 3	-	Models for Linear Stationary Processes	9
Lecture 46	-	Lecture 20	-	Part 1	-	Models for Linear Stationary Processes	10
Lecture 47	-	Lecture 20	-	Part 2	-	Models for Linear Stationary Processes	11
Lecture 48	-	Lecture 21	-	Part 1	-	Models for Linear Stationary Processes	12
Lecture 49	-	Lecture 21	-	Part 2	-	Models for Linear Stationary Processes	13
Lecture 50	-	Lecture 22	-	Part 1	-	Models for Linear Stationary Processes	14 (with R Demonstrations)
Lecture 51	-	Lecture 22	-	Part 2	-	Models for Linear Stationary Processes	15 (with R Demonstrations)
Lecture 52	-	Lecture 22	-	Part 3	-	Models for Linear Stationary Processes	16 (with R Demonstrations)
Lecture 53	-	Lecture 23	-	Part 1	-	Models for Linear Non-stationary Processes	1
Lecture 54	-	Lecture 23	-	Part 2	-	Models for Linear Non-stationary Processes	2 (with R Demonstrations)
Lecture 55	-	Lecture 24	-	Part 1	-	Models for Linear Non-stationary Processes	3 (with R Demonstrations)
Lecture 56	-	Lecture 24	-	Part 2	-	Models for Linear Non-stationary Processes	4
Lecture 57	-	Lecture 25	-	Part 1	-	Models for Linear Non-stationary Processes	5
Lecture 58	-	Lecture 25	-	Part 2	-	Models for Linear Non-stationary Processes	6 (with R Demonstrations)
Lecture 59	-	Lecture 26	-	Part 1	-	Fourier Transforms for Deterministic Signals	1
Lecture 60	-	Lecture 26	-	Part 2	-	Fourier Transforms for Deterministic Signals	2
Lecture 61	-	Lecture 27	-	Part 1	-	Fourier Transforms for Deterministic Signals	3
Lecture 62	-	Lecture 27	-	Part 2	-	Fourier Transforms for Deterministic Signals	4
Lecture 63	-	Lecture 28	-	Part 1	-	Fourier Transforms for Deterministic Signals	5
Lecture 64	-	Lecture 28	-	Part 2	-	Fourier Transforms for Deterministic Signals	6
Lecture 65	-	Lecture 29	-	Part 1	-	Fourier Transforms for Deterministic Signals	7
Lecture 66	-	Lecture 29	-	Part 2	-	Fourier Transforms for Deterministic Signals	8
Lecture 67	-	Lecture 30	-	Part 1	-	Fourier Transforms for Deterministic Signals	9
Lecture 68	-	Lecture 30	-	Part 2	-	DFT and Periodogram	1

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Lecture 69 - Lecture 31 - Part 1 - DFT and Periodogram 2  
Lecture 70 - Lecture 31 - Part 2 - DFT and Periodogram 3 (with R Demonstrations)  
Lecture 71 - Lecture 32 - Part 1 - Spectral Representations of Random Processes 1  
Lecture 72 - Lecture 32 - Part 2 - Spectral Representations of Random Processes 2  
Lecture 73 - Lecture 33 - Part 1 - Spectral Representations of Random Processes 3  
Lecture 74 - Lecture 33 - Part 2 - Spectral Representations of Random Processes 4  
Lecture 75 - Lecture 33 - Part 3 - Spectral Representations of Random Processes 5  
Lecture 76 - Lecture 34 - Part 1 - Spectral Representations of Random Processes 6  
Lecture 77 - Lecture 34 - Part 2 - Spectral Representations of Random Processes 7  
Lecture 78 - Lecture 35 - Part 1 - Introduction to Estimation Theory 1  
Lecture 79 - Lecture 35 - Part 2 - Introduction to Estimation Theory 2  
Lecture 80 - Lecture 35 - Part 3 - Introduction to Estimation Theory 3  
Lecture 81 - Lecture 36A - Introduction to Estimation Theory -4  
Lecture 82 - Lecture 36B - Goodness of Estimators 1 - 1  
Lecture 83 - Lecture 37A - Goodness of Estimators 1 - 2  
Lecture 84 - Lecture 37B - Goodness of Estimators 1 - 3  
Lecture 85 - Lecture 37C - Goodness of Estimators 1 - 4  
Lecture 86 - Lecture 38A - Goodness of Estimators 2 - 1  
Lecture 87 - Lecture 38B - Goodness of Estimators 2 - 2  
Lecture 88 - Lecture 38C - Goodness of Estimators 2 - 3  
Lecture 89 - Lecture 39A - Goodness of Estimators 2 - 4  
Lecture 90 - Lecture 39B - Goodness of Estimators 2 - 5 (with R demonstrations)  
Lecture 91 - Lecture 39C - Goodness of Estimators 2 - 6  
Lecture 92 - Lecture 40A - Goodness of Estimators 2 - 7  
Lecture 93 - Lecture 40B - Goodness of Estimators 2 - 8  
Lecture 94 - Lecture 41A - Estimation Methods 1 - 1  
Lecture 95 - Lecture 41B - Estimation Methods 1 - 2  
Lecture 96 - Lecture 42A - Estimation Methods 1 - 3  
Lecture 97 - Lecture 42B - Estimation Methods 1 - 4  
Lecture 98 - Lecture 42C - Estimation Methods 1 - 5  
Lecture 99 - Lecture 43A - Estimation Methods 1 - 6 (with R demonstrations)  
Lecture 100 - Lecture 43B - Estimation Methods 1 - 7 (with R demonstrations)  
Lecture 101 - Lecture 44A - Estimation Methods 1 - 8  
Lecture 102 - Lecture 44B - Estimation Methods 1 - 9  
Lecture 103 - Lecture 44C - Estimation Methods 2 - 1  
Lecture 104 - Lecture 45A - Estimation Methods 2 - 2  
Lecture 105 - Lecture 45B - Estimation Methods 2 - 3  
Lecture 106 - Lecture 46A - MLE and Bayesian Estimation - 1  
Lecture 107 - Lecture 46B - MLE and Bayesian Estimation - 2

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Lecture 108 - Lecture 47A - MLE and Bayesian Estimation - 3  
Lecture 109 - Lecture 47B - MLE and Bayesian Estimation - 4  
Lecture 110 - Lecture 48A - Estimation of Time Domain Statistics - 1  
Lecture 111 - Lecture 48B - Estimation of Time Domain Statistics - 2  
Lecture 112 - Lecture 49 - Periodogram as PSD Estimator

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Rheology of Complex Materials

Subject Co-ordinator - Dr. Abhijit P. Deshpande

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Flow phenomena in complex materials and Microstructure - 1  
Lecture 2 - Flow phenomena in complex materials and Microstructure - 2  
Lecture 3 - Applications of rheology  
Lecture 4 - Applications of rheology  
Lecture 5 - Applications of rheology  
Lecture 6 - Applications of rheology  
Lecture 7 - Stress and strain rate - 1  
Lecture 8 - Stress and strain rate - 2  
Lecture 9 - Velocity gradient and strain rate - 1  
Lecture 10 - Velocity gradient and strain rate 1 Stress and strain rate - 3  
Lecture 11 - Kinematics for simple flows - 1  
Lecture 12 - Kinematics for simple flows - 2  
Lecture 13 - Introduction to tensors  
Lecture 14 - Rheometric flows  
Lecture 15 - Viscous response - 1  
Lecture 16 - Viscous response - 2  
Lecture 17 - Viscoelasticity - Relaxation process  
Lecture 18 - Viscoelasticity - Maxwell model  
Lecture 19 - Linear viscoelasticity - oscillatory shear - 1  
Lecture 20 - Linear viscoelasticity - oscillatory shear - 2  
Lecture 21 - Introduction to tensors - 2  
Lecture 22 - Introduction to tensors - 3  
Lecture 23 - Rheometers - 1  
Lecture 24 - Rheometers - 2  
Lecture 25 - Rheometers - 3  
Lecture 26 - Rheometers - 4  
Lecture 27 - Rheometers - 5  
Lecture 28 - Governing equations for rheology - 1  
Lecture 29 - Governing equations for rheology - 2

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Relaxation time spectrum - 1
- Lecture 31 - Relaxation time spectrum - 2
- Lecture 32 - Linear viscoelasticity
- Lecture 33 - Time temperature superposition
- Lecture 34 - Linear viscoelasticity
- Lecture 35 - General linear viscoelasticity
- Lecture 36 - Rotational rheometry
- Lecture 37 - Review of material functions - 1
- Lecture 38 - Review of material functions - 2
- Lecture 39 - Survey of material functions for polymers - 1
- Lecture 40 - Survey of material functions for polymers - 2
- Lecture 41 - Survey of material functions for polymers - 3
- Lecture 42 - Survey of material functions for polymers - 4
- Lecture 43 - Survey of material functions for multiphase systems - 1
- Lecture 44 - Strain and convected rate - 1
- Lecture 45 - Strain and convected rate - 2
- Lecture 46 - Strain and convected rate - 3
- Lecture 47 - Strain and convected rate - 4
- Lecture 48 - Normal stresses - 1
- Lecture 49 - Normal stresses - 2
- Lecture 50 - Structured materials - yield stress
- Lecture 51 - Yield stress and thixotropic materials
- Lecture 52 - Normal stresses and stress growth
- Lecture 53 - Rheometer demonstration
- Lecture 54 - Review of material functions - 3
- Lecture 55 - Survey of material functions for multiphase macromolecular systems
- Lecture 56 - Problems during rheometry - example of cone and plate - 1
- Lecture 57 - Problems during rheometry - example of cone and plate - 2
- Lecture 58 - Strain, convected derivatives, non-linear models - 1
- Lecture 59 - Strain, convected derivatives, non-linear models - 2
- Lecture 60 - Rheometer demonstration
- Lecture 61 - Microscopic modeling of rheology - 1
- Lecture 62 - Microscopic modeling of rheology - 2
- Lecture 63 - Live Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Technology - I

Subject Co-ordinator - Dr. I.D. Mall

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Chemical process Industries

Lecture 2 - Raw material for Organic Chemical Industries

Lecture 3 - Unit processes and unit operations in organic chemical Industries

Lecture 4 - Coal and coal as chemicals feed stock

Lecture 5 - Coal carbonization and Coke oven plant

Lecture 6 - Gasification of Coal, Petrocoke and Biomass

Lecture 7 - Introduction to Pulp and paper Industry, Raw material for paper industry and Technological developments

Lecture 8 - Pulping and Bleaching

Lecture 9 - Recovery of Chemicals

Lecture 10 - Stock preparation and paper making

Lecture 11 - Introduction to Soap and detergent, Soap making and Recovery of Glycerine

Lecture 12 - Synthetic detergent and Linear alkyl benzene

Lecture 13 - Sugar and Fermentation industry

Lecture 14 - Ethanol as Biofuel and Chemical feed stock

Lecture 15 - Introduction

Lecture 16 - Evaluation of Crude oil, Petroleum Products and Petrochemicals

Lecture 17 - Crude oil Distillation

Lecture 18 - Thermal Cracking

Lecture 19 - Catalytic cracking

Lecture 20 - Catalytic reforming

Lecture 21 - Alkylation, Isomerisation and Polymerisation

Lecture 22 - Desulphurisation Processes and Recovery of Sulphur

Lecture 23 - Profile of petrochemical Industry and its structure

Lecture 24 - Naphtha and gas cracking for production of olefins

Lecture 25 - Recovery of chemicals from FCC and steam cracking

Lecture 26 - Synthesis gas and its derivatives

Lecture 27 - Ethylene derivatives

Lecture 28 - Propylene, Propylene oxide and Isopropanol

Lecture 29 - Aromatics Production

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Aromatics product profile, Ethyl benzene & Styrene, Cumene and phenol, Bisphenol, Aniline
- Lecture 31 - Introduction to polymer, Elastomer and Synthetic Fibre, Polymerisation
- Lecture 32 - Polymers
- Lecture 33 - Polyvinylchloride, polycarbonate, thermoset resin
- Lecture 34 - Elastomers
- Lecture 35 - Polyamides or Nylons(PA)
- Lecture 36 - DMT and Terephthalic Acid, Polyester, PET resin, PTB resin
- Lecture 37 - Acrylic Fibre, Modified Acrylic Fibre, Acrylonitrile, Acrolein, Propylene Fibre, Polyurethane
- Lecture 38 - Viscose Rayon and Acetate rayon
- Lecture 39 - Pesticide
- Lecture 40 - Dye and Intermediates

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Process Integration

Subject Co-ordinator - Dr. B. Mohanty

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Process integration, methods and area of application

Lecture 2 - Fundamental concepts related to heat integration - Part 1

Lecture 3 - Fundamental concepts related to heat integration - Part 2

Lecture 4 - Data extraction

Lecture 5 - Hot composite curves

Lecture 6 - Cold composite curves

Lecture 7 - Hot and cold composite curves and the pinch

Lecture 8 - Threshold problems

Lecture 9 - Energy targeting procedure

Lecture 10 - Problem Table Algorithm - Part 1

Lecture 11 - Grand composite curve

Lecture 12 - Problem Table Algorithm - Part 2

Lecture 13 - Number of units target

Lecture 14 - Shell targeting - Part 1

Lecture 15 - Area targeting - Part 1

Lecture 16 - Area targeting - Part 2

Lecture 17 - Coast targeting - Part 1

Lecture 18 - Coast targeting - Part 2

Lecture 19 - Supertargeting- optimization of  $\hat{I} \ t \ min$

Lecture 20 - Global & stream specific  $\hat{I} \ t \ min$  and its relevance

Lecture 21 - Topology Trap

Lecture 22 - Rules for Pinch Design Method (PDM) - Part 1

Lecture 23 - Rules for Pinch Design Method (PDM) - Part 2

Lecture 24 - Application of PDM for MER Hen Synthesis

Lecture 25 - Design for threshold problems

Lecture 26 - Design for single pinch problems

Lecture 27 - Design for multi pinch problems

Lecture 28 - HEN optimization

Lecture 29 - Remaining problem analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Driving Force Plot
- Lecture 31 - Low Temperature process Design - Part 1
- Lecture 32 - Low Temperature process Design - Part 2
- Lecture 33 - Integration of Gas turbine with process - Part 1
- Lecture 34 - Integration of Gas turbine with process - Part 2
- Lecture 35 - Placement and Integration of Distillation Column
- Lecture 36 - Heat Integration of evaporators
- Lecture 37 - Integration of heat pump
- Lecture 38 - Placement of Heat Engine, Heat pump and Reactors
- Lecture 39 - Integration of Furnace
- Lecture 40 - Problem solving using HINT Software - Part 1
- Lecture 41 - Problem solving using HINT Software - Part 2
- Lecture 42 - Problem solving using HINT Software - Part 3
- Lecture 43 - Problem solving using HINT Software - Part 4

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Mechanical Operations

Subject Co-ordinator - Prof. Shabina Khanam

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Characterization of a single particle - 1
- Lecture 3 - Characterization of a single particle - 2
- Lecture 4 - Characterization of collection of particles - 1
- Lecture 5 - Characterization of collection of particles - 2
- Lecture 6 - Fine grain size distribution
- Lecture 7 - Effectiveness of screen - 1
- Lecture 8 - Effectiveness of screen - 2
- Lecture 9 - Industrial screening equipment
- Lecture 10 - Size reduction
- Lecture 11 - Laws of comminution
- Lecture 12 - Examples of Laws of comminution - 1
- Lecture 13 - Examples of Laws of comminution - 2
- Lecture 14 - Size reduction equipment - 1
- Lecture 15 - Size reduction equipment - 2
- Lecture 16 - Particle dynamics - 1
- Lecture 17 - Particle dynamics - 2
- Lecture 18 - Particle dynamics-Examples
- Lecture 19 - Classification and Jigging - 1
- Lecture 20 - Classification and Jigging - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Waste to Energy Conversion

Subject Co-ordinator - Prof. P. Mondal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - 1
- Lecture 2 - Introduction - 2
- Lecture 3 - Characterization of wastes - 1
- Lecture 4 - Characterization of wastes - 2
- Lecture 5 - Characterization of wastes - 3
- Lecture 6 - Tutorial on Characterization of wastes
- Lecture 7 - Energy production from wastes through incineration - 1
- Lecture 8 - Energy production from wastes through incineration - 2
- Lecture 9 - Tutorial on incineration
- Lecture 10 - Energy production from wastes through gasification - 1
- Lecture 11 - Energy production from wastes through gasification - 2
- Lecture 12 - Syngas utilization - 1
- Lecture 13 - Syngas utilization - 2
- Lecture 14 - Energy production from wastes through pyrolysis - 1
- Lecture 15 - Energy production from wastes through pyrolysis - 2
- Lecture 16 - Tutorial on gasification
- Lecture 17 - Tutorial on Pyrolysis
- Lecture 18 - Densification of solids - 1
- Lecture 19 - Densification of solids - 2
- Lecture 20 - Efficiency improvement of power plant - 1
- Lecture 21 - Efficiency improvement of power plant - 2
- Lecture 22 - Energy production from waste plastics - 1
- Lecture 23 - Energy production from waste plastics - 2
- Lecture 24 - Gas clean up - 1
- Lecture 25 - Gas clean up - 2
- Lecture 26 - Energy production from organic wastes through anaerobic digestion - 1
- Lecture 27 - Energy production from organic wastes through anaerobic digestion - 2
- Lecture 28 - Design of anaerobic digester
- Lecture 29 - Introduction to Microbial fuel cells

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Energy production from organic wastes through fermentation - 1
- Lecture 31 - Energy production from organic wastes through fermentation - 2
- Lecture 32 - Tutorial on anaerobic digestion
- Lecture 33 - Tutorial on fermentation
- Lecture 34 - Energy production from wastes through transesterification - 1
- Lecture 35 - Energy production from wastes through transesterification - 2
- Lecture 36 - Tutorial on transesterification
- Lecture 37 - Cultivation of algal biomass and treatment of waste water - 1
- Lecture 38 - Cultivation of algal biomass and treatment of waste water - 2
- Lecture 39 - Energy production form algal biomass - 1
- Lecture 40 - Energy production form algal biomass - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Unit Operations of Particulate Matter

Subject Co-ordinator - Prof. Shabina Khanam

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Sedimentation and Batch Sedimentation Test - 1  
Lecture 3 - Sedimentation and Batch Sedimentation Test - 2  
Lecture 4 - Centrifugal Sedimentation and Equipment - 1  
Lecture 5 - Centrifugal Sedimentation and Equipment - 2  
Lecture 6 - Filtration - 1  
Lecture 7 - Filtration - 2  
Lecture 8 - Filtration - 3  
Lecture 9 - Continuous Filtration - 1  
Lecture 10 - Continuous Filtration - 2  
Lecture 11 - Fluidisation - 1  
Lecture 12 - Fluidisation - 2  
Lecture 13 - Liquid Fluidisation  
Lecture 14 - Gas Fluidisation - 1  
Lecture 15 - Gas Fluidisation - 2  
Lecture 16 - Flotation - 1  
Lecture 17 - Flotation - 2  
Lecture 18 - Transportaion of solids - 1  
Lecture 19 - Transportaion of solids - 2  
Lecture 20 - Transportaion of solids - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Polymer Physics (IIT-R)

Subject Co-ordinator - Prof. Prateek Kumar Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course, Macromolecules and Life, Molecular flexibility
- Lecture 2 - Classification of polymers, Types of polymerization, Average molecular weights and polydispersity
- Lecture 3 - Motivation to study polymer physics
- Lecture 4 - Random Walk Models of Single Chain I
- Lecture 5 - Random Walk Models of Single Chain II
- Lecture 6 - Random Walk Models of Single Chain III
- Lecture 7 - Models of semiflexible chains (Kratky Porod Model) - Part I
- Lecture 8 - Models of semiflexible chains (Kratky Porod Model) - Part II
- Lecture 9 - Probability density of an ideal chain - Part I
- Lecture 10 - Probability density of an ideal chain - Part II
- Lecture 11 - Entropic Elasticity, Bead-Spring Model, Simulations of random walk models
- Lecture 12 - Derivation of Diffusion equation, Einstein notation
- Lecture 13 - Definition of Radius of gyration
- Lecture 14 - Radius of gyration for an ideal chain, concept of ideality
- Lecture 15 - Nonbonded interactions, hydrophobic and hydrophilic behaviour
- Lecture 16 - Definition of excluded volume; good, bad, and theta solvent
- Lecture 17 - Virial expansion, Flory theory for good solvent
- Lecture 18 - Flory theory for bad solvent, self-similarity and fractal nature of polymers
- Lecture 19 - Derivation of fractal dimension, concentration regimes and overlap concentration
- Lecture 20 - Size, shape, and structure. Gyration tensor and measures of asphericity.
- Lecture 21 - Order-disorder transition
- Lecture 22 - Scattering experiments, Pair correlation function
- Lecture 23 - Structure of polymer chain, Introduction to Monte Carlo simulations of polymer chains
- Lecture 24 - Monte Carlo algorithm
- Lecture 25 - Practical aspects of Monte Carlo simulation
- Lecture 26 - Molecular Dynamics Simulations, Review of Thermodynamics
- Lecture 27 - Solution Thermodynamics - I
- Lecture 28 - Solution Thermodynamics - II
- Lecture 29 - Solution Thermodynamics - III

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solution Thermodynamics - IV
- Lecture 31 - Phase separation regime, Introduction to lattice model of solutions
- Lecture 32 - Lattice Model of Solutions - I
- Lecture 33 - Lattice Model of Solutions - II
- Lecture 34 - Phase behaviour of liquid solutions
- Lecture 35 - Lattice models of polymeric systems
- Lecture 36 - Brownian motion - I
- Lecture 37 - Brownian motion - II
- Lecture 38 - Brownian motion - III
- Lecture 39 - Brownian motion - IV
- Lecture 40 - Brownian motion - V
- Lecture 41 - Rouse Model - I
- Lecture 42 - Rouse Model - II
- Lecture 43 - Rouse Model - III
- Lecture 44 - Rouse Model - IV
- Lecture 45 - Problems in Rouse Model, Hydrodynamic Interactions
- Lecture 46 - Zimm Model - I
- Lecture 47 - Zimm Model - II
- Lecture 48 - Continuum Mechanics - I
- Lecture 49 - Continuum Mechanics - II
- Lecture 50 - Kuhn's Theory of Rubber Elasticity
- Lecture 51 - Elasticity of polymer network
- Lecture 52 - Microscopic definition of stress tensor - I
- Lecture 53 - Microscopic definition of stress tensor - II, Dumbbell model, introduction to Rouse model
- Lecture 54 - Models for entangled polymeric systems - I
- Lecture 55 - Models for entangled polymeric systems - II
- Lecture 56 - Rheology of complex fluids
- Lecture 57 - Rheometers and rheological tests - I
- Lecture 58 - Rheometers and rheological tests - II
- Lecture 59 - Maxwell model - I
- Lecture 60 - Maxwell model - II, Closing notes

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Reaction Engineering

Subject Co-ordinator - Prof. Jayant M Modak

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction & Overview
- Lecture 2 - Basic concepts
- Lecture 3 - Thermodynamics of Chemical Reactions - Part I
- Lecture 4 - Thermodynamics of Chemical Reactions - Part II
- Lecture 5 - Chemical Reaction Kinetics - Overview
- Lecture 6 - Chemical Reaction Kinetics & Reactor Design
- Lecture 7 - Chemical Reactor Design
- Lecture 8 - Problem Solving
- Lecture 9 - Complex Reactions - Introduction
- Lecture 10 - Complex Reactions - Yield & Selectivity
- Lecture 11 - Complex Reactions - Quasi Steady State and Quasi Equilibrium Approximations
- Lecture 12 - Complex Reactions - Kinetics of Chain Reactions & polymerization
- Lecture 13 - Catalytic reactions - Introduction
- Lecture 14 - Catalytic reactions - Adsorption & Desorption
- Lecture 15 - Catalytic reactions - Kinetics
- Lecture 16 - Monomolecular Reaction Network & Lumping Analysis
- Lecture 17 - Problem solving
- Lecture 18 - Gas-solid Catalytic Reactions - External diffusion
- Lecture 19 - Gas-solid Catalytic Reactions - Transport in Catalyst Pellet
- Lecture 20 - Gas-solid Catalytic Reactions - Diffusion & Reaction - I
- Lecture 21 - Gas-solid Catalytic Reactions - Diffusion & Reaction - II
- Lecture 22 - Gas-solid Catalytic Reactions - Diffusion & Reaction - III
- Lecture 23 - Gas-solid Catalytic Reactions - Nonisothermal effects
- Lecture 24 - Gas-solid Noncatalytic Reactions
- Lecture 25 - Gas-Liquid Reactions
- Lecture 26 - Problem solving
- Lecture 27 - Chemical Reactor Design
- Lecture 28 - Chemical Reactor Design
- Lecture 29 - Nonisothermal Reactor Operation

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- Lecture 30 - Case Study - Ethane dehydrogenation
- Lecture 31 - Case Study - Hydrogenation of Oil
- Lecture 32 - Case Study - Ammonia Synthesis
- Lecture 33 - Autothermal reactors
- Lecture 34 - Parametric Sensitivity
- Lecture 35 - CSTR - multiple steady states
- Lecture 36 - Stability Analysis - Basics
- Lecture 37 - Stability Analysis - Examples
- Lecture 38 - Nonideal flow and reactor performance - I
- Lecture 39 - Nonideal flow and reactor performance - II
- Lecture 40 - Problem solving

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Fundamentals of Transport Processes

Subject Co-ordinator - Prof. V. Kumaran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Dimensional Analysis
- Lecture 3 - Dimensional Analysis (Continued...)
- Lecture 4 - Dimensionless Groups
- Lecture 5 - Continuum description
- Lecture 6 - Mechanisms of diffusion - I
- Lecture 7 - Mechanisms of diffusion - II
- Lecture 8 - Unidirectional Transport Cartesian Coordinates - I
- Lecture 9 - Unidirectional Transport Cartesian Coordinates - II Similarity Solutions
- Lecture 10 - Unidirectional Transport Cartesian Coordinates - III Similarity Solutions
- Lecture 11 - Unidirectional Transport Cartesian Coordinates - IV Separation of Variables
- Lecture 12 - Unidirectional Transport Cartesian Coordinates - V Separation of Variables
- Lecture 13 - Unidirectional Transport Cartesian Coordinates - VI Oscillatory Flows
- Lecture 14 - Unidirectional Transport Cartesian Coordinates - VII Momentum Source in the Flow
- Lecture 15 - Unidirectional Transport Cartesian Coordinates - VIII Heat & Mass Sources
- Lecture 16 - Unidirectional Transport Cylindrical Coordinates - I Conservation Equations
- Lecture 17 - Unidirectional Transport Cylindrical Coordinates - II Similarity Solutions
- Lecture 18 - Unidirectional Transport Cylindrical Coordinates - III Separation of Variables
- Lecture 19 - Unidirectional Transport Cylindrical Coordinates - IV Steady flow in a pipe
- Lecture 20 - Unidirectional Transport Cylindrical Coordinates - V Oscillatory flow in a pipe
- Lecture 21 - Unidirectional Transport Cylindrical Coordinates - VI Oscillatory flow in a pipe Regular Perturbation
- Lecture 22 - Unidirectional Transport Cylindrical Coordinates - VII Oscillatory flow in a pipe Singular Perturbation
- Lecture 23 - Unidirectional Transport Spherical Coordinates - I Balance Equation
- Lecture 24 - Unidirectional Transport Spherical Coordinates - II Separation of Variables
- Lecture 25 - Mass & Energy Conservation Cartesian Coordinates
- Lecture 26 - Mass & Energy Conservation Cartesian Coordinates Heat Conduction in a Cube
- Lecture 27 - Mass & Energy Conservation Spherical Coordinates Balance Laws
- Lecture 28 - Mass & Energy Conservation Cylindrical Coordinates
- Lecture 29 - Diffusion Equation Spherical Co-ordinates Separation of Variables

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diffusion Equation Spherical Co-ordinates Separation of Variables (Continued...)
- Lecture 31 - Diffusion Equation Spherical Co-ordinates Effective Conductivity of a Composite
- Lecture 32 - Diffusion Equation Spherical Harmonics
- Lecture 33 - Diffusion Equation Delta Functions
- Lecture 34 - Diffusion Equation Multipole Expansions
- Lecture 35 - Diffusion Equation Greens Function Formulations
- Lecture 36 - High Peclet Number Transport Flow Past a Flat Plate
- Lecture 37 - High Peclet Number Transport Heat Transfer from a Spherical Particle - I
- Lecture 38 - High Peclet Number Transport Heat Transfer from a Spherical Particle - II
- Lecture 39 - High Peclet Number Transport Heat Transfer from a Gas Bubble
- Lecture 40 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Fundamentals of Transport Processes - II

Subject Co-ordinator - Prof. V. Kumaran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Review of Fundamentals of Transport Processes I

Lecture 2 - Introduction

Lecture 3 - Vectors and Tensors

Lecture 4 - Vector calculus

Lecture 5 - Vector calculus

Lecture 6 - Curvilinear co-ordinates

Lecture 7 - Kinematics

Lecture 8 - Rate of deformation tensor

Lecture 9 - Mass conservation equation

Lecture 10 - Momentum conservation equation

Lecture 11 - Angular momentum conservation equation

Lecture 12 - Boundary conditions

Lecture 13 - Mechanical energy conservation

Lecture 14 - Unidirectional flow

Lecture 15 - Viscous flows

Lecture 16 - Viscous flows

Lecture 17 - Flow around a sphere

Lecture 18 - Force on moving sphere

Lecture 19 - Torque on rotating sphere

Lecture 20 - Effective viscosity of a suspension

Lecture 21 - Flow in a corner

Lecture 22 - Lubrication flow

Lecture 23 - Lubrication flow

Lecture 24 - Inertia of a low Reynolds number

Lecture 25 - Potential flow

Lecture 26 - Potential flow around a sphere

Lecture 27 - Two-dimensional potential flow

Lecture 28 - Two-dimensional potential flow

Lecture 29 - Flow around a cylinder

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Conformal transforms in potential flow
- Lecture 31 - Boundary layer theory
- Lecture 32 - Boundary layer past a flat plate
- Lecture 33 - Stagnation point flow
- Lecture 34 - Falkner-Skan Boundary Layer Solutions
- Lecture 35 - Falkner-Skan Boundary Layer Solutions
- Lecture 36 - Vorticity Dynamics
- Lecture 37 - Vorticity Dynamics
- Lecture 38 - Turbulence
- Lecture 39 - Turbulence
- Lecture 40 - Turbulent flow in a channel

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Modern Instrumental Methods of Analysis

Subject Co-ordinator - Dr. J.R. Mudakavi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Modern Instrumental Methods of Analysis
- Lecture 2 - Atomic Structure
- Lecture 3 - Physical Properties of Electromagnetic Radiation
- Lecture 4 - Interaction of Matter with Radiation
- Lecture 5 - Ultraviolet and Visible Spectrophotometry-1 (i. Theoretical Aspects)
- Lecture 6 - Ultraviolet and Visible Spectrophotometry-2 (ii. Theoretical Aspects)
- Lecture 7 - Ultraviolet and Visible Spectrophotometry-3 (iii. Theoretical Aspects)
- Lecture 8 - Ultraviolet and Visible Spectrophotometry-4 (iv. Instrumentation)
- Lecture 9 - Ultraviolet and Visible Spectrophotometry-5 (v. Instrumentation)
- Lecture 10 - Ultraviolet and Visible Spectrophotometry-6 (vi. Applications)
- Lecture 11 - Fluorescence and Phosphorescence Spectrophotometry-1 (i. Theoretical Aspects)
- Lecture 12 - Fluorescence and Phosphorescence Spectrophotometry-2 (ii. Instrumentation)
- Lecture 13 - Fluorescence and Phosphorescence Spectrophotometry-3 (iii. Application)
- Lecture 14 - Atomic Fluorescence (i. Theoretical aspects)
- Lecture 15 - X- Ray Analytical Techniques-1 (ii. Instrumentation)
- Lecture 16 - X- Ray Analytical Techniques-2 (iii. Applications)
- Lecture 17 - Atomic Absorption Spectrometry-1 (i. Theoretical Aspects)
- Lecture 18 - Atomic Absorption Spectrometry-2 (ii. Theoretical Aspects)
- Lecture 19 - Atomic Absorption Spectrometry-3 (iii. Instrumentation)
- Lecture 20 - Atomic Absorption Spectrometry-4 (iv. Instrumentation)
- Lecture 21 - Atomic Absorption Spectrometry-5 (v. Instrumentation)
- Lecture 22 - Atomic Absorption Spectrometry-6 (vi. Signal handling)
- Lecture 23 - Atomic Absorption Spectrometry-7 (vii. Interferences)
- Lecture 24 - Atomic Absorption Spectrometry-8 (viii. Hydride Generation AAS)
- Lecture 25 - Atomic Absorption Spectrometry-9 (ix. Cold Vapour Mercury AAS)
- Lecture 26 - Electrothermal Atomic Absorption Spectrometry-10 (x. Electrothermal Aspects)
- Lecture 27 - Electrothermal Atomic Absorption Spectrometry-11 (xi. Practical Aspects)
- Lecture 28 - Inductively Coupled Plasma Atomic Emission Spectrometry-1 (i. Theoretical Aspects)
- Lecture 29 - Inductively Coupled Plasma Atomic Emission Spectrometry-2 (ii. Instrumentation)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Inductively Coupled Plasma Atomic Emission Spectrometry-3 (iii. Comparison of ICP & AAS)
- Lecture 31 - Infrared Spectroscopy-1 (i. Theoretical Aspects)
- Lecture 32 - Infrared Spectroscopy-2 (ii. Practical Aspects)
- Lecture 33 - Infrared Spectroscopy-3 (iii. Nondispersive IR, Mass spectrometer)
- Lecture 34 - Introduction to Mass Spectrometry
- Lecture 35 - Introduction to Nuclear Magnetic Resonance Spectroscopy
- Lecture 36 - Fundamentals of Electrochemical Techniques-1 (i. Introduction)
- Lecture 37 - Fundamentals of Electrochemical Techniques-2 (ii. Introduction) (Continued...)
- Lecture 38 - Polarography-1 (i. Introduction)
- Lecture 39 - Polarography-2 (ii. Applications)
- Lecture 40 - Chromatography-1 (i. Introduction)
- Lecture 41 - Gas chromatography-1 (i. Instrumentation)
- Lecture 42 - Gas chromatography-2 (ii. Applications)
- Lecture 43 - Gas chromatography-3 (iii. Applications)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Transport Processes I: Heat and Mass Transfer

Subject Co-ordinator - Prof. V. Kumaran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Why do we study transport processes?

Lecture 2 - Transport by convection and diffusion

Lecture 3 - Non-dimensional analysis of beams

Lecture 4 - Dimensional analysis: Force on a particle settling in a fluid

Lecture 5 - Dimensional analysis: Heat transfer in a heat exchanger

Lecture 6 - Dimensional analysis: Mass transfer from a particle suspended in a fluid

Lecture 7 - Dimensional analysis: Power of an impeller

Lecture 8 - Dimensional analysis: Scaling up of an impeller

Lecture 9 - Dimensional analysis: Convection and diffusion

Lecture 10 - Dimensional analysis: Physical interpretation of dimensionless groups

Lecture 11 - Dimensional analysis: Correlations for dimensionless groups

Lecture 12 - Dimensional analysis: Natural and forced convection

Lecture 13 - Continuum description of fluids

Lecture 14 - Conservation equations and constitutive relations

Lecture 15 - Diffusion: Mechanism of mass diffusion in gases

Lecture 16 - Diffusion: Estimation of mass diffusion coefficient

Lecture 17 - Diffusion: Momentum diffusion coefficient

Lecture 18 - Diffusion: Thermal diffusion coefficient

Lecture 19 - Unidirectional transport: Conservation equation for heat and mass transfer

Lecture 20 - Unidirectional transport: Conservation equation for momentum transfer

Lecture 21 - Unidirectional transport: Similarity solution for infinite domain

Lecture 22 - Unidirectional transport: Similarity solution for infinite domain continued

Lecture 23 - Unidirectional transport: Similarity solution for mass transfer into a falling film

Lecture 24 - Unidirectional transport: Similarity solution for decay of a pulse

Lecture 25 - Unidirectional transport: Similarity solution for decay of a pulse continued

Lecture 26 - Unidirectional transport: Separation of variables for transport in a finite domain

Lecture 27 - Unidirectional transport: Separation of variables for transport in a finite domain (Continued...)

Lecture 28 - Unidirectional transport: Separation of variables for transport in a finite domain (Continued...)

Lecture 29 - Unidirectional transport: Separation of variables for transport in a finite domain (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unidirectional transport: Balance laws in cylindrical co-ordinates. Heat transfer across the wall
- Lecture 31 - Unidirectional transport: Balance laws in cylindrical co-ordinates. Unsteady heat conduction from a wall
- Lecture 32 - Unidirectional transport: Balance laws in cylindrical co-ordinates. Unsteady heat conduction from a wall
- Lecture 33 - Unidirectional transport: Balance laws in cylindrical co-ordinates. Unsteady heat conduction from a wall
- Lecture 34 - Unidirectional transport: Balance laws in cylindrical co-ordinates. Similarity solution for heat transfer
- Lecture 35 - Unidirectional transport: Effect of body force in momentum transfer. Falling film
- Lecture 36 - Unidirectional transport: Effect of pressure in momentum transfer. Flow in a pipe.
- Lecture 37 - Unidirectional transport: Friction factor for flow in a pipe
- Lecture 38 - Unidirectional transport: Laminar and turbulent flow in a pipe
- Lecture 39 - Unidirectional transport: Laminar and turbulent flow in a pipe
- Lecture 40 - Unidirectional transport: Oscillatory flow in a pipe. Solution using complex variables
- Lecture 41 - Unidirectional transport: Oscillatory flow in a pipe. Solution using complex variables
- Lecture 42 - Unidirectional transport: Oscillatory flow in a pipe. Solution using complex variables (Continued...)
- Lecture 43 - Unidirectional transport: Oscillatory flow in a pipe. Low and high Reynolds number solutions
- Lecture 44 - Unidirectional transport: Spherical co-ordinates. Heat conduction from a sphere
- Lecture 45 - Mass and energy balance equations in Cartesian co-ordinates
- Lecture 46 - Mass and energy balance equations in Cartesian co-ordinates Vector notation
- Lecture 47 - Mass and energy balance equations in spherical co-ordinates
- Lecture 48 - Mass and energy balance equations in spherical co-ordinates
- Lecture 49 - Momentum balance: Incompressible Navier-Stokes equations
- Lecture 50 - Balance equation: Convection and diffusion dominated regimes
- Lecture 51 - Diffusion equation: Heat conduction in a rectangular solid
- Lecture 52 - Diffusion equation: Heat conduction in a rectangular solid (Continued...)
- Lecture 53 - Diffusion equation: Heat conduction around a spherical inclusion
- Lecture 54 - Diffusion equation: Heat conduction around a spherical inclusion
- Lecture 55 - Diffusion equation: Effective conductivity of a composite
- Lecture 56 - Diffusion equation: Spherical harmonic solutions
- Lecture 57 - Diffusion equation: Conduction from a point source
- Lecture 58 - Diffusion equation: Method of Greens functions
- Lecture 59 - Diffusion equation: Method of images
- Lecture 60 - Diffusion equation: Equivalence of spherical harmonics and multipole expansion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Atomic and Molecular Absorption Spectrometry for Pollution Mo

Subject Co-ordinator - Dr. J.R. Mudakavi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Introduction

Lecture 2 - Atomic structure

Lecture 3 - Interaction of EM radiation with matter

Lecture 4 - Atomic and molecular orbitals

Lecture 5 - Interaction of EM radiation with matter - I

Lecture 6 - Interaction of EM radiation with matter - II

Lecture 7 - Interaction of interaction of EM radiation with matter - III

Lecture 8 - Emission and absorption spectra

Lecture 9 - MO theory

Lecture 10 - Structure  $\hat{A}$  property relationship of organic compounds

Lecture 11 - Woodward Fieser rules, structure  $\hat{A}$  property relationship

Lecture 12 - Beer-Lamberts law

Lecture 13 - Deviations from Beer-Lamberts law, relative concentration error, instrumentation - I

Lecture 14 - UV-Visible spectrophotometry, instrumentation - II

Lecture 15 - UV-Visible spectrophotometry, instrumentation - III

Lecture 16 - UV-Visible spectrophotometry, instrumentation - IV

Lecture 17 - Quantitative analysis  $\hat{A}$  I

Lecture 18 - Quantitative analysis  $\hat{A}$  II

Lecture 19 - Quantitative analysis  $\hat{A}$  III

Lecture 20 - Quantitative analysis  $\hat{A}$  IV

Lecture 21 - Fluorescence spectrophotometry  $\hat{A}$  I

Lecture 22 - Fluorescence spectrophotometry - II

Lecture 23 - Fluorescence spectrophotometry - III

Lecture 24 - Instrumentation

Lecture 25 - Chemical analysis, applications

Lecture 26 - Chemiluminescence, principles

Lecture 27 - Status of spectrophotometry vis a vis environment

Lecture 28 - Separations methods

Lecture 29 - Method development

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Boron, chloride
- Lecture 31 - Fluoride
- Lecture 32 - Phenols
- Lecture 33 - Arsenic, Free chlorine
- Lecture 34 - Magnesium
- Lecture 35 - Nonionic surfactants, iron, phosphate
- Lecture 36 - Nitrite , manganese
- Lecture 37 - Cadmium, copper, lead
- Lecture 38 - Total hardness, zinc
- Lecture 39 - Nitrate, chromium
- Lecture 40 - Determination of aluminum, cyanide, sulphate
- Lecture 41 - Sulphate, ammonia, Conclusions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Trace and Ultra-trace Analysis of Metals using Atomic Absorption Spectrometry

Subject Co-ordinator - Dr. J.R. Mudakavi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - Atomic structure - I
- Lecture 3 - Atomic structure - II
- Lecture 4 - Electronic arrangement in the Elements - I
- Lecture 5 - Electronic arrangement in the Elements - II
- Lecture 6 - Interaction of EM radiation with matter - I
- Lecture 7 - Interaction of EM radiation with matter - II
- Lecture 8 - Interaction of EM radiation with matter - III
- Lecture 9 - Interaction of EM radiation with matter - IV
- Lecture 10 - Theoretical basis of AAS - I
- Lecture 11 - Theoretical basis of AAS - II
- Lecture 12 - Theoretical basis of AAS - III
- Lecture 13 - Theoretical basis of AAS - IV
- Lecture 14 - Instrumentation in AAS - I
- Lecture 15 - Instrumentation in AAS - I (Continued...) Radiation Sources
- Lecture 16 - Instrumentation in AAS Radiation Sources
- Lecture 17 - Instrumentation in AAS - III
- Lecture 18 - Instrumentation in AAS - IV
- Lecture 19 - Instrumentation in AAS - V
- Lecture 20 - Instrumentation in AAS - VI
- Lecture 21 - Instrumentation in AAS - VII
- Lecture 22 - Interferences in AAS
- Lecture 23 - Background correction on flame AAS - I
- Lecture 24 - Interferences in AAS - II
- Lecture 25 - Interferences in AAS - III
- Lecture 26 - Hydride Generation AAS - I
- Lecture 27 - Hydride Generation AAS and Cold Vapour Hg AAS
- Lecture 28 - Cold vapor Hg AAS Flame Emission
- Lecture 29 - Mercury cold vapour technique, FAES and Electrothermal AAS

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electrothermal AAS - II
- Lecture 31 - GF AAS Interferences - I
- Lecture 32 - GF AAS Interferences - II
- Lecture 33 - Interference in ETAAS GF AAS
- Lecture 34 - Individual Elements AAS
- Lecture 35 - Methods, Nomenclature and techniques
- Lecture 36 - Technology and Applications - I
- Lecture 37 - Technology and Applications - II
- Lecture 38 - Conclusions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Inductive Couple Plasma Atomic Emmission Spectrometry for Pol

Subject Co-ordinator - Dr. J.R. Mudakavi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course introduction and atomic structure - I
- Lecture 2 - Course introduction and atomic structure - II
- Lecture 3 - Course introduction and atomic structure - III
- Lecture 4 - Course introduction and atomic structure - IV
- Lecture 5 - Course introduction and atomic structure - V
- Lecture 6 - Course introduction and atomic structure - VI
- Lecture 7 - Nature of electromagnetic radiation
- Lecture 8 - Interaction of EM radiation with matter - I
- Lecture 9 - Interaction of EM radiation with matter - II
- Lecture 10 - Instrumentation for ICP AES - I
- Lecture 11 - Instrumentation for ICP AES - II
- Lecture 12 - Instrumentation for ICP AES - III
- Lecture 13 - Instrumentation for ICP AES - IV - Optical mountings
- Lecture 14 - Instrumentation for ICP AES - V - Detectors
- Lecture 15 - Instrumentation for ICP AES - VI - ICP Torches
- Lecture 16 - Instrumentation for ICP AES - VII - Plasma characteristics
- Lecture 17 - Instrumentation for ICP AES - VIII - Instruments
- Lecture 18 - Practice and Applications of ICP AES - I - Nebulizers
- Lecture 19 - Practice and Applications of ICP AES - II - Sample handling
- Lecture 20 - Practice and Applications of ICP AES - III - Chemical analysis
- Lecture 21 - Practice and Applications of ICP AES - IV - Chemical analysis
- Lecture 22 - Practice and Applications of ICP AES - V - Chemical analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Infrared Spectroscopy for Pollution Monitoring

Subject Co-ordinator - Dr. J.R. Mudakavi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Analytical Science and Infrared Spectroscopy
- Lecture 2 - Environmental Analytical Science
- Lecture 3 - Techniques of Elemental Analysis
- Lecture 4 - Atomic Structure - I
- Lecture 5 - Atomic Structure - II
- Lecture 6 - Atomic Structure - III
- Lecture 7 - Atomic Structure - IV
- Lecture 8 - Interaction of electromagnetic radiation with matter - I
- Lecture 9 - Interaction of electromagnetic radiation with matter - II
- Lecture 10 - Interaction of electromagnetic radiation with matter - III
- Lecture 11 - Interaction of electromagnetic radiation with matter - IV
- Lecture 12 - Interaction of electromagnetic radiation with matter - V
- Lecture 13 - Interaction of electromagnetic radiation with matter - VI
- Lecture 14 - Infrared spectroscopy - Introduction
- Lecture 15 - Infra Red Instrumentation
- Lecture 16 - Fourier Transform Infrared Spectroscopy
- Lecture 17 - Sample Handling in IR
- Lecture 18 - Instrumentation in IR
- Lecture 19 - Applications of IR
- Lecture 20 - IR Spectra Interpretation
- Lecture 21 - IR Gas Analysers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Organo Metallic Chemistry

Subject Co-ordinator - Prof.Debabrata Maiti

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction of Organometallic Chemistry

Lecture 2 - Counting of Electrons

Lecture 3 - Ligand Substitution Reactions

Lecture 4 - Oxidative Addition [1. Concerted Mechanism]

Lecture 5 - Oxidative Addition [2. SN2 Mechanism]

Lecture 6 - Oxidative Addition [3. Radical Mechanism]

Lecture 7 - Reductive Elimination

Lecture 8 - Migratory Insertion and Elimination Reactions

Lecture 9 - Migration and Insertion Reactions

Lecture 10 - Alpha-Migratory Insertion and alpha-Elimination Reactions

Lecture 11 - Beta-Migratory Insertion

Lecture 12 - Beta-Elimination Reaction

Lecture 13 - Alpha-Abstraction and beta-Abstraction

Lecture 14 - 4-Center Reactions; [2+2] Reactions

Lecture 15 - External Attack by a Ligand and Reductive Coupling

Lecture 16 - Hydrogenation Reaction

Lecture 17 - Hydrogenation Reaction [Dihydride Catalyst]

Lecture 18 - Stereoselective Hydrogenation Reaction

Lecture 19 - Carbonylation Reaction [1. Monsanto Acetic Acid Process 2. Hydroformylation 3. Hydrocarboxylation]

Lecture 20 - Carbonylation Reaction [1. Hydroformylation 2. Hydrocarboxylation 3. Hydrocyanation]

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemical and Biological Thermodynamics: Principles to A

Subject Co-ordinator - Prof. Nand Kishore

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Chemical thermodynamics
- Lecture 2 - Work
- Lecture 3 - Tutorial-1
- Lecture 4 - First Law of Thermodynamics
- Lecture 5 - Tutorial-2
- Lecture 6 - Adiabatic processes
- Lecture 7 - Entropy
- Lecture 8 - Entropy and Second Law
- Lecture 9 - Entropy and Second Law
- Lecture 10 - Third Law of Thermodynamics
- Lecture 11 - Discussion on Helmholtz energy
- Lecture 12 - Discussion on Gibbs Energy
- Lecture 13 - Maxwell relations, Properties of Gibbs energy
- Lecture 14 - Further discussion on properties of Gibbs energy
- Lecture 15 - Fugacity
- Lecture 16 - Tutorial session
- Lecture 17 - Tutorial session
- Lecture 18 - Chemical potential of a substance in mixture
- Lecture 19 - Chemical potential of Liquids, Raoult's Law, Henry's Law
- Lecture 20 - Thermodynamics of mixing, Excess functions
- Lecture 21 - Partial molar volume
- Lecture 22 - Activities (Accounting for deviations from Ideal behaviour)
- Lecture 23 - Tutorial on thermodynamics of mixing and deviations from ideality
- Lecture 24 - Further discussion on relation between  $C_p$  and  $C_v$
- Lecture 25 - Chemical Equilibrium
- Lecture 26 - Perfect gas equilibria
- Lecture 27 - Equilibrium constant
- Lecture 28 - Effect of pressure on equilibrium constant and equilibrium composition
- Lecture 29 - Effect of temperature on equilibria

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Biological standard states and pH
- Lecture 31 - Tutorial 1 - Equilibrium constant
- Lecture 32 - Tutorial 2 - Equilibrium constant
- Lecture 33 - Acids and bases and Equilibrium concepts
- Lecture 34 - pH Scale Strong and weak acids and bases
- Lecture 35 - Strong and weak acids and bases
- Lecture 36 - Acid-base titrations
- Lecture 37 - pH curve for titration of weak acid with strong base Buffers and indicators
- Lecture 38 - Thermodynamics in systems of biological interest
- Lecture 39 - Calorimetry
- Lecture 40 - Differential scanning calorimetry (DSC)
- Lecture 41 - Further discussion on Differential Scanning Calorimetry (DSC)
- Lecture 42 - Explaining Differential Scanning Calorimetric Profiles (DSC Profiles)
- Lecture 43 - Applications of DSC in thermal unfolding of proteins and protein-solvent interactions
- Lecture 44 - Further discussion on applications of DSC in thermal unfolding of proteins and protein-solvent i
- Lecture 45 - Isothermal Titration calorimetry (ITC)
- Lecture 46 - Further discussion on Isothermal Titration calorimetry (ITC)
- Lecture 47 - ITC Experimental Design and Isothermal Titration Calorimetry (ITC) in Drug Design
- Lecture 48 - Isothermal Titration Calorimetry (ITC) in Drug Design
- Lecture 49 - Isothermal Titration Calorimetry (ITC) in Engineering Binding Affinity
- Lecture 50 - Calorimetry in identifying partially folded states of proteins (Molten Globule State)
- Lecture 51 - Thermodynamic Characterization of Partially Folded States of Proteins
- Lecture 52 - Quantitative Thermodynamic Characterization of Partially Folded States of Proteins
- Lecture 53 - ITC in Drug-Protein Interactions
- Lecture 54 - Identifying sites for Drug-Protein Interactions by ITC
- Lecture 55 - Identifying sites for Drug-Protein Interactions, DSC of Protein-Ligand Complexes. Enthalpy-Entro
- Lecture 56 - Estimation of Binding Constants in Strong to Ultratight Protein-Ligand, Interactions Using Diffe
- Lecture 57 - Continuation of discussion on... Estimation of Binding Constants in Strong to UltratightProtein-
- Lecture 58 - Thermal unfolding of protein by non-calorimetric methods, Addressing thermodynamics of the proce
- Lecture 59 - Titration Calorimetry as a tool to determine thermodynamic and Kinetic parameters of enzymes
- Lecture 60 - Summary of the course on



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemistry of Main Group Elements

Subject Co-ordinator - Prof. M. S. Balakrishna

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Classification of Elements and Periodic Properties
- Lecture 2 - Periodic Properties, Periodic Trends and Classification of Main Group Compounds
- Lecture 3 - Classification of Main Group Compounds
- Lecture 4 - Effective Nuclear Charge
- Lecture 5 - Structure and Bonding Aspects
- Lecture 6 - Structure and Bonding Aspects
- Lecture 7 - Structure and Bonding Aspects
- Lecture 8 - Structure and Bonding Aspects
- Lecture 9 - Structure and Bonding Aspects
- Lecture 10 - Structure and Bonding Aspects
- Lecture 11 - Structure and Bonding Aspects
- Lecture 12 - Structure and Bonding Aspects
- Lecture 13 - Chemistry of Hydrogen
- Lecture 14 - Chemistry of Hydrogen
- Lecture 15 - Chemistry of Hydrogen, Hydrides and Hydrogen Bonding
- Lecture 16 - Chemistry of Group 1 Elements
- Lecture 17 - Chemistry of Group 1 Elements
- Lecture 18 - Chemistry of Group 1 Elements
- Lecture 19 - Chemistry of Group 1 Elements
- Lecture 20 - Chemistry of Group 2 Elements
- Lecture 21 - Chemistry of Group 2 Elements
- Lecture 22 - Chemistry of Group 2 Elements
- Lecture 23 - Chemistry of Group 2 Elements
- Lecture 24 - Chemistry of Group 2 Elements
- Lecture 25 - Chemistry of Group 13 Elements
- Lecture 26 - Chemistry of Group 13 Elements
- Lecture 27 - Chemistry of Group 13 Elements
- Lecture 28 - Chemistry of Group 13 Elements
- Lecture 29 - Chemistry of Group 13 Elements

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- Lecture 30 - Wades Rules
- Lecture 31 - Chemistry of Group 13 Elements
- Lecture 32 - Chemistry of Group 14 Elements
- Lecture 33 - Chemistry of Group 14 Elements
- Lecture 34 - Chemistry of Group 14 Elements
- Lecture 35 - Chemistry of Group 14 Elements
- Lecture 36 - Chemistry of Group 14 Elements
- Lecture 37 - Chemistry of Group 14 Elements
- Lecture 38 - Chemistry of Group 14 Elements
- Lecture 39 - Chemistry of Group 15 Elements
- Lecture 40 - Chemistry of Group 15 Elements
- Lecture 41 - Chemistry of Group 15 Elements
- Lecture 42 - Chemistry of Group 15 Elements
- Lecture 43 - Chemistry of Group 15 Elements
- Lecture 44 - Chemistry of Group 15 Elements
- Lecture 45 - Chemistry of Group 15 Elements
- Lecture 46 - Chemistry of Group 15 Elements
- Lecture 47 - Chemistry of Group 16 Elements
- Lecture 48 - Chemistry of Group 16 Elements
- Lecture 49 - Chemistry of Group 16 Elements
- Lecture 50 - Chemistry of Group 16 Elements
- Lecture 51 - Chemistry of Group 16 Elements
- Lecture 52 - Chemistry of Group 17 Elements
- Lecture 53 - Chemistry of Group 17 Elements
- Lecture 54 - Chemistry of Group 18 Elements
- Lecture 55 - Chemistry of Group 12 Elements
- Lecture 56 - Organometallic Compounds of Main Group Elements
- Lecture 57 - Organometallic Compounds of Main Group Elements
- Lecture 58 - Organometallic Compounds of Main Group Elements
- Lecture 59 - Organometallic Compounds of Main Group Elements
- Lecture 60 - Overall Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Transition Metal Organometallic Chemistry - Principles

Subject Co-ordinator - Prof. P. Ghosh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - History of Organometallic Compounds
- Lecture 2 - Polarity and Reactivity of M-C bonds
- Lecture 3 - Reactivity of Organometallic Compounds
- Lecture 4 - Reactivity of Organometallic Compounds
- Lecture 5 - 18 Valence Electron Rule and Classification
- Lecture 6 - 18 Valence Electron Rule and Classification
- Lecture 7 - Reactivity and types of Organometallic compounds
- Lecture 8 - Sigma-Donor Ligands
- Lecture 9 - Preparation of Sigma-Alkyl Compounds
- Lecture 10 - Preparation and Properties of Sigma-Alkyl Compounds
- Lecture 11 - Properties of Sigma-Alkyl Compounds
- Lecture 12 -  $\beta$  elimination in Sigma-Alkyl Compounds
- Lecture 13 -  $\beta$  elimination in Detail
- Lecture 14 - TM Sigma-Alkyl Complexes and its Application
- Lecture 15 - TM Sigma-Alkyl Complexes and its Application
- Lecture 16 - C-H Activation
- Lecture 17 - C-H Activation in Details
- Lecture 18 - C-H Activation in Details
- Lecture 19 - Characterization of C-H Activation
- Lecture 20 - Bonding in C-H Activation
- Lecture 21 - C-C Bond Activation
- Lecture 22 - C-C Bond Activation
- Lecture 23 - C-C Bond Activation in Details
- Lecture 24 - Transition Metal Perfluoroalkyl (R<sub>n</sub>F<sub>3-n</sub>) Complexes
- Lecture 25 - Preparation of Transition Metal Perfluoroalkyl (R<sub>n</sub>F<sub>3-n</sub>) Complexes
- Lecture 26 - C-F Activation
- Lecture 27 - Transition Metal Alkenyl/Aryl Complexes
- Lecture 28 - Transition Metal Aryl Complexes
- Lecture 29 - Transition Metal Aryl/Alkyne Complexes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transition Metal Alkyne/Carbene Complexes
- Lecture 31 - Transition Metal Carbene Complexes
- Lecture 32 - Transition Metal Carbene Complexes
- Lecture 33 - Transition Metal Carbene Complexes
- Lecture 34 - Transition Metal Carbene Complexes
- Lecture 35 - Transition Metal Carbene Complexes
- Lecture 36 - Transition Metal Carbene Complexes
- Lecture 37 - Reactivity of Schrock type Carbene Complexes and Transition Metal Carbynes
- Lecture 38 - Transition Metal Carbynes
- Lecture 39 - Transition Metal Carbynes
- Lecture 40 - Transition Metal Carbynes
- Lecture 41 - Properties of Transition Metal Carbynes And Transition Metal Carbonyls
- Lecture 42 - Transition Metal Carbonyls
- Lecture 43 - Transition Metal Carbonyls
- Lecture 44 - Transition Metal Carbonyls
- Lecture 45 - Transition Metal Carbonyls
- Lecture 46 - Transition Metal Carbonyls
- Lecture 47 - Transition Metal Carbonyls
- Lecture 48 - Transition Metal Carbonyl Hydrides
- Lecture 49 - Application of Carbonyl Metallates and Metal Halides
- Lecture 50 - Application of Metal Halides and Metal Alkenes
- Lecture 51 - Transition Metal Olefin Complexes
- Lecture 52 - Transition Metal Olefin Complexes
- Lecture 53 - Transition Metal Olefin Complexes
- Lecture 54 - Bonding Properties in Olefin Complexes
- Lecture 55 - Transition Metal Diolefin Complexes
- Lecture 56 - Transition Metal Diolefin and Alkyne Complexes
- Lecture 57 - Transition Metal Alkyne Complexes
- Lecture 58 - Transition Metal Alkyne Complexes
- Lecture 59 - Transition Metal Alkyne Complexes
- Lecture 60 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC: Metal Mediated Synthesis-I

Subject Co-ordinator - Prof. Debabrata Maiti

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Asymmetric Hydrogenation

Lecture 2 - Transition Metal Carbenes Fischer and Schrock Carbenes

Lecture 3 - Olefin Metathesis

Lecture 4 - Alkyne Metathesis

Lecture 5 - Cyclopropanation Reaction

Lecture 6 - Catalytic Cyclopropanation Reaction and Introduction to Cross Coupling Reaction

Lecture 7 - Kumada Coupling Reaction

Lecture 8 - Suzuki Coupling Reaction

Lecture 9 - Stille Coupling Reaction

Lecture 10 - Asymmetric Suzuki Coupling Reaction

Lecture 11 - Sonogashira Coupling Reaction

Lecture 12 - Heck Coupling Reaction

Lecture 13 - Asymmetric Heck Reaction Introduction to Buchwald-Hartwig Coupling Reaction

Lecture 14 - Buchwald-Hartwig Coupling Reaction

Lecture 15 - Role of Ligands its Influence in Buchwald-Hartwig Coupling Reaction

Lecture 16 - Oxidative Cyclization Process

Lecture 17 - Application of Oxidative Cyclization in Natural Product Synthesis

Lecture 18 - Synthesis of Reactive Metallacycle Intermediate Via-Beta-Abstraction and their Applications

Lecture 19 - Kulinkovich Reaction and its Mechanism

Lecture 20 - Pauson-Khand Reaction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Inorganic Chemistry of Life: Principles and Perspective

Subject Co-ordinator - Prof. C.P. Rao

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview of inorganic chemistry of life

Lecture 2 - Elements in biology and or life

Lecture 3 - Selection and criteria for elements

Lecture 4 - Biomolecules

Lecture 5 - Coordination in enzymes

Lecture 6 - Amino acids, peptides and proteins - An introduction

Lecture 7 - Nucleoside, nucleotide and nucleic acids and DNA

Lecture 8 - General introduction of metalloproteins

Lecture 9 - Coordination chemistry aspects - An introduction

Lecture 10 - Stability and lability

Lecture 11 - Techniques used inorganic chemistry life

Lecture 12 - Techniques used inorganic chemistry life (Continued...)

Lecture 13 - Techniques used inorganic chemistry life (Continued...)

Lecture 14 - Techniques used inorganic chemistry life (Continued...)

Lecture 15 - Recap on metalloenzymes

Lecture 16 - Role of Alkali, Alkaline earth elements in life

Lecture 17 - Role of Alkali, Alkaline earth elements in life (Continued...)

Lecture 18 - Role of Alkali, Alkaline earth elements in life (Continued...) Ion transport and ionophores

Lecture 19 - Role of Alkali, Alkaline earth elements in life (Continued...) Ion transport and ionophores

Lecture 20 - Functioning of ATPases and nucleases [Na,K]ATPase

Lecture 21 - Role of vanadium in life - General perspectives

Lecture 22 - Role of vanadium in life - Haloperoxidases

Lecture 23 - Enzymes based on manganese in life

Lecture 24 - Role of Iron in life - General perspectives

Lecture 25 - Role of Iron in life - Transport systems

Lecture 26 - Role of Iron in life - Transport and Storage systems

Lecture 27 - Role of Iron in life - Electron transfer

Lecture 28 - Role of Iron in life - Perspectives of electron transfer proteins

Lecture 29 - Role of Iron in life - Monooxygenases

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Role of Iron in life - Mono-and di-oxygenases
- Lecture 31 - Role of Iron in life - Reductases
- Lecture 32 - Role of Iron in life - Reductases and Phosphatases
- Lecture 33 - Role of Iron in life - Reductases and Phosphatases (Continued...)
- Lecture 34 - Role of Cobalt in life
- Lecture 35 - Role of Nickel in life - General perspectives
- Lecture 36 - Role of Nickel in life - Hydrolase, hydrogenase and SOD
- Lecture 37 - Role of Nickel in life - Carbonmonoxide dehydrogenase (CODH)
- Lecture 38 - Role of Copper in life - General perspectives
- Lecture 39 - Role of Copper in life - Type I and Type 2 copper enzymes
- Lecture 40 - Role of Copper in life - Multicenter copper oxidases and SOD
- Lecture 41 - Role of Zinc in life - General perspectives including oxidoreductases and hydrolases
- Lecture 42 - Role of Zinc in life - Carbonic anhydrase and carboxypeptidase
- Lecture 43 - Role of Zinc in life - Transferases, ligases and isomerases
- Lecture 44 - Role of Molybdenum in life - Introductory aspects
- Lecture 45 - Role of Molybdenum in life - Nitrogenase
- Lecture 46 - Role of Molybdenum in life - Oxidoreductases
- Lecture 47 - Role of Mercury in the environment - Mercury reductase
- Lecture 48 - Role of Selenium in life - Glutathione peroxidase
- Lecture 49 - Inorganics in medicine - Introductory aspects and cis-platin
- Lecture 50 - Inorganics in medicine - Apoptosis
- Lecture 51 - Inorganics in medicine - PDT, MRI and Barium tests
- Lecture 52 - Inorganics in medicine - Titanium in biomedical
- Lecture 53 - Highlights of the course - Part I
- Lecture 54 - Highlights of the course - Part II
- Lecture 55 - Highlights of the course - Part III
- Lecture 56 - Highlights of the course - Part IV
- Lecture 57 - Tutorials - Part I
- Lecture 58 - Tutorials - Part II
- Lecture 59 - Tutorials - Part III
- Lecture 60 - Tutorials - Part IV and overall

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Symmetry and Group Theory

Subject Co-ordinator - Prof. Anindya Datta

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Symmetry point group
- Lecture 2 - Symmetry point group
- Lecture 3 - Symmetry point group
- Lecture 4 - Symmetry point group
- Lecture 5 - Symmetry point group
- Lecture 6 - Transformation matrices and Matrix representation
- Lecture 7 - More on Matrix representation
- Lecture 8 - Matrix representation
- Lecture 9 - Introduction to Group Theory
- Lecture 10 - Group Multiplication Tables
- Lecture 11 - Groups and subgroups
- Lecture 12 - Classes, Similarity transformations
- Lecture 13 - Introduction to Matrices
- Lecture 14 - Application of matrices in solution of simultaneous equations
- Lecture 15 - Matrix eigenvalue equation
- Lecture 16 - Matrix eigenvalue equation
- Lecture 17 - Similarity Transformations
- Lecture 18 - Back to transformation matrices
- Lecture 19 - Matrix representation revisited
- Lecture 20 - Function space and Transformation Operators
- Lecture 21 - Transformation Operators form the same group as transformation matrices
- Lecture 22 - Transformation Operators form a unitary representation for orthonormal basis
- Lecture 23 - Transformation Operators
- Lecture 24 - Equivalent representations
- Lecture 25 - Unitary Transformation
- Lecture 26 - Unitary Transformations (Continued...)
- Lecture 27 - Reducible and Irreducible Representations
- Lecture 28 - Irreducible Representations and Great Orthogonality Theorem
- Lecture 29 - Character Tables

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Character Tables
- Lecture 31 - Practice Session
- Lecture 32 - Reducible to Irreducible Representations
- Lecture 33 - Character Tables of Cyclic Groups
- Lecture 34 - Symmetry of Normal Modes
- Lecture 35 - Symmetry of Normal Modes
- Lecture 36 - Symmetry of Normal Modes
- Lecture 37 - Recap
- Lecture 38 - Contribution of internal motion to normal modes
- Lecture 39 - Normal mode analysis
- Lecture 40 - Infrared and Raman spectroscopy
- Lecture 41 - IR and Raman activity
- Lecture 42 - IR and Raman activity
- Lecture 43 - Symmetry Adapted Linear Combinations (SALC)
- Lecture 44 - SALC
- Lecture 45 - SALC
- Lecture 46 - SALC
- Lecture 47 - Projection Operators
- Lecture 48 - Projection Operators (Continued...)
- Lecture 49 - Generating SALCs using Projection Operators
- Lecture 50 - Generating SALCs using Projection Operators (Continued...)
- Lecture 51 - Oh complex and Group-subgroup relation
- Lecture 52 - Group-Subgroup Relation
- Lecture 53 - SALCs as Pi-MO and Cyclopropenyl group
- Lecture 54 - SALCs as Pi-MO, Cyclopropenyl group
- Lecture 55 - SALCs as Pi-MO, Benzene
- Lecture 56 - LCAO Huckel approximation
- Lecture 57 - Huckel approximation
- Lecture 58 - Stationary states, Multiplicity, Ethylene
- Lecture 59 - Napthalene - I
- Lecture 60 - Napthalene - II
- Lecture 61 - Napthalene - III
- Lecture 62 - Transition Metal Complexes
- Lecture 63 - Jahn-Teller Theorem, Tetragonal Distortion MOT
- Lecture 64 - MOT approach of bonding, H<sub>2</sub>O, Ferrocene
- Lecture 65 - MOT approach of bonding, H<sub>2</sub>O, Ferrocene
- Lecture 66 - Derivation
- Lecture 67 - Derivation
- Lecture 68 - Derivation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Computational Chemistry and Classical Molecular Dynamics

Subject Co-ordinator - Prof. B.L. Tembe

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Computational Chemistry
- Lecture 2 - Writing Simple Programs
- Lecture 3 - Programming Techniques 1 - Evaluating the sine function
- Lecture 4 - Programming Techniques 2 - Do loops and if statements
- Lecture 5 - Programming Techniques 3 - Roots of a quadratic equation and arrays
- Lecture 6 - Programming Techniques 4 - Arrays and matrices
- Lecture 7 - Practical Session of Programming 1
- Lecture 8 - Programming Techniques 5 - Formats, Functions and Subroutines
- Lecture 9 - Programming Techniques 6 - Functions and Subroutines, arranging numbers in as ascending order
- Lecture 10 - Programming Techniques 7 - Functions and Subroutines, and the common statement
- Lecture 11 - Numerical Methods. Analysis of errors
- Lecture 12 - Practical Session on Programming 2 - The exponential function
- Lecture 13 - Practical Session on Programming 3 - Functions and Subroutines
- Lecture 14 - Interpolation Methods-1
- Lecture 15 - Interpolation Methods-2
- Lecture 16 - Errors in interpolation, Matrix operations
- Lecture 17 - Gauss elimination method for matrix inversion
- Lecture 18 - Matrix diagonalization, Similarity transformations
- Lecture 19 - Matrix inversion, Matrix diagonalization
- Lecture 20 - Curve fitting, Newton Raphson method
- Lecture 21 - Random numbers, Numerical integration using Simpson's rule
- Lecture 22 - Numerical Integration and Differential Equations
- Lecture 23 - Practical Session on Programming 3
- Lecture 24 - Scilab-2
- Lecture 25 - Scilab-3
- Lecture 26 - Scilab-4
- Lecture 27 - Scilab-5
- Lecture 28 - Scilab-6
- Lecture 29 - Classical Molecular Dynamics-2, Force Fields and Equations of Motion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Classical Molecular Dynamics-3, Force Fields and MD Algorithms
- Lecture 31 - Classical MD-4 Thermodynamic Properties and Distribution Functions.
- Lecture 32 - Classical MD-5, Execution of programs on liquid argon
- Lecture 33 - Molecular Dynamics using Gromacs-1
- Lecture 34 - Molecular Dynamics using Gromacs-2
- Lecture 35 - Molecular Dynamics using Gromacs-3
- Lecture 36 - Molecular Dynamics using Gromacs-4
- Lecture 37 - Molecular Dynamics using Gromacs-5
- Lecture 38 - Molecular Dynamics using Gromacs-6
- Lecture 39 - Molecular Dynamics using Gromacs-7
- Lecture 40 - Molecular Dynamics using Gromacs-8
- Lecture 41 - Molecular Dynamics using Gromacs-9

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Chemistry of Materials

Subject Co-ordinator - Prof. S. Sundar Manoharan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Materials Chemistry
- Lecture 2 - Preparative routes
- Lecture 3 - Preparative routes
- Lecture 4 - Preparative routes
- Lecture 5 - Preparative routes
- Lecture 6 - Preparative routes
- Lecture 7 - Preparative routes
- Lecture 8 - Preparative routes
- Lecture 9 - Preparative routes
- Lecture 10 - Molecular Beam Epitaxy
- Lecture 11 - Pulsed Laser Deposition
- Lecture 12 - Pulsed Electron Deposition
- Lecture 13 - Sputtering deposited thin films and applications
- Lecture 14 - Crystal growth-Single crystals.
- Lecture 15 - Applications of X-ray diffraction
- Lecture 16 - Applications of X-ray Photoelectron spectroscopy
- Lecture 17 - Applications of X-ray Absorption spectroscopy
- Lecture 18 - Applications of Thermal analysis techniques
- Lecture 19 - Applications of Scanning Tunneling microscopy
- Lecture 20 - Applications of Electron Microscopy
- Lecture 21 - Case Study of ZnO
- Lecture 22 - Magnetic materials - I
- Lecture 23 - Magnetic Materials - II
- Lecture 24 - Magnetic Materials - III & Related Phenomena
- Lecture 25 - Shape Memory Materials
- Lecture 26 - Spintronic Materials - I Colossal Magnetoresistive Oxides
- Lecture 27 - Spintronic Materials - II Giant Magnetoresistive Materials
- Lecture 28 - Spintronic Materials - III Tunneling Magnetoresistive Materials
- Lecture 29 - Spintronic Materials - IV Dilute Magnetic Semiconductors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - High Tc Superconductors
- Lecture 31 - The New Carbon family - I - Fullerenes and Nanotubes
- Lecture 32 - The New Carbon family - II - Graphene
- Lecture 33 - Optoelectronic Materials - I - OLEDs
- Lecture 34 - Optoelectronic Materials - II - OLEDs
- Lecture 35 - Inorganic Phosphors - I
- Lecture 36 - Inorganic Phosphors - II
- Lecture 37 - Phosphor Materials
- Lecture 38 - Solar Cells
- Lecture 39 - Interview with C N R Rao and Interview with E C Subba Rao
- Lecture 40 - Perceptions & Projections

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Mathematics for Chemistry

Subject Co-ordinator - Dr. Madhav Ranganathan, Dr. P.P. Thankachan

Co-ordinating Institute - IIT - Kanpur | IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Mathematics for Chemistry  
Lecture 2 - Mathematics for Chemistry  
Lecture 3 - Mathematics for Chemistry  
Lecture 4 - Mathematics for Chemistry  
Lecture 5 - Mathematics for Chemistry  
Lecture 6 - Mathematics for Chemistry  
Lecture 7 - Mathematics for Chemistry  
Lecture 8 - Mathematics for Chemistry  
Lecture 9 - Mathematics for Chemistry  
Lecture 10 - Mathematics for Chemistry  
Lecture 11 - Mathematics for Chemistry  
Lecture 12 - Mathematics for Chemistry  
Lecture 13 - Mathematics for Chemistry  
Lecture 14 - Mathematics for Chemistry  
Lecture 15 - Mathematics for Chemistry  
Lecture 16 - Mathematics for Chemistry  
Lecture 17 - Mathematics for Chemistry  
Lecture 18 - Mathematics for Chemistry  
Lecture 19 - Mathematics for Chemistry  
Lecture 20 - Mathematics for Chemistry  
Lecture 21 - Mathematics for Chemistry  
Lecture 22 - Mathematics for Chemistry  
Lecture 23 - Mathematics for Chemistry  
Lecture 24 - Mathematics for Chemistry  
Lecture 25 - Mathematics for Chemistry  
Lecture 26 - Mathematics for Chemistry  
Lecture 27 - Mathematics for Chemistry  
Lecture 28 - Mathematics for Chemistry  
Lecture 29 - Mathematics for Chemistry

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Mathematics for Chemistry  
Lecture 31 - Mathematics for Chemistry  
Lecture 32 - Mathematics for Chemistry  
Lecture 33 - Mathematics for Chemistry  
Lecture 34 - Mathematics for Chemistry  
Lecture 35 - Mathematics for Chemistry  
Lecture 36 - Mathematics for Chemistry  
Lecture 37 - Mathematics for Chemistry  
Lecture 38 - Mathematics for Chemistry  
Lecture 39 - Mathematics for Chemistry  
Lecture 40 - Mathematics for Chemistry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Advance Analytical Course

Subject Co-ordinator - Dr. Padma S Vankar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Advance Analytical Course  
Lecture 2 - Advance Analytical Course  
Lecture 3 - Advance Analytical Course  
Lecture 4 - Advance Analytical Course  
Lecture 5 - Advance Analytical Course  
Lecture 6 - Advance Analytical Course  
Lecture 7 - Advance Analytical Course  
Lecture 8 - Advance Analytical Course  
Lecture 9 - Advance Analytical Course  
Lecture 10 - Advance Analytical Course  
Lecture 11 - Advance Analytical Course  
Lecture 12 - Advance Analytical Course  
Lecture 13 - Advance Analytical Course  
Lecture 14 - Advance Analytical Course  
Lecture 15 - Advance Analytical Course  
Lecture 16 - Advance Analytical Course  
Lecture 17 - Advance Analytical Course  
Lecture 18 - Advance Analytical Course  
Lecture 19 - Advance Analytical Course  
Lecture 20 - Advance Analytical Course  
Lecture 21 - Advance Analytical Course  
Lecture 22 - Advance Analytical Course  
Lecture 23 - Advance Analytical Course  
Lecture 24 - Advance Analytical Course  
Lecture 25 - Advance Analytical Course  
Lecture 26 - Advance Analytical Course  
Lecture 27 - Advance Analytical Course  
Lecture 28 - Advance Analytical Course  
Lecture 29 - Advance Analytical Course

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Lecture 30 - Advance Analytical Course  
Lecture 31 - Advance Analytical Course  
Lecture 32 - Advance Analytical Course  
Lecture 33 - Advance Analytical Course  
Lecture 34 - Advance Analytical Course  
Lecture 35 - Advance Analytical Course  
Lecture 36 - Advance Analytical Course  
Lecture 37 - Advance Analytical Course  
Lecture 38 - Advance Analytical Course  
Lecture 39 - Advance Analytical Course  
Lecture 40 - Advance Analytical Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemical Applications of Symmetry and Group Theory

Subject Co-ordinator - Prof. Manabendra Chandra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Mathematics for Chemistry

Subject Co-ordinator - Dr. Madhav Ranganathan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Errors, precision and accuracy
- Lecture 2 - Probability and distributions
- Lecture 3 - Gaussian distribution and integrals
- Lecture 4 - Gaussian distribution, integrals, averages
- Lecture 5 - Practice problems 1
- Lecture 6 - Vectors and Vector Spaces
- Lecture 7 - Linear Independence
- Lecture 8 - Scalar and vector fields
- Lecture 9 - Gradient, divergence and curl
- Lecture 10 - Practice problems 2
- Lecture 11 - Line integrals, Potential Theory
- Lecture 12 - Surface and Volume Integrals
- Lecture 13 - Matrices
- Lecture 14 - Linear Systems, Cramer's Rule
- Lecture 15 - Practice Problems 3
- Lecture 16 - Rank and Inverse of a Matrix
- Lecture 17 - Eigenvalues and Eigenvectors
- Lecture 18 - Special matrices
- Lecture 19 - Spectral decomposition and Normal modes
- Lecture 20 - Practice Problems 4
- Lecture 21 - Differential equations, Order
- Lecture 22 - Exact and Inexact differentials
- Lecture 23 - Integrating Factors
- Lecture 24 - System of 1st order ODEs, matrix methods
- Lecture 25 - Practice Problems 5
- Lecture 26 - Types of 2nd order ODEs, nature of solutions
- Lecture 27 - Homogeneous 2nd order ODEs
- Lecture 28 - Homogeneous and nonhomogeneous equations
- Lecture 29 - Nonhomogeneous equations  $\hat{A}$  Variation of parameters

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Practice Problems 6
- Lecture 31 - Power series method for solving Legendre DE
- Lecture 32 - Properties of Legendre Polynomials
- Lecture 33 - Associated Legendre Polynomials, Spherical Harmonics
- Lecture 34 - Hermite Polynomials, Solution of Quantum Harmonic Oscillator
- Lecture 35 - Practice Problems 7
- Lecture 36 - Conditions for power series solution
- Lecture 37 - Frobenius Method, Bessel Functions
- Lecture 38 - Properties of Bessel Functions, circular boundary problems
- Lecture 39 - Leguerre Polynomials, solution to radial part of H-atom
- Lecture 40 - Practice Problems 8

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Quantum Computing

Subject Co-ordinator - Prof. Debabrata Goswami

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Motivation and Overview  
Lecture 2 - Introduction - Technical Details  
Lecture 3 - Introduction - Basic tools  
Lecture 4 - Computational Tools  
Lecture 5 - Quantum Measurement and Teleportation  
Lecture 6 - Quantum Teleportation and Cryptography  
Lecture 7 - DJ Algorithm and Implementation Aspects  
Lecture 8 - Grover's Algorithm  
Lecture 9 - Basics of Shor's Algorithm  
Lecture 10 - Shor's Algorithm and Quantum Fourier Transform (QFT)  
Lecture 11 - Basics of Quantum Mechanics  
Lecture 12 - Modern look at Quantum Mechanics  
Lecture 13 - Basics of NMR  
Lecture 14 - Concepts in NMR Quantum Computing  
Lecture 15 - Laser Basics  
Lecture 16 - Continuous Wave Lasers  
Lecture 17 - Pulsed Lasers  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21 - Optical Implementation  
Lecture 22 - Solutions to problem set - 1  
Lecture 23 - Basics of Ion Traps  
Lecture 24 - Applications of Ion Traps in QIQC  
Lecture 25 - Reviewing Concepts and clarifying problems - 1  
Lecture 26 - Reviewing Concepts and clarifying problems - 2  
Lecture 27 - Qubits used in Commercial Quantum Computing  
Lecture 28 - Spintronics Quantum Computing  
Lecture 29 - Back to Basics - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Back to Basics - II
- Lecture 31 - Understanding Implementation Issues from the Basics - I
- Lecture 32 - Understanding Implementation Issues from the Basics - II
- Lecture 33 - Implementation with Solid-State Super conducting Qubits
- Lecture 34 - Concept of Density Matrix for Quantum Computing
- Lecture 35 - Understanding the ensemble of Qubits from Density Matrix
- Lecture 36 - Understanding Quantum Measurement, Entanglement etc. in Quantum Computing using Density Matrix
- Lecture 37 - Principles
- Lecture 38 - Measurements
- Lecture 39 - Working of Quantum Computers
- Lecture 40 - Academic Development in Quantum Computing - I
- Lecture 41 - Academic Development in Quantum Computing - II
- Lecture 42 - Commercial Development in Quantum Computing Implementation
- Lecture 43 - Use of Atomic Qubits in Quantum Computing
- Lecture 44 - Futuristic Aspects in Implementing Quantum Computing - I
- Lecture 45 - Futuristic Aspects in Implementing Quantum Computing - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Basics of Fluorescence Spectroscopy

Subject Co-ordinator - Prof. Pratik Sen

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
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Lecture 23  
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Lecture 25  
Lecture 26  
Lecture 27  
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Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Laser: Fundamentals and Applications

Subject Co-ordinator - Prof. Manabendra Chandra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Unique properties of LASERS and their applications
- Lecture 2 - LASER and its history
- Lecture 3 - Interaction of Light with matter
- Lecture 4 - Einsteins Concept of stimulated emission
- Lecture 5 - Calculation of Einsteins coefficient
- Lecture 6 - Population inversion, 2-level system and 3-level system
- Lecture 7 - 3-level System and 4-level system
- Lecture 8 - Components of LASERS
- Lecture 9 - Modes of LASER cavity and standing waves
- Lecture 10 - Transverse Modes of LASER cavity
- Lecture 11 - Threshold Condition
- Lecture 12 - Properties of Laser
- Lecture 13 - Properties of Laser
- Lecture 14 - Continuous and Pulsed Lasers
- Lecture 15 - Some Numerical problem
- Lecture 16 - Cavity Dumping
- Lecture 17 - Q-switching
- Lecture 18 - Q-switching and Pockels effect
- Lecture 19 - Passive Q-switching, Mode-Locking
- Lecture 20 - Mode Locking
- Lecture 21 - Mode - locking
- Lecture 22 - Mode - locking (Continued...)
- Lecture 23 - Passive Mode - locking and Types of LASERS
- Lecture 24 - Solid state LASERS
- Lecture 25 - Semiconductor LASERS and Gas LASERS
- Lecture 26 - Gas LASERS
- Lecture 27 - Chemical and Dye LASERS
- Lecture 28 - Introduction to Non Linear Optics
- Lecture 29 - Non Linear Optics

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- Lecture 30 - 2nd order Nonlinear optics
- Lecture 31 - Non-linear optical processes
- Lecture 32 - Aspects of SHG and Application of non-linear optics
- Lecture 33 - Application of LASER
- Lecture 34 - Application of Laser
- Lecture 35 - Application of Laser
- Lecture 36 - Laser Induced Chemistry
- Lecture 37 - Laser Induced Chemistry and Ultrafast chemical Dynamics
- Lecture 38 - Lasers in Medical Sciences
- Lecture 39 - Lasers in Material sciences and engineering and Optical Communications
- Lecture 40 - Laser safety and summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Advanced Mathematical Methods for Chemistry

Subject Co-ordinator - Prof. Madhav Ranganathan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Vectors, Vector Operations and Linear Independence
- Lecture 2 - Vector Operations, Generalization of Vectors
- Lecture 3 - Vector Differentiation, Vector Transformations
- Lecture 4 - Vector Integration, Line, Surface and Volume Integrals
- Lecture 5 - Practice Problems
- Lecture 6 - Matrix as a vector transformation, linear system
- Lecture 7 - Special Matrices
- Lecture 8 - Rotational Matrices, Eigenvalues and Eigenvectors
- Lecture 9 - Determinants, Matrix Inverse
- Lecture 10 - Practice Problems
- Lecture 11 - Step Function, Delta Function
- Lecture 12 - Gamma Function, Error Function
- Lecture 13 - Spherical Polar Coordinates
- Lecture 14 - Cylindrical Polar Coordinates, Integrals
- Lecture 15 - Recap of Module 3, Practice Problems
- Lecture 16 - ODEs and PDEs, First order ODEs, system of 1st order ODEs
- Lecture 17 - First order ODEs, exact integrals, integrating factors
- Lecture 18 - System of first order ODEs, Linear first order ODEs
- Lecture 19 - General solution of a system of linear first order ODEs with constant coefficients
- Lecture 20 - Recap of Module 4, Practice problems
- Lecture 21 - Homogeneous 2nd Order ODE, Basis Functions
- Lecture 22 - Nonhomogeneous 2nd Order ODE
- Lecture 23 - Power Series Method of Solving ODEs
- Lecture 24 - Frobenius Method / Power Series Method
- Lecture 25 - Time-independent Schrodinger Equation for H-atom
- Lecture 26 - Maxima and Minima, Taylor Series
- Lecture 27 - Taylor Series for functions of several variables
- Lecture 28 - Critical Points of Functions
- Lecture 29 - Lagranges Method of Undetermined Multipliers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Recap of Module 6, Practice Problems
- Lecture 31 - Nonlinear Differential Equations
- Lecture 32 - Phase Plane of A Pendulum
- Lecture 33 - Stability of Critical Points
- Lecture 34 - Population Dynamics Models
- Lecture 35 - Recap of Module 7, Practice Problems
- Lecture 36 - Fourier Series, Fourier Expansion of Periodic Functions
- Lecture 37 - (Part A)
- Lecture 38 - (Part B)
- Lecture 39 - Orthogonal Eigenfunctions, Sturm-Liouville Theory
- Lecture 40 - Recap of Module 8, Practice Problems
- Lecture 41 - Fourier Transforms
- Lecture 42 - Properties of Fourier Transforms
- Lecture 43 - Fourier Transforms and Partial Differential Equations
- Lecture 44 - Laplace Transforms
- Lecture 45 - Recap of Module 9, Practice Problems
- Lecture 46 - Partial Differential Equations, Boundary Conditions
- Lecture 47 - Separation of Variables
- Lecture 48 - (Part A)
- Lecture 49 - (Part B)
- Lecture 50 - Recap of Module 10, Practice Problems
- Lecture 51 - Discrete and Continuous Random Variables
- Lecture 52 - Probability Distribution Functions
- Lecture 53 - Poisson Distribution, Gaussain Distribution
- Lecture 54 - Error Estimates, Least Square Fit, Correlation Functions
- Lecture 55 - Recap of Module 11, Practice Problems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Bio-inorganic chemistry

Subject Co-ordinator - Prof. D. Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Iron Storage and Transport - I
- Lecture 3 - Iron Storage and Transport - II
- Lecture 4 - Iron Storage and Transport - III
- Lecture 5 - Electron Transport Proteins - I
- Lecture 6 - Electron transport Proteins - II
- Lecture 7 - Electron Transport Proteins - III
- Lecture 8 - Electron Transport Proteins - IV
- Lecture 9 - Electron Transport Proteins - V
- Lecture 10 - Electron Transport Proteins - VI
- Lecture 11 - Electron Transport Proteins - VII
- Lecture 12 - Electron Transport Proteins - VIII
- Lecture 13 - Electron Transport Proteins - IX
- Lecture 14 - Electron Transfer in Photosynthesis - I
- Lecture 15 - Electron Transfer in Photosynthesis - II
- Lecture 16 - Manganese Enzymes
- Lecture 17 - Nickel Enzymes - I
- Lecture 18 - Nickel Enzymes - II
- Lecture 19 - Nickel Enzymes - III
- Lecture 20 - Nickel Enzymes - IV
- Lecture 21 - Nickel Enzymes - V
- Lecture 22 - Molybdenum Enzymes - I
- Lecture 23 - Molybdenum Enzymes - II
- Lecture 24 - Molybdenum Enzymes - III
- Lecture 25 - Molybdenum Enzymes - IV
- Lecture 26 - Molybdenum Enzymes - V
- Lecture 27 - Molybdenum Enzymes - VI
- Lecture 28 - Molybdenum and Tungsten in Biology
- Lecture 29 - Tungsten Enzymes - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tungsten Enzymes - II
- Lecture 31 - Tungsten Enzymes - III
- Lecture 32 - Tungsten Enzymes - IV
- Lecture 33 - Vanadium Enzymes - I
- Lecture 34 - Vanadium Enzymes - II
- Lecture 35 - Vanadium Enzymes - III
- Lecture 36 - Vanadium Enzymes - IV
- Lecture 37 - Non-metals in Biology - I
- Lecture 38 - Non-metals in Biology - II
- Lecture 39 - Non-metals in Biology - III
- Lecture 40 - Non-metals in Biology - IV

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Co-ordination chemistry (chemistry of transition elements)

Subject Co-ordinator - Prof. D. Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Definition
- Lecture 3 - Classification of Ligands - I
- Lecture 4 - Classification of Ligands - II
- Lecture 5 - Ligands - III and Nomenclature - I
- Lecture 6 - Nomenclature - II
- Lecture 7 - Coordination Number - I
- Lecture 8 - Coordination Number - II
- Lecture 9 - Coordination Number - III
- Lecture 10 - Coordination Number - IV
- Lecture 11 - Isomerism - I
- Lecture 12 - Isomerism - II
- Lecture 13 - Coordination Equilibria - I
- Lecture 14 - Coordination Equilibria - II
- Lecture 15 - Bonding in Complexes - I
- Lecture 16 - Bonding in Complexes - II
- Lecture 17 - Bonding in Complexes - III
- Lecture 18 - Bonding in Complexes - IV
- Lecture 19 - Jahn-Teller Effect
- Lecture 20 - Spin Crossover and Colour
- Lecture 21 - Optical Spectra
- Lecture 22 - d-d Transitions
- Lecture 23 - Charge Transfer
- Lecture 24 - Orgel Diagram
- Lecture 25 - Tanabe Sugano Diagram
- Lecture 26 - MLCT Transitions
- Lecture 27 - Application of CFT
- Lecture 28 - Spinels
- Lecture 29 - Magnetochemistry

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Magnetic Properties
- Lecture 31 - Magnetic Measurements
- Lecture 32 - Ligand Field Theory
- Lecture 33 - Sigma Orbitals
- Lecture 34 - Pi Orbitals
- Lecture 35 - Reaction Mechanism - I
- Lecture 36 - Reaction Mechanism - II
- Lecture 37 - Reaction Mechanism - III
- Lecture 38 - Reaction Mechanism - IV
- Lecture 39 - Reaction Mechanism - V
- Lecture 40 - Biological Inorganic Chemistry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Heterocyclic Chemistry

Subject Co-ordinator - Prof. D.R. Mal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition and Scope
- Lecture 2 - Single - Step Methods for IVPs
- Lecture 3 - Systematic Nomenclature
- Lecture 4 - Nomenclature (Continued...) and Important Names
- Lecture 5 - Overview of Structure Determination in Heterocyclic Chemistry
- Lecture 6 -  $^{15}\text{N}$  NMR in Heterocyclic Chemistry
- Lecture 7 - Effects of Ring Nitrogen - A
- Lecture 8 - Effects of Ring Nitrogen - B
- Lecture 9 - Effects of Ring Nitrogen - C
- Lecture 10 - Oxidation in Heterocyclic Chemistry
- Lecture 11 - Oxidation in Heterocyclic Chemistry (Continued...)
- Lecture 12 - Reduction in Heterocyclic Chemistry
- Lecture 13 - Radicals in Heterocyclic Chemistry - I
- Lecture 14 - Radicals in Heterocyclic Chemistry - II
- Lecture 15 - Lithiation for 5-membered heterocycles
- Lecture 16 - Lithiation for 5-membered heterocycles (Continued...)
- Lecture 17 - Lithiation of 6-membered heterocycle and non-aromatic heterocycles
- Lecture 18 - Magnetiation and Zincation in Heterocyclic Chemistry
- Lecture 19 - Transition metal catalyzed cross coupling
- Lecture 20 - Transition metal catalyzed cross coupling (Continued...)
- Lecture 21 - Dehydrogenative (Oxidative) cross coupling
- Lecture 22 - Tert-amino effect in heterocycle synthesis
- Lecture 23 - [4 plus 2] cycloaddition in heterocyclic chemistry
- Lecture 24 - [4 plus 2] cycloaddition in heterocyclic chemistry (Continued...)
- Lecture 25 - [3 plus 2] Cycloaddition in heterocyclic chemistry
- Lecture 26 - Cycloaddition
- Lecture 27 - [4 plus 3] Cycloaddition
- Lecture 28 - [5 plus 2] Cycloaddition
- Lecture 29 - [2 plus 2 plus 2] Cycloaddition

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pyrrole Synthesis - I
- Lecture 31 - Pyrrole Synthesis - II
- Lecture 32 - Indole Synthesis - I
- Lecture 33 - Indole Synthesis - II
- Lecture 34 - Furan Synthesis
- Lecture 35 - Thiophene Synthesis
- Lecture 36 - Oxazole, Imidazole and Thiazole Synthesis
- Lecture 37 - Pyridine Synthesis
- Lecture 38 - Synthesis of Quinolines and Isoquinolines
- Lecture 39 - Bicyclic Polyheteroatomic Heterocycles
- Lecture 40 - Heterocyclic Rearrangements

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Organic photochemistry and pericyclic reactions

Subject Co-ordinator - Dr. N.D. Pradeep Singh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Organic Photochemistry
- Lecture 2 - Introduction to Organic Photochemistry (Continued...)
- Lecture 3 - Reactivity of  $n\text{-}\pi^*$
- Lecture 4 -  $\hat{I}\pm$  - cleavage - I
- Lecture 5 -  $\hat{I}\pm$  - cleavage - II
- Lecture 6 -  $\hat{I}\pm$  - cleavage - III
- Lecture 7 -  $\hat{I}^2$  - cleavage
- Lecture 8 - Intramolecular Hydrogen Abstraction - I
- Lecture 9 - Intramolecular Hydrogen Abstraction - II
- Lecture 10 - Intramolecular Hydrogen Abstraction - III
- Lecture 11 - Intramolecular Hydrogen Abstraction
- Lecture 12 - Addition to  $\hat{I}$  - System
- Lecture 13 - Intramolecular Paterno-Buchi Reaction
- Lecture 14 - Energy of Electron Transfer Reaction
- Lecture 15 - Reactivity of  $\hat{I} - \hat{I}^*$
- Lecture 16 - Addition Reaction of  $\hat{I} - \hat{I}^*$
- Lecture 17 - Addition Reaction of  $\hat{I} - \hat{I}^*$  (Continued...)
- Lecture 18 - Di-Pi Methane Rearrangement
- Lecture 19 - Photochemistry of Cyclohexanone
- Lecture 20 - Singlet Oxygen Chemistry
- Lecture 21 - Carbenes and Nitrenes
- Lecture 22 - Remote Functionalisation
- Lecture 23 - Introduction to Pericyclic Reaction
- Lecture 24 - Sigmatropic Reactions - I
- Lecture 25 - Sigmatropic Reactions - II
- Lecture 26 - Sigmatropic Reactions - III
- Lecture 27 - Cycloaddition Reactions - I
- Lecture 28 - Cycloaddition Reactions - II
- Lecture 29 - Cycloaddition - Diels-Alder Reactions

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cycloaddition - Diels-Alder Reactions (Continued...)
- Lecture 31 - Cycloaddition - Ene Reactions
- Lecture 32 - 1,3 Dipolar Cycloaddition - I
- Lecture 33 - 1,3 Dipolar Cycloaddition - II
- Lecture 34 - Electrocyclic Reaction - I
- Lecture 35 - Electrocyclic Reaction - II
- Lecture 36 - Practice Problems in Pericyclic Reaction - I
- Lecture 37 - Practice Problems in Pericyclic Reaction - II
- Lecture 38 - Practice Problems in Pericyclic Reaction - III
- Lecture 39 - Chelotropic Reaction
- Lecture 40 - Application of Photochemistry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Polymer Chemistry

Subject Co-ordinator - Dr. D. Dhara

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Polymers
- Lecture 2 - Introduction to Polymers (Continued...)
- Lecture 3 - Introduction to Polymers (Continued...)
- Lecture 4 - Step - growth Polymerization
- Lecture 5 - Step - growth Polymerization (Continued...)
- Lecture 6 - Step - growth Polymerization (Continued...)
- Lecture 7 - Step - growth Polymerization (Continued...)
- Lecture 8 - Step - growth Polymerization (Continued...)
- Lecture 9 - Radical Chain Polymerization
- Lecture 10 - Radical Chain Polymerization (Continued...)
- Lecture 11 - Radical Chain Polymerization (Continued...)
- Lecture 12 - Radical Chain Polymerization (Continued...)
- Lecture 13 - Radical Chain Polymerization (Continued...)
- Lecture 14 - Radical Chain Polymerization (Continued...)
- Lecture 15 - Radical Chain Polymerization (Continued...)
- Lecture 16 - Radical Chain Polymerization (Continued...)
- Lecture 17 - Ionic Chain Polymerization
- Lecture 18 - Ionic Chain Polymerization (Continued...)
- Lecture 19 - Ionic Chain Polymerization (Continued...) and Chain Copolymerization
- Lecture 20 - Chain Copolymerization (Continued...)
- Lecture 21 - Chain Copolymerization (Continued...)
- Lecture 22 - Chain Copolymerization (Continued...) and Ring Opening Polymerization
- Lecture 23 - Polymer Stereochemistry and Coordination Polymerization
- Lecture 24 - Polymer Stereochemistry and Coordination Polymerization (Continued...)
- Lecture 25 - Polymer Solutions
- Lecture 26 - Polymer Solutions (Continued...)
- Lecture 27 - Polymer Solutions (Continued...)
- Lecture 28 - Polymer Solutions (Continued...) and Chain Dimensions
- Lecture 29 - Chain Dimensions (Continued...) and Frictional Properties of Solution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Frictional Properties of Solutions (Continued...) and Determination of Molecular Weight
- Lecture 31 - Determination of Molecular Weight of Polymers (Continued...)
- Lecture 32 - Determination of Molecular Weight of Polymers (Continued...)
- Lecture 33 - Determination of Molecular Weight of Polymers (Continued...)
- Lecture 34 - Structural Analysis of Polymers by Spectroscopic Methods
- Lecture 35 - Amorphous and Crystalline State
- Lecture 36 - Amorphous and Crystalline State
- Lecture 37 - Polymer Properties and Evaluation
- Lecture 38 - Polymer Properties and Evaluation
- Lecture 39 - Other Properties (Continued...) and Polymer Additives
- Lecture 40 - Polymer Additives (Continued...)
- Lecture 41 - Polymer Additives (Continued...), Blends, Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Rate processes

Subject Co-ordinator - Dr. M. Halder

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Rate Processes
- Lecture 2 - Reaction Rates and Rate Laws
- Lecture 3 - Effect of Temperature on Reaction Rate
- Lecture 4 - Effect of Temperature on Reaction Rate (Continued...)
- Lecture 5 - Complex Reaction
- Lecture 6 - Complex Reaction (Continued...)
- Lecture 7 - Complex Reaction (Continued...)
- Lecture 8 - Complex Reaction (Continued...)
- Lecture 9 - Theories of Reaction Rate
- Lecture 10 - Theories of Reaction Rate (Continued...)
- Lecture 11 - Theories of Reaction Rate (Continued...)
- Lecture 12 - Theories of Reaction Rate (Continued...)
- Lecture 13 - Theories of Reaction Rate (Continued...)
- Lecture 14 - Kinetics of Some Specific Reactions
- Lecture 15 - Kinetics of Some Specific Reactions (Continued...)
- Lecture 16 - Enzyme Inhibition
- Lecture 17 - Oscillatory Reactions
- Lecture 18 - Acid Base Catalysis
- Lecture 19 - Acid Base Catalysis (Continued...)
- Lecture 20 - Kinetic Isotope Effects
- Lecture 21 - Fast Reactions
- Lecture 22 - Fast Reactions (Continued...)
- Lecture 23 - Magneto Kinetics
- Lecture 24 - Reactions in Solutions
- Lecture 25 - Reactions in Solutions (Continued...)
- Lecture 26 - Kinetics at Electrodes
- Lecture 27 - Kinetics at Electrodes (Continued...)
- Lecture 28 - Ultrafast Process
- Lecture 29 - Ultrafast Process (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ultrafast Process (Continued...)
- Lecture 31 - Reaction Dynamics
- Lecture 32 - Reaction Dynamics (Continued...)
- Lecture 33 - Reaction Dynamics (Continued...)
- Lecture 34 - Reaction Dynamics
- Lecture 35 - Reaction Dynamics
- Lecture 36 - Reaction Dynamics
- Lecture 37 - Reaction Dynamics
- Lecture 38 - Reaction Dynamics
- Lecture 39 - Reaction Dynamics
- Lecture 40 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Biochemistry

Subject Co-ordinator - Prof. S. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Amino Acid 1  
Lecture 2 - Amino Acid 2  
Lecture 3 - Protein Structure - I  
Lecture 4 - Protein Structure - II  
Lecture 5 - Protein Structure - III  
Lecture 6 - Protein Structure - IV  
Lecture 7 - Enzymes - I  
Lecture 8 - Enzymes - II  
Lecture 9 - Enzymes - III  
Lecture 10 - Myoglobin and Hemoglobin  
Lecture 11 - Enzyme Mechanisms - I  
Lecture 12 - Enzyme Mechanisms - II  
Lecture 13 - Nucleic Acids - I  
Lecture 14 - Nucleic Acids - II  
Lecture 15 - Nucleic Acids - III  
Lecture 16 - Nucleic Acids - I  
Lecture 17 - Nucleic Acids - II  
Lecture 18 - Nucleic Acids - III  
Lecture 19 - Vitamins and Coenzymes - I  
Lecture 20 - Vitamins and Coenzymes - II  
Lecture 21 - Carbohydrates - I  
Lecture 22 - Carbohydrates - II  
Lecture 23 - Bioenergetics - I  
Lecture 24 - Bioenergetics - II  
Lecture 25 - Metabolism - I  
Lecture 26 - Metabolism - II  
Lecture 27 - Metabolism - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Analytical Chemistry

Subject Co-ordinator - Prof. Debashis Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Chemicals and Materials Analysis  
Lecture 2 - Methods  
Lecture 3 - Methods (Continued...)  
Lecture 4 - Methods (Continued...)  
Lecture 5 - Methods (Continued...)  
Lecture 6 - Role of Analytical Chemistry  
Lecture 7 - Techniques, Wet Ashing  
Lecture 8 - Apparatus and Weighing  
Lecture 9 - Filtration, Ignition  
Lecture 10 - Crucibles, Filter Papers and their Uses  
Lecture 11 - Chemical Equilibria  
Lecture 12 - Chemical Equilibria (Continued...)  
Lecture 13 - Chemical Equilibria (Continued...)  
Lecture 14 - Chemical Equilibria (Continued...)  
Lecture 15 - Chemical Equilibria (Continued...)  
Lecture 16 - Spectrochemical Methods - I  
Lecture 17 - Spectrochemical Methods - I (Continued...)  
Lecture 18 - Spectrochemical Methods - I (Continued...)  
Lecture 19 - Spectrochemical Methods - I (Continued...)  
Lecture 20 - Spectrochemical Methods - I (Continued...)  
Lecture 21 - Spectrochemical Methods - II  
Lecture 22 - Spectrochemical Methods - II (Continued...)  
Lecture 23 - Spectrochemical Methods - II (Continued...)  
Lecture 24 - Spectrochemical Methods - II (Continued...)  
Lecture 25 - Spectrochemical Methods - II (Continued...)  
Lecture 26 - Spectrochemical Methods - III  
Lecture 27 - Spectrochemical Methods - III (Continued...)  
Lecture 28 - Spectrochemical Methods - III (Continued...)  
Lecture 29 - Spectrochemical Methods - III (Continued...)

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- Lecture 30 - Spectrochemical Methods - III (Continued...)
- Lecture 31 - Thermal Methods of Analysis - I
- Lecture 32 - Thermal Methods of Analysis - I (Continued...)
- Lecture 33 - Thermal Methods of Analysis - I (Continued...)
- Lecture 34 - Thermal Methods of Analysis - I (Continued...)
- Lecture 35 - Thermal Methods of Analysis - I (Continued...)
- Lecture 36 - Thermal Methods of Analysis - II
- Lecture 37 - Thermal Methods of Analysis - II (Continued...)
- Lecture 38 - Thermal Methods of Analysis - II (Continued...)
- Lecture 39 - Thermal Methods of Analysis - II (Continued...)
- Lecture 40 - Thermal Methods of Analysis - II (Continued...)
- Lecture 41 - Electrochemical Methods - I
- Lecture 42 - Electrochemical Methods - I (Continued...)
- Lecture 43 - Electrochemical Methods - I (Continued...)
- Lecture 44 - Electrochemical Methods - I (Continued...)
- Lecture 45 - Electrochemical Methods - I (Continued...)
- Lecture 46 - Electrochemical Methods - II
- Lecture 47 - Electrochemical Methods - II (Continued...)
- Lecture 48 - Electrochemical Methods - II (Continued...)
- Lecture 49 - Electrochemical Methods - II (Continued...)
- Lecture 50 - Electrochemical Methods - II (Continued...)
- Lecture 51 - Electrochemical Methods - III
- Lecture 52 - Electrochemical Methods - III (Continued...)
- Lecture 53 - Electrochemical Methods - III (Continued...)
- Lecture 54 - Electrochemical Methods - III (Continued...)
- Lecture 55 - Electrochemical Methods - III (Continued...)
- Lecture 56 - Applications
- Lecture 57 - Applications (Continued...)
- Lecture 58 - Applications (Continued...)
- Lecture 59 - Applications (Continued...)
- Lecture 60 - Applications (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Stereochemistry

Subject Co-ordinator - Prof. A. Basak

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Constitution and Configuration
- Lecture 2 - Chirality, Symmetry Elements
- Lecture 3 - Project Ion Formulae Rules for Drawing
- Lecture 4 - Chirotopicity and Stereogenicity
- Lecture 5 - Newmann Projection, Saw Horse Projection, Wedge Formula
- Lecture 6 - Chirotopicity and Stereogenicity
- Lecture 7 - Absolute Configuration
- Lecture 8 - Absolute Configuration (Continued...)
- Lecture 9 - Problems on the above topics
- Lecture 10 - Topicity
- Lecture 11 - Axial Chirality in Allenes, Biphenyls
- Lecture 12 - Relative Configuration, Prochiral Faces and Prochiral Centres
- Lecture 13 - Chirality in Heteroatom Systems
- Lecture 14 - Conformations and Conformers
- Lecture 15 - Conformational Analysis of Acyclic Molecules
- Lecture 16 - Conformational Analysis of Acyclic Molecules (Continued...)
- Lecture 17 - Conformations of Acyclic Molecules Containing Heteroatoms
- Lecture 18 - Conformations of Cyclic Systems
- Lecture 19 - Conformations of Cyclic Systems (Continued...)
- Lecture 20 - Conformation of Cyclobutane and Cyclopentane
- Lecture 21 - Conformation of Cyclohexane
- Lecture 22 - Energy Changes During Flipping
- Lecture 23 - Energy Comparison between Chair and Boat Conformations
- Lecture 24 - Conformational Analysis of Substituted Cyclohexanes
- Lecture 25 - Conformational Analysis of Substituted Cyclohexanes (Continued...)
- Lecture 26 - Conformational Analysis of Substituted Cyclohexanes (Continued...)
- Lecture 27 - Conformational Analysis of Substituted Cyclohexanes (Continued...)
- Lecture 28 - Conformational Analysis of Systems with Preference for Axial Groups
- Lecture 29 - Conformation and Reactivity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Conformation and Reactivity (Continued...)
- Lecture 31 - Conformation and Reactivity (Continued...)
- Lecture 32 - Stereoelectronic Effects
- Lecture 33 - Stereoelectronic Effects (Continued...)
- Lecture 34 - Substitution and Elimination in Cyclohexane Systems
- Lecture 35 - Stereospecific and Stereoselective Reactions and Asymmetric Synthesis (Elementary Idea)
- Lecture 36 - Asymmetric Induction
- Lecture 37 - Asymmetric Induction
- Lecture 38 - Asymmetric Induction (Continued...)
- Lecture 39 - Facial Selectivity and Examples of Asymmetric Synthesis
- Lecture 40 - Revisiting the Contents Covered

## NPTel Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTel Video Course - Chemistry and Biochemistry - NOC:A Study Guide in Organic Retrosynthesis - Problem Solving

Subject Co-ordinator - Prof. Samik Nanda

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introductory Remarks
- Lecture 2 - Introductory remarks (Continued...)
- Lecture 3 - Introductory remarks and some rapid fire quiz
- Lecture 4 - Retro Quiz based on simple Transformation
- Lecture 5 - Transformation based strategy for a given target
- Lecture 6 - Tf/Fg/SM based strategy and its exploration
- Lecture 7 - Tf/SM/Fg based approaches to solve some basic problems
- Lecture 8 - Tf/SM/Fg based strategy and its exploration
- Lecture 9 - Tf/SM/Fg based strategy and its exploration for some simple target molecules
- Lecture 10 - Tf/SM/Fg based strategy and its exploration
- Lecture 11 - Tf/SM/Fg based strategies and its exploration
- Lecture 12 - Tf/Fg/SM based strategies and its exploration
- Lecture 13 - Tf/Fg/SM based approaches and its exploration
- Lecture 14 - Tf/Fg/SM based strategies and its exploration
- Lecture 15 - Multiple Tf based strategy for small molecule disconnection
- Lecture 16 - Multiple Tf based strategies
- Lecture 17 - Specific Tf such as Barton's nitrile ester photolysis
- Lecture 18 - Specific transformation
- Lecture 19 - Selective transformations
- Lecture 20 - Functional Group (Fg) based strategies
- Lecture 21 - Functional group based strategy
- Lecture 22 - Fg based strategy
- Lecture 23 - Fg based strategy
- Lecture 24 - Fg based strategy based on protecting groups
- Lecture 25 - Fg based strategy
- Lecture 26 - Protecting group based strategic disconnection
- Lecture 27 - Fg group based strategy
- Lecture 28 - Fg based strategy
- Lecture 29 - Fg based strategies

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- Lecture 30 - Fg based strategy
- Lecture 31 - Fg based strategy
- Lecture 32 - Fg based strategy
- Lecture 33 - Starting material (SM) based strategy
- Lecture 34 - Fg/Tf/SM based strategies
- Lecture 35 - Fg/Tf/SM based strategies
- Lecture 36 - Fg/Tf/SM based strategies
- Lecture 37 - Fg based strategies
- Lecture 38 - Fg based strategies in combination with SM and Tf
- Lecture 39 - Fg/SM/Tf based combined strategies
- Lecture 40 - Fg/SM/Tf based combined strategies
- Lecture 41 - Fg based strategies
- Lecture 42 - Fg based strategies
- Lecture 43 - Symmetry based strategy
- Lecture 44 - Symmetry based strategies
- Lecture 45 - Symmetry based strategies
- Lecture 46 - Symmetry based strategy
- Lecture 47 - Symmetry based strategies
- Lecture 48 - Symmetry based strategies
- Lecture 49 - Topological based strategies
- Lecture 50 - Topological strategies
- Lecture 51 - Topological strategies
- Lecture 52 - Stereochemical strategies
- Lecture 53 - Stereochemical strategies
- Lecture 54 - Stereochemical strategies
- Lecture 55 - Stereochemical Strategies
- Lecture 56 - Stereochemical strategies
- Lecture 57 - Stereochemical strategies
- Lecture 58 - Stereochemical strategies
- Lecture 59 - Synthon concept revisited
- Lecture 60 - Concluding remarks



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Introduction to Molecular Thermodynamics

Subject Co-ordinator - Prof. Srabani Taraphder

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Classical Thermodynamics - Part I
- Lecture 2 - Review of Classical Thermodynamics - Part II
- Lecture 3 - Thermodynamic potentials - Part 1
- Lecture 4 - Thermodynamic potentials - Part 2
- Lecture 5 - Microstates of a system
- Lecture 6 - Microstates of a System (Continued...)
- Lecture 7 - Microstates of a system (Continued...)
- Lecture 8 - Microstates of a system (Continued...)
- Lecture 9 - Microstates of a system
- Lecture 10 - Microstates of a system
- Lecture 11 - Microstates of a system (Continued...)
- Lecture 12 - Microstates of a system (Continued...)
- Lecture 13 - Microstates of a System (Continued...)
- Lecture 14 - Fundamentals of Statistical Mechanics
- Lecture 15 - Statistical Ensembles
- Lecture 16 - Microstates of a system
- Lecture 17 - Canonical ensemble - Part I
- Lecture 18 - Canonical Ensemble - Part I (Continued...)
- Lecture 19 - Canonical Ensemble - Part II
- Lecture 20 - Canonical Ensemble - Part III
- Lecture 21 - Ideal gas
- Lecture 22 - Ideal gases (Continued...)
- Lecture 23 - Ideal gases (Continued...)
- Lecture 24 - Ideal gases (Continued...)
- Lecture 25 - Statistical thermodynamics of ideal gases (Continued...)
- Lecture 26 - Statistical Thermodynamics of ideal gases (Continued...)
- Lecture 27 - Statistical thermodynamics of ideal gases (Continued...)
- Lecture 28 - Statistical thermodynamics of ideal gases (Continued...)
- Lecture 29 - Statistical thermodynamics of ideal gases (Continued...)

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- Lecture 30 - Statistical thermodynamics of diatomic ideal gases
- Lecture 31 - Statistical thermodynamics of ideal gas
- Lecture 32 - Chemical reaction equilibrium
- Lecture 33 - Specific heat of solids
- Lecture 34 - Application of Molecular Thermodynamics
- Lecture 35 - Introduction to classical statistical mechanics
- Lecture 36 - Introduction to classical statistical mechanics (Continued...)
- Lecture 37 - Classical Statistical Mechanics
- Lecture 38 - Classical Statistical Mechanics
- Lecture 39 - Classical Statistical Mechanics
- Lecture 40 - Rate of Chemical Reaction

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Molecules in Motion

Subject Co-ordinator - Prof. Amita Pathak Mahanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Kinetic theory of gases  
Lecture 2 - Kinetic theory of gases (Continued...)  
Lecture 3 - Kinetic theory of gases (Continued...)  
Lecture 4 - Kinetic theory of gases (Continued...)  
Lecture 5 - Kinetic theory of gases (Continued...)  
Lecture 6 - Kinetic theory of gases (Continued...)  
Lecture 7 - Kinetic theory of gases (Continued...)  
Lecture 8 - Kinetic theory of gases (Continued...)  
Lecture 9 - Kinetic theory of gases (Continued...)  
Lecture 10 - Kinetic theory of gases (Continued...)  
Lecture 11 - Transport properties  
Lecture 12 - Transport properties (Continued...)  
Lecture 13 - Transport properties of gases  
Lecture 14 - Molecular motion in Liquids  
Lecture 15 - Molecular motion in Liquids (Continued...)  
Lecture 16 - Molecular motion in Liquids (Continued...)  
Lecture 17 - Molecular motion in Liquids (Continued...)  
Lecture 18 - Molecular motion in Liquids (Continued...)  
Lecture 19 - Molecular motion in Liquids (Continued...)  
Lecture 20 - Molecular motion in Liquids (Continued...)  
Lecture 21 - Molecular motion in Liquids (Continued...)  
Lecture 22 - Molecular motion in Liquids (Continued...)  
Lecture 23 - Molecular motion in Liquids (Continued...)  
Lecture 24 - Molecular motion in Liquids (Continued...)  
Lecture 25 - Molecular motion in Liquids (Continued...)  
Lecture 26 - Molecular motion in Liquids (Continued...)  
Lecture 27 - Molecular motion in Liquids (Continued...)  
Lecture 28 - Molecular motion in Liquids (Continued...)  
Lecture 29 - Molecular motion in Liquids (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Molecular motion in Liquids (Continued...)
- Lecture 31 - Molecular motion in Liquids (Continued...)
- Lecture 32 - Molecular motion in Liquids (Continued...)
- Lecture 33 - Molecular motion in Liquids (Continued...)
- Lecture 34 - Molecular motion in Liquids (Continued...)
- Lecture 35 - Molecular motion in Liquids (Continued...)
- Lecture 36 - Molecular motion in Liquids (Continued...)
- Lecture 37 - Molecular motion in Liquids (Continued...)
- Lecture 38 - Molecular motion in gases
- Lecture 39 - Molecular motion in gases
- Lecture 40 - Molecular motion in gases

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Principles and Application of Electron Paramagnetic Resonance

Subject Co-ordinator - Prof. Ranjan Das

Co-ordinating Institute - TIFR

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Remembering the Masters
- Lecture 2 - Introduction to EPR spectroscopy
- Lecture 3 - Electron-Nuclear Hyperfine Interaction - I
- Lecture 4 - Electron-Nuclear Hyperfine Interaction - II
- Lecture 5 - Magnetic Moment in Magnetic Field - I
- Lecture 6 - Magnetic Moment in Magnetic Field - II
- Lecture 7 - EPR Instrumentations - I
- Lecture 8 - EPR Instrumentations - II
- Lecture 9 - EPR Instrumentations - III
- Lecture 10 - EPR Instrumentations - IV
- Lecture 11 - Quantum Mechanical Description of EPR - I
- Lecture 12 - Quantum Mechanical Description of EPR - II
- Lecture 13 - Introduction to Spin Relaxation
- Lecture 14 - Theory of First-order EPR Spectra - I
- Lecture 15 - Theory of First-order EPR Spectra - II
- Lecture 16 - How to Analyse First-order EPR Spectra
- Lecture 17 - How to Record EPR Spectra
- Lecture 18 - Second-order Effects on EPR Spectra
- Lecture 19 - Photochemistry and EPR Spectroscopy
- Lecture 20 - Electron Spin Polarisation - I
- Lecture 21 - Electron Spin Polarisation - II
- Lecture 22 - Anisotropic Interactions in EPR Spectroscopy
- Lecture 23 - Theoretical Basis of isotropic Hyperfine Coupling
- Lecture 24 - Spin Relaxation and Bloch Equations - I
- Lecture 25 - Spin Relaxation and Bloch Equations - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemistry-I

Subject Co-ordinator - Prof. K. Mangala Sunder

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3 - Part I

Lecture 3 - Part II

Lecture 4 - Part I

Lecture 4 - Part II

Lecture 4 - Part III

Lecture 5 - Part I

Lecture 5 - Part II

Lecture 5 - Part III

Lecture 5 - Part IV

Lecture 5 - Part V

Lecture 6 - Part I

Lecture 6 - Part II

Lecture 6 - Part III

Lecture 6 - Part IV

Lecture 7 - Part I

Lecture 7 - Part II

Lecture 8 - Part I

Lecture 8 - Part II

Lecture 8 - Part III

Lecture 9 - Part I

Lecture 9 - Part II

Lecture 9 - Part III

Lecture 10

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemistry-II

Subject Co-ordinator - Prof. K. Mangala Sunder

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Electromagnetic radiation
- Lecture 2 - Interaction of radiation with matter
- Lecture 3 - Introduction to chemical applications
- Lecture 4 - Analysis of spectra
- Lecture 5 - Radiation densities and Einstein's semi classical model
- Lecture 6 - Introduction to quantum mechanics - I
- Lecture 7 - Introduction to quantum mechanics - II
- Lecture 8 - Born-Oppenheimer approximation
- Lecture 9 - Beer-Lambert law
- Lecture 10 - Diatomic Vibration Spectra Hermonic Model
- Lecture 11 - Diatomic Vibration Morse Oscillator Model
- Lecture 12 - Normal Vibrational modes Triatomic molecules
- Lecture 13 - Normal Vibrational modes Polyatomic molecules
- Lecture 14 - Vibrational Polyatomic Infrared Spectroscopy Local Modes and Group Frequencies
- Lecture 15 - Microwave spectra of di-atomic molecules
- Lecture 16 - Diatomic Molecules Microwave Energies and Transitions
- Lecture 17 - Methodology of solving problems
- Lecture 18 - Rotational and Vibrational Line Intensities
- Lecture 19 - Microwave Spectra of Polyatomic molecules (Symmetric tops)
- Lecture 20 - Video Tutorial 2
- Lecture 21 - Video Tutorial 2
- Lecture 22 - Introduction to Tensors
- Lecture 23 - Polarizability Tensor
- Lecture 24 - Introduction to Rotational Raman Spectra.
- Lecture 25 - Review of basic concepts in Molecular Spectroscopy
- Lecture 26 - Review of Microwave Spectroscopy
- Lecture 27 - Review of Elementary Vibrational Spectroscopy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Application of Spectroscopic Methods in Molecular Structure

Subject Co-ordinator - Prof. S. Sankararaman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module 1

Module 2

Module 3

Module 4

Module 5

Module 6

Module 7

Module 8

Module 9

Module 10

Module 11

Module 12

Module 13

Module 14

Module 15

Module 16

Module 17

Module 18

Module 19

Module 20

Module 21

Module 22

Module 23

Module 24

Module 25

Module 26

Module 27

Module 28

Module 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Module 30  
Module 31  
Module 32  
Module 33  
Module 34  
Module 35  
Module 36

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## NPTel Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTel Video Course - Chemistry and Biochemistry - NOC:Pericyclic Reactions and Organic Photochemistry

Subject Co-ordinator - Prof. S. Sankararaman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Activation of chemical reactions. Thermal and photochemical methods
- Lecture 2 - MOs of polyene and their symmetry properties and methods of analyzing pericyclic reactions
- Lecture 3 - Introduction to electrocyclic reactions and Woodward Hoffmann rules
- Lecture 4 - Electrocyclic reactions  $\hat{A}$  examples of 3, 4 and 5 membered ring systems (2e and 4e systems)
- Lecture 5 - Electrocyclic reactions  $\hat{A}$  examples of 6 and larger ring systems (6e and more)
- Lecture 6 - Tutorial session 1
- Lecture 7 - Cycloaddition reactions - Introduction and Woodward Hoffmann rules - [2+2] cycloadditions
- Lecture 8 - Cycloaddition reactions  $\hat{A}$  ketene cycloadditions
- Lecture 9 - Cycloaddition reactions  $\hat{A}$  Diels-Alder reaction - Woodward Hoffmann rule - Regiochemistry and Stereochemistry
- Lecture 10 - Diels Alder reaction - synthetic applications
- Lecture 11 - Diels Alder reaction continued - Hetero diene and dienophile - Lewis acid mediated - asymmetric
- Lecture 12 - 1,3-Dipolar cycloaddition reactions
- Lecture 13 - 1,3-Dipolar cycloaddition reactions (Continued...)
- Lecture 14 - [4pi+4pi], [4pi+6pi] and higher order cycloaddition reactions
- Lecture 15 - Tutorial session 2 on cycloaddition reactions
- Lecture 16 - Pericyclic reactions  $\hat{A}$  Sigmatropic rearrangements  $\hat{A}$  Introduction and [1,3] migrations
- Lecture 17 - Pericyclic reactions  $\hat{A}$  Sigmatropic rearrangements (Continued...) [1,5] H and C migrations and Cope rearrangement
- Lecture 18 - Pericyclic reactions  $\hat{A}$  Sigmatropic rearrangements (Continued...) oxy Cope and Claisen Rearrangement
- Lecture 19 - Pericyclic reactions  $\hat{A}$  Sigmatropic rearrangements (Continued...)
- Lecture 20 - Pericyclic reactions  $\hat{A}$  Sigmatropic rearrangements (Continued...) [2,3] sigmatropic shifts and H-shift
- Lecture 21 - Pericyclic reactions  $\hat{A}$  Sigmatropic rearrangements (Continued...) Wittig rearrangement and higher order
- Lecture 22 - Pericyclic reactions  $\hat{A}$  Chelotropic reactions - introduction, SO<sub>2</sub> extrusion reactions
- Lecture 23 - Pericyclic reactions  $\hat{A}$  Tutorial session 3 - Problems on sigmatropic reactions
- Lecture 24 - Chelotropic reactions 2
- Lecture 25 - The Ene Reaction
- Lecture 26 - Tutorial session - 4
- Lecture 27 - Introduction to organic photochemistry
- Lecture 28 - Photochemistry of alkenes cis-trans isomerization
- Lecture 29 - Photochemistry of alkenes (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Photochemistry of carbonyl compounds, Norrish type 1 and 2 reactions
- Lecture 31 - Photochemistry of carbonyl compounds, enone and dienone photochemistry
- Lecture 32 - Photochemistry of Nitrogen compounds
- Lecture 33 - Photochemistry of aromatic compounds
- Lecture 34 - Photoinduced electron transfer reactions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemistry I:Introduction To Quantum Chemistry And Molec

Subject Co-ordinator - Prof. K. Mangala Sunder

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1 - Historical context and experiments: Introducing the Schrödinger equation  
Lecture 2 - Lecture 2 - Bohr's atom, De Broglie Matter Waves and Schrodinger equation  
Lecture 3 - Lecture 3 - Electromagnetic Radiation  
Lecture 4 - Lecture 4 - Interaction of Radiation with Matter  
Lecture 5 - Lecture 5 - Molecular Spectroscopy  
Lecture 6 - Lecture 6 - Elementary Mathematical Functions I  
Lecture 7 - Lecture 7 - Review of Properties of Elementary Functions II  
Lecture 8 - Lecture 8 - Time Dependent Schrödinger Equation & Time Independent Schrödinger Equation  
Lecture 9 - Lecture 9 - Schrödinger Equation Particle in a One-dimensional Box : Part I  
Lecture 10 - Lecture 10 - Schrödinger Equation Particle in a One-dimensional Box : Part II  
Lecture 11 - Lecture 11 - Schrödinger Equation Particle in Two-dimensional Box : Part I  
Lecture 12 - Lecture 12 - Particle in Two-dimensional Box : Part II Uncertainty Principle  
Lecture 13 - Lecture 13 - Particle in Two-dimensional Box : Part III Expectation Values  
Lecture 14 - Lecture 14 - The Quantum Mechanics of Hydrogen Atom - Part I  
Lecture 15 - Lecture 15 - The Quantum Mechanics of Hydrogen Atom - Part II  
Lecture 16 - Lecture 16 - The Quantum Mechanics of Hydrogen Atom - Part III  
Lecture 17 - Lecture 17 - The Quantum Mechanics of Hydrogen Atom - Part IV  
Lecture 18 - Lecture 18 - The Quantum Mechanics of Hydrogen Atom - Part V  
Lecture 19 - Lecture 19A - Assignment 1 Solution/Hints  
Lecture 20 - Lecture 19B - Assignment 1 Solution/Hints  
Lecture 21 - Lecture 19C - Assignment 1 Solution/Hints  
Lecture 22 - Lecture 19D - Assignment 1 Solution/Hints  
Lecture 23 - Lecture 19E - Assignment 1 Solution/Hints  
Lecture 24 - Lecture 20 Harmonic Oscillator Model - Part I  
Lecture 25 - Lecture 21 Harmonic Oscillator Model - Part II  
Lecture 26 - Lecture 22 Harmonic Oscillator Model - Part III  
Lecture 27 - Lecture 23 Harmonic Oscillator Model - Part IV  
Lecture 28 - Lecture 24 Particle on a Ring - Part I  
Lecture 29 - Lecture 25 Particle on a Ring - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lecture 26 - Heisenberg's Uncertainty Relation
- Lecture 31 - Lecture 27A - Operators, Commutators, Eigenvalues and Eigenvectors
- Lecture 32 - Lecture 27B - Operators, Commutators, Eigenvalues and Eigenvectors
- Lecture 33 - Lecture 28 - Introduction to Chemical Applications
- Lecture 34 - Lecture 29 - Radiation Densities and Einstein's Semiclassical model
- Lecture 35 - Lecture 30 - Born Oppenheimer Approximation
- Lecture 36 - Lecture 31 - Beer Lambert Law
- Lecture 37 - Lecture 32 - Diatomic Vibrational Spectra Harmonic Model
- Lecture 38 - Lecture 33 - Diatomic Vibration Morse Oscillator Model
- Lecture 39 - Lecture 34 - Molecular Vibrations in Polyatomic Molecules - Qualitative Account
- Lecture 40 - Lecture 35 - Polyatomic Vibrations - Illustrative examples of normal vibrations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Introduction to Chemical Thermodynamics and Kinetics

Subject Co-ordinator - Prof.Arijit Kumar De

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Chemical Thermodynamics and Kinetics

Lecture 2 - Properties of gases - Part 1

Lecture 3 - Properties of gases - Part 2

Lecture 4 - Introduction - Part 1

Lecture 5 - Introduction - Part 2

Lecture 6 - First law - Part 1

Lecture 7 - First law - Part 2

Lecture 8 - First law - Part 3

Lecture 9 - First law - Part 4

Lecture 10 - First law - Part 5

Lecture 11 - Second law - Part 1

Lecture 12 - Second law - Part 2

Lecture 13 - Spontaneity and equilibrium - Part 1

Lecture 14 - Spontaneity and equilibrium - Part 2

Lecture 15 - Spontaneity and equilibrium - Part 3

Lecture 16 - Phase equilibrium - Part 1

Lecture 17 - Phase equilibrium - Part 2

Lecture 18 - Phase equilibrium - Part 3

Lecture 19 - Mixtures - Part 1

Lecture 20 - Mixtures - Part 2

Lecture 21 - Chemical Equilibrium - Part 1

Lecture 22 - Chemical Equilibrium - Part 2

Lecture 23 - Chemical Equilibrium - Part 3

Lecture 24 - Chemical Equilibrium - Part 4

Lecture 25 - Chemical Equilibrium - Part 5

Lecture 26 - Electrochemistry

Lecture 27 - Surfaces and interfaces

Lecture 28 - Chemical Kinetics

Lecture 29 - Chemical Kinetics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Chemical Kinetics
- Lecture 31 - Chemical Kinetics
- Lecture 32 - Chemical Kinetics
- Lecture 33 - Chemical Kinetics
- Lecture 34 - Chemical Kinetics
- Lecture 35 - Chemical Kinetics
- Lecture 36 - Chemical Kinetics
- Lecture 37 - Chemical Kinetics
- Lecture 38 - Reaction dynamics - Part 1
- Lecture 39 - Reaction dynamics - Part 2
- Lecture 40 - Reaction dynamics - Part 3
- Lecture 41 - Reaction dynamics - Part 4
- Lecture 42 - Reaction dynamics - Part 5
- Lecture 43 - Reaction dynamics - Part 6
- Lecture 44 - Reaction dynamics - Part 7
- Lecture 45 - Live Session

## NPTel Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTel Video Course - Chemistry and Biochemistry - NOC:Chemical Crystallography

Subject Co-ordinator - Prof.Angshuman Roy Choudhury

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to X-Ray Crystallography
- Lecture 2 - Sources of X-Rays, Crystal Systems and Bravais lattices
- Lecture 3 - Crystallographic Symmetries
- Lecture 4 - Equivalent Points and 1D Lattices
- Lecture 5 - 5 Fold Symmetry and 2D Lattices
- Lecture 6 - 2D Space Lattices
- Lecture 7 - Crystallographic Point Groups
- Lecture 8 - Stereographic Projections of Point Groups
- Lecture 9 - Understanding of Crystallographic Space Groups
- Lecture 10 - 2D Projection of Space Groups
- Lecture 11 - Tutorial - 01
- Lecture 12 - 3D Space Groups and Equivalent Points
- Lecture 13 - Obtaining Equivalent Points by Shifting of Origin
- Lecture 14 - Representation of Orthorhombic and Tetragonal Space Groups
- Lecture 15 - Miller Indices for Crystallographic Directions and Planes
- Lecture 16 - Miller Indices and Planar Densities
- Lecture 17 - Tutorial - 02
- Lecture 18 - Cubic Structures and atomic packing factors
- Lecture 19 - Ceramic Structures
- Lecture 20 - Theory of X-Ray Diffraction
- Lecture 21 - Tutorial - 03
- Lecture 22 - Origin of Reciprocal Lattice
- Lecture 23 - Bragg's Law in Reciprocal Lattice and Origin of Systematic Absences
- Lecture 24 - Systematic Absences and Crystallisation Methods
- Lecture 25 - Special Method of Crystallisation
- Lecture 26 - Tutorial
- Lecture 27 - Single Crystal X-Ray Diffraction Data Collection
- Lecture 28 - Diffractometers
- Lecture 29 - Diffractometers and Detectors

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- Lecture 30 - Laue's and Bragg's Analysis
- Lecture 31 - Experimental Methods and Theoretical Understanding of X-Ray Diffraction
- Lecture 32 - Derivation of Friedel's Law from Structure Factor by Vector Space Diagram
- Lecture 33 - Structure Factor and Electron Density
- Lecture 34 - Systematic Absence Conditions from Special Structure Factor Expression
- Lecture 35 - Structure Refinement
- Lecture 36 - Single Crystal X-Ray Diffractometer
- Lecture 37 - Understanding the X-Ray Data
- Lecture 38 - Data Handling (Solution and Refinement) using Various Crystallographic Packages
- Lecture 39 - Structure Solution using Apex II (Bruker Diffractometer)
- Lecture 40 - Direct Methods - Part 1
- Lecture 41 - Direct Methods - Part 2
- Lecture 42 - Disorder Treatment using Olex 2
- Lecture 43 - Cambridge Structure Database and its Application
- Lecture 44 - Data Reduction - Absorption Correction
- Lecture 45 - Data Reduction - Lorentz and Polarization Correction
- Lecture 46 - Data Reduction - Scale and Temperature Factor
- Lecture 47 - Identification from Intensity Statistics the Correct Crystal System and Presence of Inversion Centres
- Lecture 48 - Identification from Intensity Statistics the presence of 2 fold axis in Lattice
- Lecture 49 - Phase Problem
- Lecture 50 - Direct Methods - Part 1
- Lecture 51 - Direct Methods - Part 2
- Lecture 52 - Sigma 1 and Triplet Relationship
- Lecture 53 - Patterson Method
- Lecture 54 - Powder X-Ray Diffractometer - Theory
- Lecture 55 - Powder X-Ray Diffractometer - Lab
- Lecture 56 - Polymorphs
- Lecture 57 - Polymorphs
- Lecture 58 - Review of Reciprocal Lattice
- Lecture 59 - Review of Reciprocal Lattice
- Lecture 60 - Review of Reciprocal Lattice and Bragg's Law in Reciprocal Lattice
- Lecture 61 - Ewald's Sphere and Limiting Sphere
- Lecture 62 - Origin of/Introduction to Systematic absences

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Advanced Chemical Thermodynamics and Kinetics

Subject Co-ordinator - Prof.Arijit Kumar De

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Review of Classical Thermodynamics - 1  
Lecture 2 - Review of Classical Thermodynamics - 2  
Lecture 3 - Review of Classical Thermodynamics - 3  
Lecture 4 - Review of Classical Thermodynamics - 4  
Lecture 5 - Review of Classical Thermodynamics - 5  
Lecture 6 - Molecular Interactions - 1  
Lecture 7 - Molecular Interactions - 2  
Lecture 8 - Molecular Interactions - 3  
Lecture 9 - Molecular Interactions - 4  
Lecture 10 - Molecular Interactions - 5  
Lecture 11 - Transport Phenomena - 1  
Lecture 12 - Transport Phenomena - 2  
Lecture 13 - Transport Phenomena - 3  
Lecture 14 - Review of Chemical Kinetics - 1  
Lecture 15 - Review of Chemical Kinetics - 2  
Lecture 16 - Review of Chemical Kinetics - 3  
Lecture 17 - Review of Chemical Kinetics - 4  
Lecture 18 - Review of Chemical Kinetics - 5  
Lecture 19 - Advanced Topic in Chemical Kinetics - 1  
Lecture 20 - Advanced Topic in Chemical Kinetics - 2  
Lecture 21 - Advanced Topic in Chemical Kinetics - 3  
Lecture 22 - Introduction to statistical thermodynamics - 1  
Lecture 23 - Introduction to statistical thermodynamics - 2  
Lecture 24 - Introduction to statistical thermodynamics - 3  
Lecture 25 - Introduction to bimolecular reaction dynamics - 1  
Lecture 26 - Introduction to bimolecular reaction dynamics - 2  
Lecture 27 - Introduction to bimolecular reaction dynamics - 3  
Lecture 28 - Introduction to bimolecular reaction dynamics - 4  
Lecture 29 - Unimolecular reaction - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unimolecular reaction - 2
- Lecture 31 - Introduction to solution phase reactions dynamics - 1
- Lecture 32 - Introduction to solution phase reactions dynamics - 2
- Lecture 33 - Introduction to solution phase reactions dynamics - 3
- Lecture 34 - Introduction to solution phase reactions dynamics - 4
- Lecture 35 - Introduction to solution phase reactions dynamics - 5
- Lecture 36 - Non-ideal solutions, Activity of ions (Debye-Huckel theory) - 1
- Lecture 37 - Non-ideal solutions, Activity of ions (Debye-Huckel theory) - 2
- Lecture 38 - Electrochemistry
- Lecture 39 - Electrochemistry
- Lecture 40 - Reaction Dynamics
- Lecture 41 - Chemical Kinetics
- Lecture 42 - Transport Phenomena
- Lecture 43 - Equilibrium constant using partition method
- Lecture 44 - Photochemistry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemistry: Atomic Structure and Chemical Bonding

Subject Co-ordinator - Prof. K. Mangala Sunder

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Welcome
- Lecture 2 - Elementary Mathematical Functions Used in Our Course
- Lecture 3 - Schrodinger Equation
- Lecture 4 - Particle in a One dimensional Box
- Lecture 5 - Elementary Mathematics
- Lecture 6 - Elementary Mathematics
- Lecture 7 - Elementary Mathematics
- Lecture 8 - Elementary Mathematics
- Lecture 9 - Particle in a Two Dimensional Box (Infinite Barrier)
- Lecture 10 - Heisenberg's Uncertainty Principle
- Lecture 11 - Expectation Values and Postulates in Quantum Mechanics
- Lecture 12 - Problems and Solutions for Particle in One and Two Dimensional Boxes
- Lecture 13 - Linear Vector Spaces
- Lecture 14 - Linear Vector Spaces and Operators
- Lecture 15 - Simple Harmonic Oscillator
- Lecture 16 - Simple Harmonic Oscillator
- Lecture 17 - Simple Harmonic Oscillator
- Lecture 18 - Simple Harmonic Oscillator
- Lecture 19 - Particle on a Ring
- Lecture 20 - Particle on a Ring
- Lecture 21 - Coordinate Transformation
- Lecture 22 - Problems and Solutions for Harmonic Oscillator
- Lecture 23 - Hydrogen Atom
- Lecture 24 - Hydrogen Atom
- Lecture 25 - Hydrogen Atom
- Lecture 26 - Hydrogen Atom
- Lecture 27 - Hydrogen Atom
- Lecture 28 - Power Series Method for Differential Equation - I
- Lecture 29 - Hermite's Differential Equation

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Legendre and Associated Legendre Equation
- Lecture 31 - Born-Oppenheimer Approximation
- Lecture 32 - Introduction to Angular Momentum
- Lecture 33 - Spin  $\hat{S}$  Angular Momentum
- Lecture 34 - Spin Angular Momentum and Coupling of Two Spin-1/2 Angular Momenta
- Lecture 35 - Coupling of Two Angular Momenta
- Lecture 36 - Video Tutorial for Hermite polynomials and hydrogen atom - Part 1
- Lecture 37 - Video Tutorials - Part 2
- Lecture 38 - Variational Principle in Quantum Chemistry
- Lecture 39 - Introduction to Variational Principle in Quantum Chemistry
- Lecture 40 - Variational Method
- Lecture 41 - Hydrogen Molecule Ion
- Lecture 42 - Hydrogen Molecule Ion
- Lecture 43 - Hydrogen Molecule
- Lecture 44 - Hydrogen Molecule
- Lecture 45 - Video Tutorials on Angular Momentum (Orbital and Spin) and Variational Method - Part 1
- Lecture 46 - Video Tutorials on Angular Momentum (Orbital and Spin) and Variational Method - Part 2
- Lecture 47 - Introduction to Quantum Mechanical Perturbation Theory
- Lecture 48 - First Order Time Independent perturbation Theory for Non-Degenerate states
- Lecture 49 - First and Second Order Time Independent Perturbation Theory for Non-Degenerate States
- Lecture 50 - First and Second Order Time Independent Perturbation Theory
- Lecture 51 - Time Independent Perturbation Theory for Degenerate States
- Lecture 52 - General MO method for Homonuclear Diatomic Molecules
- Lecture 53 - General MO method for Heteronuclear Diatomic Molecules
- Lecture 54 - Introduction to Hybridization and Valence Bond for Polyatomic Molecules
- Lecture 55 - Hückel Molecular Orbital Theory - I
- Lecture 56 - Hückel Molecular Orbital Theory - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Essentials in Immunology

Subject Co-ordinator - Prof. Anjali Karande, Dr. Dipankar Nandi, Dr. R. Manjunath

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the immune system
- Lecture 2 - Cells and Organs of the immune system - Part 1
- Lecture 3 - Cells and Organs of the immune system - Part 2
- Lecture 4 - Cells and Organs of the immune system - Part 3
- Lecture 5 - Innate immunity - Part 1
- Lecture 6 - Innate immunity - Part 2
- Lecture 7 - Development and differentiation of B cells - Part 1
- Lecture 8 - Signaling in B cells
- Lecture 9 - Organization of immunoglobulin genes and Mechanism of immunoglobulin gene rearrangement
- Lecture 10 - Generation of antibody diversity
- Lecture 11 - Immunoglobulin class switching Regulation of Immunoglobulin gene regulation
- Lecture 12 - Structures and functions of Immunoglobulins
- Lecture 13 - The three complement pathways
- Lecture 14 - Hypersensitivity type 1
- Lecture 15 - Hypersensitivity types 2, 3, 4 and Autoimmunity
- Lecture 16 - Autoimmunity Autoimmuno-deficiencies of the B cells
- Lecture 17 - Autoimmuno-deficiencies of the B cells
- Lecture 18 - Cancer
- Lecture 19 - The major histocompatibility complex - Part 1
- Lecture 20 - The major histocompatibility complex - Part 2
- Lecture 21 - The major histocompatibility complex - Part 3
- Lecture 22 - The Major Histocompatibility Complex
- Lecture 23 - The Major Histocompatibility Complex
- Lecture 24 - The Major Histocompatibility Complex
- Lecture 25 - T cell receptors
- Lecture 26 - T cell Activation
- Lecture 27 - T cell Activation / Differentiation
- Lecture 28 - T cell synapse, motility and subsets
- Lecture 29 - T cell survival

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cytokines - Part 1
- Lecture 31 - Cytokines - Part 2
- Lecture 32 - Autoimmunity
- Lecture 33 - Immunodeficiency
- Lecture 34 - Host response mechanisms during infectious diseases - Part 1
- Lecture 35 - Host response mechanisms during infectious diseases - Part 2
- Lecture 36 - Transplantation immunology
- Lecture 37 - Vaccines
- Lecture 38 - Antigens and Immunogens
- Lecture 39 - Synthetic vaccines
- Lecture 40 - Evolution of the immune system

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Eukaryotic Gene Expression - basics and benefits

Subject Co-ordinator - Prof. P.N. Rangarajan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Eukaryotic RNA polymerases and basal transcription factors
- Lecture 2 - Diversity in core promoter elements
- Lecture 3 - Diversity in general transcription factors
- Lecture 4 - Proximal & Distal Promoter Elements, Enhancers and Silencers, Gene-specific Regulators
- Lecture 5 - Transcription factors - DNA binding domains
- Lecture 6 - Transcription factors - Transcription activation domain
- Lecture 7 - Role of chromatin in eukaryotic gene regulation
- Lecture 8 - Role of histones in eukaryotic gene regulation
- Lecture 9 - Role of DNA methylation in eukaryotic gene regulation
- Lecture 10 - Chromatin remodelling & gene regulation
- Lecture 11 - mRNA processing - Role of RNA Pol II in mRNA capping and mRNA splicing
- Lecture 12 - mRNA processing - Role of RNA Pol II in polyadenylation & mRNA editing
- Lecture 13 - Regulation of RNA Pol I transcription
- Lecture 14 - Regulation of RNA Pol III transcription
- Lecture 15 - Signal Transduction Pathways - Introduction
- Lecture 16 - Regulation of gene expression by cyclicAMP
- Lecture 17 - Regulation of gene expression by second messengers other than cAMP
- Lecture 18 - Regulation of gene expression by Protein Kinase C
- Lecture 19 - Regulation of gene expression by Growth factors
- Lecture 20 - Regulation of gene expression by cytokines
- Lecture 21 - Regulation of gene expression by steroid hormones
- Lecture 22 - Regulation of gene expression by type II nuclear receptors
- Lecture 23 - Mechanism of transcriptional activation by nuclear receptors
- Lecture 24 - Gene Regulation during Drosophila Development
- Lecture 25 - Signal transduction pathways involved in embryonic development
- Lecture 26 - Homeotic genes
- Lecture 27 - Epigenetic regulation of gene expression during development
- Lecture 28 - Embryonic stem cells and Transcription factor-mediated epigenetic reprogramming
- Lecture 29 - Cloning and Expression vectors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Eukaryotic protein expression systems - I
- Lecture 31 - Eukaryotic protein expression systems - II
- Lecture 32 - Eukaryotic protein expression systems - III
- Lecture 33 - Human Gene Therapy
- Lecture 34 - DNA vaccines
- Lecture 35 - Transgenic animals
- Lecture 36 - Transgenic plants
- Lecture 37 - Knockout mic
- Lecture 38 - Regulation of Eukaryotic Gene Expression by Small RNAs (RNA Interference, RNAi)
- Lecture 39 - Genomics & Proteomics
- Lecture 40 - Metabolic Engineering & Synthetic Biology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Introductory Quantum Chemistry

Subject Co-ordinator - Prof. K.L. Sebastian

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Wave Particle Duality

Lecture 2 - Standing Waves

Lecture 3 - Path Integrals and Schrodinger Equation

Lecture 4 - Postulates - Part 1

Lecture 5 - Postulates - Part 2

Lecture 6 - Postulates - Part 3

Lecture 7 - Separating Variables and Particle in a Box - Part 1

Lecture 8 - Particle in a box - Part 2

Lecture 9 - Particle in a box - Part 3

Lecture 10 - Particle in a box-time dependent states-Expectations values and time dependent states

Lecture 11 - Particle in a 3 dimensional box

Lecture 12 - Particle in a well of finite depth

Lecture 13 - Finite well, Delta and Step Functions

Lecture 14 - Finite well (Continued...)

Lecture 15 - Tunneling - Part 1

Lecture 16 - Tunneling - Part 2

Lecture 17 - Schrodinger equation for Harmonic Oscillator

Lecture 18 - Harmonic Oscillator - The Series Solution

Lecture 19 - Harmonic Oscillator - Generating function

Lecture 20 - Harmonic Oscillator - Orthogonality of Eigenfunctions

Lecture 21 - Hydrogen Atom

Lecture 22 - Hydrogen Atom

Lecture 23 - Hydrogen atom continued

Lecture 24 - Hydrogen atom

Lecture 25 - Finding  $R(r)$

Lecture 26 - Atomic Orbitals - Part 1

Lecture 27 - Atomic Orbitals - Part 2

Lecture 28 - Atomic Orbitals - Part 3

Lecture 29 - Atomic Orbitals - Part 4 and Hermitian Operators

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Measurement, Uncertainty Principle
- Lecture 31 - Generalized Uncertainty Principle
- Lecture 32 - Generalized Uncertainty Principle (Continued...)
- Lecture 33 - Angular Momentum
- Lecture 34 - Angular Momentum (Continued...)
- Lecture 35 - Angular Momentum (Continued...) and Spin
- Lecture 36 - Perturbation Theory
- Lecture 37 - Perturbation Theory (Continued...)
- Lecture 38 - Variation Method - Introduction
- Lecture 39 - Variation Method - Proof and Illustration
- Lecture 40 - He atom wave function with spin included - Pauli's principle
- Lecture 41 - Hydrogen Molecular ion - Linear variation method
- Lecture 42 - Hydrogen Molecular ion (Continued...)
- Lecture 43 - Hydrogen Molecular ion (Continued...)
- Lecture 44 - Molecular Orbitals The Hydrogen Molecule
- Lecture 45 - MO and VB theory
- Lecture 46 - MO theory of diatoms
- Lecture 47 - Di-atomics (Continued...)
- Lecture 48 - Hybridization Huckel theory
- Lecture 49 - Huckel MO Theory (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Introduction to Organometallic Chemistry

Subject Co-ordinator - Prof. A.G. Samuelson

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Organometallic chemistry
- Lecture 2 - Metal carbonyl complexes
- Lecture 3 - Metal carbonyls - Part II
- Lecture 4 - Ligand substitution reactions
- Lecture 5 - Substitutes for carbonyl ligands
- Lecture 6 - Carbene complexes
- Lecture 7 - Carbene complexes (Continued...)
- Lecture 8 - Non-Carbon Ancillary ligands
- Lecture 9 - Non-Carbon Ancillary ligands (Continued...)
- Lecture 10 - Metal alkyl complexes
- Lecture 11 - Ligand Insertion Reactions
- Lecture 12 - Metal alkene complexes
- Lecture 13 - Alkynes  $\pi$  bonding
- Lecture 14 - Metal dihydrogen and hydrides
- Lecture 15 - Migratory Insertion reaction with alkynes
- Lecture 16 -  $\eta^m$  ( $m=4$  dienes and  $m=2n$ , polyenes)
- Lecture 17 - Oxidative addition & Vaska's complex mechanism
- Lecture 18 - Reductive elimination
- Lecture 19 - Reductive Elimination mechanism
- Lecture 20 - Oxidative coupling with C-C bond formation
- Lecture 21 - Metathesis reactions
- Lecture 22 - Metal-allyls -  $\pi$  3 complexes-synthesis, bonding
- Lecture 23 - Metal-allyls -  $\eta^3$  complexes-fluxionality, reactivity
- Lecture 24 - C-C single bond forming reactions
- Lecture 25 -  $\pi$  5 Cyclopentadienyl - complexes
- Lecture 26 -  $\eta^6$  arene Metal complexes
- Lecture 27 - Half sandwich complexes
- Lecture 28 - Reactivity changes in coordinated ligands
- Lecture 29 - The isolobal analogy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fluxional Properties of Organometallics
- Lecture 31 - Quantifying Steric and electronic factors
- Lecture 32 - Hydrogenation reactions
- Lecture 33 - Addition of HX to olefins
- Lecture 34 - Reactions with CO insertion
- Lecture 35 - Organometallics promoted C-X coupling
- Lecture 36 - Organometallic polymerization
- Lecture 37 - C-H activation
- Lecture 38 - Asymmetric Catalysis
- Lecture 39 - Medicinal applications of organometallic complexes
- Lecture 40 - Special Properties and Applications

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Principles and Applications of NMR Spectroscopy

Subject Co-ordinator - Prof. Hanudatta S. Atreya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to NMR spectroscopy

Lecture 2 - The alignment of nuclear spins in presence of magnetic field

Lecture 3 - Introduction to rotating frame

Lecture 4 - Free induction decay and Fourier transformation of FID

Lecture 5 - NMR Hardware

Lecture 6 - The concept of chemical shift

Lecture 7 - Factors that affect chemical shifts

Lecture 8 - Chemical shift referencing

Lecture 9 - J-coupling

Lecture 10 - Recap of basics

Lecture 11 - Introduction to general one dimensional NMR experiment

Lecture 12 - Practical aspects of recording a 1D NMR experiment - I

Lecture 13 - Practical aspects of recording a 1D NMR experiment - II

Lecture 14 - Practical aspects of recording a 1D NMR experiment - III

Lecture 15 - NMR Data processing

Lecture 16 - Basic aspects of 1D proton NMR analysis

Lecture 17 - Analysis of an example 1D proton spectrum

Lecture 18 - Analysis of 1D <sup>1</sup>H NMR spectra of molecules - I

Lecture 19 - Analysis of 1D <sup>1</sup>H NMR spectra of molecules - II

Lecture 20 - 1D <sup>13</sup>C NMR

Lecture 21 - Why do we need 2D NMR

Lecture 22 - A qualitative explanation of how 2D NMR experiment works

Lecture 23 - Principles of 2D COSY and Total correlation spectroscopy (2D TOCSY)

Lecture 24 - 2D NOE-spectroscopy

Lecture 25 - 2D NOESY and 2D ROESY

Lecture 26 - What is heteronuclear correlation NMR spectroscopy

Lecture 27 - Sensitivity enhancement of heteronuclei via polarization transfer

Lecture 28 - Heteronuclear multiple quantum NMR spectroscopy (2D HMQC) and Heteronuclear single quantum NMR sp

Lecture 29 - Practical aspects of recording and processing 2D HMQC or HSQC

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - HMBC and its utility
- Lecture 31 - 2D HSQC TOCSY and its analysis with examples
- Lecture 32 - Structure determination of molecules by NMR
- Lecture 33 - Structure determination of peptides - I
- Lecture 34 - Structure determination of peptides - II
- Lecture 35 - Structure determination of peptides - III
- Lecture 36 - Chemical exchange
- Lecture 37 - Hydrogen or deuterium exchange
- Lecture 38 - Diffusion ordered spectroscopy DOSY I
- Lecture 39 - DOSY II
- Lecture 40 - STD NMR for drug target interactions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Advanced Geotechnical Engineering

Subject Co-ordinator - Dr. B.V.S. Viswanadham

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
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Lecture 12  
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Lecture 27  
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Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
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Lecture 60

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Soil Dynamics

Subject Co-ordinator - Dr. Deepankar Choudhury

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Degrees of Freedom, SDOF System, Types of Vibrations

Lecture 3 - SDOF System, Types of Vibrations, Free Vibration

Lecture 4 - Problems on Torsional Motion

Lecture 5 - Damped Free Vibrations

Lecture 6 - Damped Free Vibrations, Definition of Critical Damping and problems

Lecture 7 - Decay of Motion

Lecture 8 - Forced Vibrations, Dynamic Magnification Factor

Lecture 9 - Maxwells Diagram of DMF, Discussion on Phase

Lecture 10 - Transmissibility Ratio, Response to Arbitrary, Step and Pulse Excitations

Lecture 11 - Response to Arbitrary, Step and Pulse Excitations, Response to Impact Load

Lecture 12 - Vibration Isolation, Vibrations Measuring Instruments

Lecture 13 - Solutions of Quiz Questions, Multi-Degree of Freedom (MDOF) Systems

Lecture 14 - (MDOF) System

Lecture 15 - 3 Dimensional Wave Propagation, Waves in semi-infinite media, Rayleigh Wave

Lecture 16 - Love Wave, Waves in layered medium, 3D case-Inclined wave, Earthquake Waves

Lecture 17 - Earthquake Waves; P-waves, S-waves, 3 circle method, Estimation of Earthquake Epicentre

Lecture 18 - Stresses in Soil Element, Field Tests, Seismic Reflection Test

Lecture 19 - Seismic Refraction Test, SASW Test, Laboratory & Model Tests

Lecture 20 - Centrifuge Tests Stress Strain Behavior of Cyclically Loaded Soils

Lecture 21 - Estimation of  $G_{max}$ , Modulus Reduction Curves, Variation of Damping Ratio, Cyclic Plate load Test

Lecture 22 - Liquefaction, Preliminary sceening, Simplified Procedure for Liquefaction

Lecture 23 - Cyclic Stress Ratio, Evaluation of CRR, Correction Factors, Corrections for SPT

Lecture 24 - Becker Penetrometer Test (BPT), Cone Penetrometer Test (CPT), SPT v BPT, SASW Test

Lecture 25 - Types of Machine Foundations, Methods of Analysis, Design of Machine Foundations as per IS

Lecture 26 - Tschebotarioff's

Lecture 27 - Problem on Tschebotarioff's method contd., Mass-Spring-Dashpot (MSD) Model

Lecture 28 - MSD Model- Yawing mode of Vibration, Use of MSD model for analysis

Lecture 29 - Problems on Use of MSD Model for Analysis, Rocking mode of Vibrations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Torsional Mode/Yawing Mode, Constant Force type excitation, EHS Theory
- Lecture 31 - EHS Theory, Vibrational Control
- Lecture 32 - Use of EHS Theory for analysis
- Lecture 33 - Use of EHS Theory for analysis II
- Lecture 34 - Liquefaction mitigation methods, Vibro Compaction, Densification Techniques
- Lecture 35 - Soil Improvement methods, Dynamic Compaction, Reinforcement Techniques
- Lecture 36 - Force-based Analysis, Dynamic analysis using MSD model
- Lecture 37 - Behaviour of Subgrade Soil below Rail Track
- Lecture 38 - Quiz

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Structural Dynamics

Subject Co-ordinator - Dr. P. Banerji

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Inverse Power Method
- Lecture 3 - Dynamics of SDOF Structure
- Lecture 4 - SDOF Response to Harmonic Loads
- Lecture 5 - Response of SDOF Structure to Harmonic Loading
- Lecture 6 - Response to Harmonic Loading
- Lecture 7 - Response to Harmonic Loading (Continue...)
- Lecture 8 - Transmissibility & Base Isolation
- Lecture 9 - Dynamic Characteristics & Periodic Loading
- Lecture 10 - Pulse Loading
- Lecture 11 - Pulse Load Response Characteristics & Impulse Loading
- Lecture 12 - Frequency Domain Response Analysis
- Lecture 13 - Methods of Analysis for General Loading
- Lecture 14 - Numerical Analysis of Response of Single Degree of Freedom Structure & Time Domain Approaches
- Lecture 15 - Response Analysis of Single Degree of Freedom System for Earthquake Loads
- Lecture 16 - Earthquake Response Analysis for Single Degree of Freedom Structures
- Lecture 17 - Generalized Single Degree of Freedom Systems Equations of Motions
- Lecture 18 - Generalized Single Degree of Freedom Systems Equations of Motions
- Lecture 19 - Generalized Single Degree of Freedom Systems Equations of Motions
- Lecture 20 - Generalized Single Degree of Freedom Systems Equations of Motion & Free Vibrations
- Lecture 21 - Equations of Motion for Multi Degree of Freedom Structures
- Lecture 22 - Equations of Motion for Multi Degree of Freedom Systems
- Lecture 23 - Multi Degree of Freedom Structure Equations of Motions
- Lecture 24 - Multi Degree of Freedom Structure Equations of Motions & Free Vibration
- Lecture 25 - Free Vibration for Multi Degree of Freedom Structures
- Lecture 26 - Free Vibration for Multi Degree of Freedom Structures
- Lecture 27 - Practical Free Vibration Analysis
- Lecture 28 - Dynamic Response of Multi Degree of Freedom Systems
- Lecture 29 - Dynamic Response of Multi Degree of Freedom Structures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Damping for Multi Degree of Freedom Structures
- Lecture 31 - Earthquake Response of Multi Degree of Freedom Structures
- Lecture 32 - Earthquake Response of Multi Degree of Freedom Structures
- Lecture 33 - Dynamic Analysis of Buildings
- Lecture 34 - Introduction to Dynamics of Continuous Systems
- Lecture 35 - Free Vibration Response of Continuous Systems
- Lecture 36 - Free Vibration & Dynamic Response of Continuous Systems
- Lecture 37 - Dynamic Response of Continuous Systems
- Lecture 38 - Examples for Dynamic Response of Continuous Systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Watershed Management

Subject Co-ordinator - Dr. T.I. Eldho

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Watershed Management
- Lecture 2 - Watershed Management & Stakeholder Analysis
- Lecture 3 - Watershed Management Policies
- Lecture 4 - Sustainable Watershed Management
- Lecture 5 - Agricultural Practices & Watershed Management
- Lecture 6 - Soil Erosion & Conservation
- Lecture 7 - Watershed Management in Arid Regions & Strategic Planning
- Lecture 8 - Integrated Water Resources Management
- Lecture 9 - Conjunctive Use of Water Resources
- Lecture 10 - Rainwater Harvesting System
- Lecture 11 - Rainwater Harvesting & Roof Catchment System
- Lecture 12 - Watershed Characteristics
- Lecture 13 - Watershed Delineation & Modeling
- Lecture 14 - Hydrologic Processes
- Lecture 15 - Watershed Modeling
- Lecture 16 - Hydrologic Modeling
- Lecture 17 - Numerical Watershed Modeling
- Lecture 18 - Subsurface & Groundwater Flows
- Lecture 19 - Social & Community Aspects of Watershed Management
- Lecture 20 - Socio-economy, Private Sector Participation & Gender Issues
- Lecture 21 - Integrated Development, Water Legislation & Implementation Issues
- Lecture 22 - GIS & Applications in Watershed Management
- Lecture 23 - Remote Sensing & Applications in Watershed Management
- Lecture 24 - Decision Support Systems & Applications in Watershed Management
- Lecture 25 - Integrated Watershed Modeling Using Numerical Methods, GIS & Remote Sensing
- Lecture 26 - Applications of Knowledge Based Models in Watershed Management
- Lecture 27 - Surface Water Quality & Pollution Issues
- Lecture 28 - Groundwater Pollution Problems & Transport Processes
- Lecture 29 - Water Quality Modeling

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Environmental Guidelines for Water Quality Management
- Lecture 31 - Storm Water Management
- Lecture 32 - Urban Drainage System
- Lecture 33 - Flood Routing
- Lecture 34 - Flood Control & Management
- Lecture 35 - Drought Assessment
- Lecture 36 - Drought Analysis
- Lecture 37 - Drought Mitigation
- Lecture 38 - Water Conservation
- Lecture 39 - Water Recycling
- Lecture 40 - Water Reclamation & Reuse

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Fluid Mechanics

Subject Co-ordinator - Dr. T.I. Eldho

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Fluid Mechanics  
Lecture 2 - Fundamental Concepts of Fluid Flow & Fluid Statics  
Lecture 3 - Fluid Statics  
Lecture 4 - Fluid Statics  
Lecture 5 - Fluid Statics  
Lecture 6 - Kinematics of Fluid Flow  
Lecture 7 - Kinematics of Fluid Flow  
Lecture 8 - Kinematics of Fluid Flow  
Lecture 9 - Kinematics of Fluid Flow  
Lecture 10 - Kinematics of Fluid Flow  
Lecture 11 - Kinematics & Dynamics of Fluid Flow  
Lecture 12 - Dynamics of Fluid Flow  
Lecture 13 - Dynamics of Fluid Flow  
Lecture 14 - Dynamics of Fluid Flow  
Lecture 15 - Dynamics of Fluid Flow  
Lecture 16 - Dynamics of Fluid Flow  
Lecture 17 - Laminar and Turbulent Flows  
Lecture 18 - Laminar and Turbulent Flows  
Lecture 19 - Laminar and Turbulent Flows  
Lecture 20 - Laminar and Turbulent Flows  
Lecture 21 - Laminar and Turbulent Flows  
Lecture 22 - Laminar and Turbulent Flows  
Lecture 23 - Dimensional Analysis  
Lecture 24 - Dimensional Analysis  
Lecture 25 - Dimensional Analysis  
Lecture 26 - Navier-Stocks Equations and Applications  
Lecture 27 - Navier-Stocks Equations and Applications  
Lecture 28 - Navier-Stocks Equations and Applications  
Lecture 29 - Navier-Stocks Equations and Applications

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Boundary Layer Theory and Applications
- Lecture 31 - Boundary Layer Theory and Applications
- Lecture 32 - Boundary Layer Theory and Applications
- Lecture 33 - Boundary Layer Theory and Applications
- Lecture 34 - Boundary Layer Theory and Applications
- Lecture 35 - Boundary Layer Theory and Applications
- Lecture 36 - Pipe Flow Systems
- Lecture 37 - Pipe Flow Systems
- Lecture 38 - Pipe Flow Systems
- Lecture 39 - Pipe Flow Systems
- Lecture 40 - Pipe Flow Systems
- Lecture 41 - Pipe Flow Systems
- Lecture 42 - Pipe Flow Systems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Soil Mechanics

Subject Co-ordinator - Dr. B.V.S. Viswanadham

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Soil Mechanics  
Lecture 2 - Soil Mechanics  
Lecture 3 - Soil Mechanics  
Lecture 4 - Soil Mechanics  
Lecture 5 - Soil Mechanics  
Lecture 6 - Soil Mechanics  
Lecture 7 - Soil Mechanics  
Lecture 8 - Soil Mechanics  
Lecture 9 - Soil Mechanics  
Lecture 10 - Soil Mechanics  
Lecture 11 - Compaction of Soils - I  
Lecture 12 - Soil Mechanics  
Lecture 13 - Soil Mechanics  
Lecture 14 - Compaction of Soils - IV  
Lecture 15 - Compaction of Soils - V  
Lecture 16 - Compaction of Soils - VI  
Lecture 17 - Effective Stress - I  
Lecture 18 - Effective Stress - II  
Lecture 19 - Effective Stress - III  
Lecture 20 - Flow of water through soils - I  
Lecture 21 - Flow of water through soils - II  
Lecture 22 - Flow of water through soils - III  
Lecture 23 - Flow of water through soils - IV  
Lecture 24 - Flow of water through soils - V  
Lecture 25 - Flow of water through soils - VI  
Lecture 26 - Flow of water through soils - VII  
Lecture 27 - Flow of water through soils - VIII  
Lecture 28 - Soil Mechanics  
Lecture 29 - Soil Mechanics

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Lecture 30 - Soil Mechanics  
Lecture 31 - Soil Mechanics  
Lecture 32 - Soil Mechanics  
Lecture 33 - Soil Mechanics  
Lecture 34 - Soil Mechanics  
Lecture 35 - Soil Mechanics  
Lecture 36 - Soil Mechanics  
Lecture 37 - Soil Mechanics  
Lecture 38 - Soil Mechanics  
Lecture 39 - Soil Mechanics  
Lecture 40 - Soil Mechanics  
Lecture 41 - Soil Mechanics  
Lecture 42 - Soil Mechanics  
Lecture 43 - Soil Mechanics  
Lecture 44 - Soil Mechanics  
Lecture 45 - Soil Mechanics  
Lecture 46 - Soil Mechanics  
Lecture 47 - Soil Mechanics  
Lecture 48 - Soil Mechanics  
Lecture 49 - Soil Mechanics  
Lecture 50 - Soil Mechanics  
Lecture 51 - Soil Mechanics  
Lecture 52 - Soil Mechanics  
Lecture 53 - Soil Mechanics  
Lecture 54 - Soil Mechanics  
Lecture 55 - Soil Mechanics  
Lecture 56 - Soil Mechanics  
Lecture 57 - Soil Mechanics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Structural Analysis II

Subject Co-ordinator - Dr. P. Banerji

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Geotechnical Earthquake Engineering

Subject Co-ordinator - Dr. Deepankar Choudhury

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Geotechnical Earthquake Engineering - Part I
- Lecture 2 - Introduction to Geotechnical Earthquake Engineering - Part II
- Lecture 3 - Basics of Vibration Theory
- Lecture 4 - Engineering Seismology - Part - I
- Lecture 5 - Engineering Seismology - Part - II
- Lecture 6 - Engineering Seismology - Part - III
- Lecture 7 - Engineering Seismology - Part - IV
- Lecture 8 - Engineering Seismology - Part - V
- Lecture 9 - Engineering Seismology - Part - VI
- Lecture 10 - Strong Ground Motion - Part I
- Lecture 11 - Strong Ground Motion - Part II
- Lecture 12 - Strong Ground Motion - Part III
- Lecture 13 - Strong Ground Motion - Part IV
- Lecture 14 - Strong Ground Motion - Part V
- Lecture 15 - Strong Ground Motion - Part VI
- Lecture 16 - Strong Ground Motion - Part VII
- Lecture 17 - Wave Propagation - Part I
- Lecture 18 - Wave Propagation - Part II
- Lecture 19 - Wave Propagation - Part III
- Lecture 20 - Wave Propagation - Part IV
- Lecture 21 - Dynamic Soil Properties - Part I
- Lecture 22 - Dynamic Soil Properties - Part II
- Lecture 23 - Seismic Hazard Analysis - Part I
- Lecture 24 - Seismic Hazard Analysis - Part II
- Lecture 25 - Seismic Hazard Analysis - Part III
- Lecture 26 - Seismic Hazard Analysis - Part IV
- Lecture 27 - Seismic Hazard Analysis - Part V
- Lecture 28 - Seismic Hazard Analysis - Part VI
- Lecture 29 - Seismic Hazard Analysis - Part VII

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Seismic Hazard Analysis - Part VIII
- Lecture 31 - Site Response Analysis - Part I
- Lecture 32 - Site Response Analysis - Part II
- Lecture 33 - Site Response Analysis - Part III
- Lecture 34 - Seismic Analysis and Design of Various Geotechnical Structures - Part I
- Lecture 35 - Seismic Analysis and Design of Various Geotechnical Structures - Part II
- Lecture 36 - Seismic Analysis and Design of Various Geotechnical Structures - Part III
- Lecture 37 - Seismic Analysis and Design of Various Geotechnical Structures - Part IV
- Lecture 38 - Seismic Analysis and Design of Various Geotechnical Structures - Part V
- Lecture 39 - Seismic Analysis and Design of Various Geotechnical Structures - Part VI
- Lecture 40 - Seismic Analysis and Design of Various Geotechnical Structures - Part VII
- Lecture 41 - Seismic Analysis and Design of Various Geotechnical Structures - Part VIII
- Lecture 42 - Quiz
- Lecture 43 - Seismic Analysis and Design of Various Geotechnical Structures - Part IX

## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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NPTTEL Video Course - Civil Engineering - Geosynthetics Engineering: In Theory and Practice

Subject Co-ordinator - Prof. J.N. Mandal

Co-ordinating Institute - IIT - Bombay

- Lecture 1 - Introduction
- Lecture 2 - Introduction to Reinforced Earth
- Lecture 3 - Introduction to Reinforced Earth
- Lecture 4 - Introduction to Reinforced Earth
- Lecture 5 - Introduction to Reinforced Earth
- Lecture 6 - An Overview of Geosynthetics - Part I
- Lecture 7 - An Overview of Geosynthetics - Part II
- Lecture 8 - An Overview of Geosynthetics - Part III
- Lecture 9 - An Overview of Gosynthetics
- Lecture 10 - Geosynthetic Properties and Test Methods
- Lecture 11 - Geosynthetic Properties and Test Methods
- Lecture 12 - Geosynthetic Properties and Test Methods
- Lecture 13 - Geosynthetic Properties and Test Methods
- Lecture 14 - Geosynthetic Properties and Test Methods
- Lecture 15 - Geosynthetic in Filtration, Drainage and Erosion Control
- Lecture 16 - Geosynthetic in Filtration, Drainage and Erosion Control
- Lecture 17 - Geosynthetic in Filtration, Drainage and Erosion Control
- Lecture 18 - Geosynthetic in Filtration, Drainage and Erosion Control
- Lecture 19 - Geosynthetic in Filtration, Drainage and Erosion Control
- Lecture 20 - Geosynthetic in pavements
- Lecture 21 - Geosynthetic in pavements
- Lecture 22 - Geosynthetic in pavements
- Lecture 23 - Geosynthetic in pavements
- Lecture 24 - Geosynthetic in pavements
- Lecture 25 - Geosynthetic in pavements
- Lecture 26 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 27 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 28 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 29 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 30 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 31 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 32 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 33 - Geosynthetics for Reinforced Soil Retaining Walls

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 34 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 35 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 36 - Geosynthetic for Steep Slopes
- Lecture 37 - Geosynthetic for Steep Slopes
- Lecture 38 - Geosynthetic for Steep Slopes
- Lecture 39 - Geosynthetic for Steep Slopes
- Lecture 40 - Geosynthetic for Embankments on Soft Foundations
- Lecture 41 - Geosynthetic for Embankments on Soft Foundations
- Lecture 42 - Geosynthetic for Embankments on Soft Foundations
- Lecture 43 - Geosynthetic for Ground Improvement
- Lecture 44 - Geosynthetic for Ground Improvement
- Lecture 45 - Geosynthetic for Ground Improvement
- Lecture 46 - Geosynthetic for Ground Improvement
- Lecture 47 - Geosynthetic for Ground Improvement
- Lecture 48 - Geosynthetic for Ground Improvement
- Lecture 49 - Geosynthetic for Ground Improvement
- Lecture 50 - Geosynthetic for Improvement in Bearing Capacity
- Lecture 51 - Designing with Geotextile Tube
- Lecture 52 - Designing with Geotextile Tube
- Lecture 53 - Design of Geosynthetic for Landfills
- Lecture 54 - Design of Geosynthetic for Landfills
- Lecture 55 - Design of Geosynthetic for Landfill
- Lecture 56 - Design of Geosynthetic for Landfill
- Lecture 57 - Design of Geosynthetic for Landfill
- Lecture 58 - Designing With Geofoam
- Lecture 59 - Designing With Geofoam
- Lecture 60 - Designing With Geofoam
- Lecture 61 - Designing With Geofoam
- Lecture 62 - Designing With Geofoam
- Lecture 63 - Designing With Geofoam

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geotechnical Engineering Laboratory

Subject Co-ordinator - Prof. J. N. Mandal

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Soil Processing  
Lecture 2 - Specific Gravity and Field Density  
Lecture 3 - Field Density  
Lecture 4 - Grain Size Analysis  
Lecture 5 - Grain Size Analysis (Continued...)  
Lecture 6 - Grain Size Analysis (Continued...)  
Lecture 7 - Atterberg Limit  
Lecture 8 - Compaction  
Lecture 9 - Compaction (Continued...)  
Lecture 10 - Compaction (Continued...)  
Lecture 11 - Compaction and Permeability  
Lecture 12 - Permeability  
Lecture 13 - Permeability and Shear Strength  
Lecture 14 - Shear Strength  
Lecture 15 - Shear Strength (Continued...)  
Lecture 16 - Shear Strength (Continued...)  
Lecture 17 - Shear Strength (Continued...)  
Lecture 18 - Shear Strength (Continued...)  
Lecture 19 - Shear Strength (Continued...)  
Lecture 20 - Consolidation  
Lecture 21 - Consolidation (Continued...)  
Lecture 22 - Consolidation (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geosynthetics Testing Laboratory

Subject Co-ordinator - Prof. J. N. Mandal

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Types of Geosynthetics

Lecture 3 - Functions

Lecture 4 - Tests for Physical Properties and tensile strength of geosynthetics

Lecture 5 - Tensile Modulus

Lecture 6 - Drop Cone Test

Lecture 7 - Puncture Resistance Test

Lecture 8 - Puncture Resistance Test and Burst Strength Test

Lecture 9 - Grab Tensile Test

Lecture 10 - Grab Tensile Test and Triaxial Test

Lecture 11 - Triaxial and Pullout Test

Lecture 12 - Pullout Test

Lecture 13 - Sewn Seam Strength, Permittivity and Transmissivity

Lecture 14 - Hydraulic Properties and abrasion Test of geosynthetics

Lecture 15 - Endurance properties of Geosynthetics

Lecture 16 - Density, Water Absorption and Compressive Properties tests of Geofoam

Lecture 17 - Compressive Properties of Geofoam

Lecture 18 - Compressive and Tensile Properties of Geofoam

Lecture 19 - Tensile and Shear Properties of Geofoam

Lecture 20 - Shear and Flexural Properties of Geofoam

Lecture 21 - Flexural Properties and Flammability Test of Geofoam

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Concrete Technology

Subject Co-ordinator - Dr. B. Bhattacharjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Production and Composition  
Lecture 2 - Structure and Hydration  
Lecture 3 - Structure and Hydration  
Lecture 4 - Properties and Tests  
Lecture 5 - Types and Use  
Lecture 6 - Aggregates (Size, Shape)  
Lecture 7 - Packing, FM, SM  
Lecture 8 - Properties  
Lecture 9 - Chemical Admixtures  
Lecture 10 - Chemical Admixtures  
Lecture 11 - Mineral Admixtures  
Lecture 12 - Mineral Admixtures  
Lecture 13 - Mineral Admixtures  
Lecture 14 - Mix Proportioning of Concrete  
Lecture 15 - Mix design of Concrete  
Lecture 16 - Mix Design of Concrete  
Lecture 17 - Mix Design of concrete  
Lecture 18 - Mix Design of concrete  
Lecture 19 - Batching and Mixing of concrete  
Lecture 20 - RMC and Transporting Concrete  
Lecture 21 - Workability and Pumping of Concrete  
Lecture 22 - Compaction and Curing Concrete  
Lecture 23 - Strength of Concrete  
Lecture 24 - Strength of Concrete  
Lecture 25 - Strength of Concrete  
Lecture 26 - Mechanical Properties of Concrete  
Lecture 27 - Creep of Concrete  
Lecture 28 - Creep and Shrinkage of Concrete  
Lecture 29 - Shrinkage of Concrete

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Shrinkage of Concrete
- Lecture 31 - Fundamental Concepts, Degradation Process, Attacks
- Lecture 32 - Frost Action and Rebar Corrosion
- Lecture 33 - Carbonation and Chloride Affect
- Lecture 34 - Rebar Corrosion
- Lecture 35 - Rebar Corrosion and General Strategy
- Lecture 36 - High Strength Concrete
- Lecture 37 - High Strength Matrics and SCC
- Lecture 38 - Self Compacting Concrete
- Lecture 39 - Fiber Concrete
- Lecture 40 - Fiber and Roller Compacted Concrete
- Lecture 41 - Special Concrete and Sustainability

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Seismic Analysis of Structures

Subject Co-ordinator - Dr. T.K. Datta, Dr. Ashok Gupta

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Seismology
- Lecture 2 - Seismology (Continued...)
- Lecture 3 - Seismology (Continued...)
- Lecture 4 - Seismology (Continued...)
- Lecture 5 - Seismic Inputs
- Lecture 6 - Seismic Inputs (Continued...)
- Lecture 7 - Seismic Inputs (Continued...)
- Lecture 8 - Seismic Inputs (Continued...)
- Lecture 9 - Response Analysis for Specified Ground Motion
- Lecture 10 - Response Analysis for Specified Ground Motion (Continued...)
- Lecture 11 - Response Analysis for Specified Ground Motion (Continued...)
- Lecture 12 - Response Analysis for Specified Ground Motion (Continued...)
- Lecture 13 - Response Analysis for Specified Ground Motion (Continued...)
- Lecture 14 - Response Analysis for Specified Ground Motion (Continued...)
- Lecture 15 - Frequency Domain Spectral Analysis
- Lecture 16 - Frequency Domain Spectral Analysis.
- Lecture 17 - Frequency Domain Spectral Analysis (Continued...)
- Lecture 18 - Frequency Domain Spectral Analysis (Continued...)
- Lecture 19 - Frequency Domain Spectral Analysis (Continued...)
- Lecture 20 - Response Spectrum Method of Analysis
- Lecture 21 - Response Spectrum Method of Analysis.
- Lecture 22 - Response Spectrum Method of Analysis (Continued...)
- Lecture 23 - Response Spectrum Method of Analysis (Continued...)
- Lecture 24 - Response Spectrum Method of Analysis (Continued...)
- Lecture 25 - Inelastic Seismic Response of Structures
- Lecture 26 - Inelastic Seismic Response of Structures (Continued...)
- Lecture 27 - Inelastic Seismic Response of Structures (Continued...)
- Lecture 28 - Inelastic Seismic Response of Structures (Continued...)
- Lecture 29 - Inelastic Seismic Response of Structures (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Inelastic Seismic Response of Structures (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Building materials and Construction

Subject Co-ordinator - Dr. B. Bhattacharjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Functions Of Buildings  
Lecture 2 - Role Of Material In Construction  
Lecture 3 - Concrete  
Lecture 4 - Concrete Production (Continued...)  
Lecture 5 - Concrete Production (Continued...)  
Lecture 6 - Concrete  
Lecture 7 - Concrete  
Lecture 8 - Cement  
Lecture 9 - Cement and Cementitious Material  
Lecture 10 - Fresh Concrete  
Lecture 11 - Fresh Concrete  
Lecture 12 - Fresh Concrete  
Lecture 13 - Fresh Concrete  
Lecture 14 - Strength of Concrete - I  
Lecture 15 - Strength of Concrete - II  
Lecture 16 - Strength of Concrete - III  
Lecture 17 - Mechanical Properties of Concrete - I  
Lecture 18 - Mechanical Properties of Concrete - II  
Lecture 19 - Strength of Concrete  
Lecture 20 - Durability of Concrete - I  
Lecture 21 - Durability of Concrete - II  
Lecture 22 - Durability of Concrete - III  
Lecture 23 - Cement Aggregate and Water Selection  
Lecture 24 - Mix Design of Concrete  
Lecture 25 - Mix Design Of concrete IS Method  
Lecture 26 - Mix Design Of Concrete  
Lecture 27 - Masonry  
Lecture 28 - Masonry  
Lecture 29 - Masonry

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- Lecture 30 - Masonry
- Lecture 31 - Walls
- Lecture 32 - Walls
- Lecture 33 - Metals Fundamentals
- Lecture 34 - Metals and Iron Systems
- Lecture 35 - Steel
- Lecture 36 - Steel
- Lecture 37 - Polymer in Construction
- Lecture 38 - Polymer in Construction
- Lecture 39 - Glass and Timber
- Lecture 40 - Glass and Timber
- Lecture 41 - Roof and Floor Construction

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Water Management

Subject Co-ordinator - Dr. A.K. Gosain

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Irrigation Water Management
- Lecture 2 - Soil - Water - Plant Relationships
- Lecture 3 - Soil - Water - Plant Relationships (Continued...)
- Lecture 4 - Soil - Water - Plant Relationships (Continued...)
- Lecture 5 - Soil - Water - Plant Relationships (Continued...)
- Lecture 6 - Soil - Water - Plant Relationships (Continued...) and Infiltration
- Lecture 7 - Crop Water Requirements
- Lecture 8 - Crop Water Requirements (Continued...)
- Lecture 9 - Crop Water Requirements (Continued...)
- Lecture 10 - Crop Water Requirements (Continued...)
- Lecture 11 - Crop Water Requirements (Continued...)
- Lecture 12 - Crop Water Requirements (Continued...)
- Lecture 13 - Crop Water Requirements (continued...)
- Lecture 14 - Irrigation Efficiencies - Part I
- Lecture 15 - Irrigation Efficiencies - Part II and Irrigation Methods and their Suitability
- Lecture 16 - Irrigation Methods - III
- Lecture 17 - Irrigation Methods - IV
- Lecture 18 - Irrigation Methods - V
- Lecture 19 - Irrigation Methods - VI
- Lecture 20 - Irrigation Methods and their Suitability
- Lecture 21 - Border Irrigation System - I
- Lecture 22 - Border Irrigation System - II
- Lecture 23 - Border Irrigation System - III
- Lecture 24 - Border Irrigation System - IV
- Lecture 25 - Furrow Irrigation System - I
- Lecture 26 - Furrow Irrigation System - II
- Lecture 27 - Furrow Irrigation System - III
- Lecture 28 - Furrow Irrigation System - IV
- Lecture 29 - Sprinkler Irrigation System - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sprinkler Irrigation System - II
- Lecture 31 - Sprinkler Irrigation System - III
- Lecture 32 - Sprinkler Irrigation System - IV
- Lecture 33 - Sprinkler Irrigation System - V
- Lecture 34 - Sprinkler Irrigation System - VI
- Lecture 35 - Sprinkler Irrigation System - VII
- Lecture 36 - Sprinkler Irrigation System - VIII
- Lecture 37 - Drip Irrigation System - I
- Lecture 38 - Drip Irrigation System - II
- Lecture 39 - Drip Irrigation System - III
- Lecture 40 - Drip Irrigation System - IV

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geoenvironmental Engineering (Environmental Geotechnology) Landfills

Subject Co-ordinator - Prof. Manoj Datta

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Geoenvironmental Engineering
- Lecture 2 - Sources and Impact of Contamination
- Lecture 3 - Waste-Soil Interaction
- Lecture 4 - Solid Waste Generation and Disposal
- Lecture 5 - Waste Minimization by Integrated Solid Waste Management (ISWM)
- Lecture 6 - Integrated Solid Waste Management (ISWM) - Case Studies
- Lecture 7 - Principles of Landfilling
- Lecture 8 - Planning of Landfills - Part 1
- Lecture 9 - Planning of Landfills - Part 2
- Lecture 10 - Liners for Landfills - Part 1
- Lecture 11 - Liners for Landfills - Part 2
- Lecture 12 - Liners for Landfills - Part 3
- Lecture 13 - Liners for Landfills - Part 4
- Lecture 14 - Covers for Landfills - Part 1
- Lecture 15 - Covers for Landfills - Part 2
- Lecture 16 - Generation and Control of Leachate
- Lecture 17 - Generation and Control of Landfill Gas
- Lecture 18 - Stability of Slopes - Part 1
- Lecture 19 - Stability of Slopes - Part 2
- Lecture 20 - Stability of Slopes - Part 3
- Lecture 21 - (Missing)
- Lecture 22 - Some Solved Examples
- Lecture 23 - Subsurface Monitoring Around Landfills - Part 1
- Lecture 24 - Subsurface Monitoring Around Landfills - Part 2
- Lecture 25 - Cost of Geotechnical Components of Landfills
- Lecture 26 - Construction and Operation of Landfills
- Lecture 27 - Site Selection for Landfills
- Lecture 28 - Closure, Rehabilitation and Expansion of MSW Landfills
- Lecture 29 - Control and Remedial Measures at Contaminated Sites - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Control and Remedial Measures at Contaminated Sites - Part 2
- Lecture 31 - Slurry Disposal on Land
- Lecture 32 - Disposal of Slurry Waste in Ponds and Impoundments and Dry Waste in Mounds
- Lecture 33 - Geotechnical Properties of Coal Ash and Mine Tailings - Part 1
- Lecture 34 - Geotechnical Properties of Coal Ash and Mine Tailings - Part 2
- Lecture 35 - Planning and Design of Slurry Ponds
- Lecture 36 - Stability of Incrementally Raised Embankments - Part 1
- Lecture 37 - Stability of Incrementally Raised Embankments - Part 2
- Lecture 38 - Remedial Measures for Slope Failures in Embankments / Dykes of Slurry Ponds
- Lecture 39 - Environmental Control at Slurry Ponds
- Lecture 40 - Geotechnical Reuse of Waste Materials - Part 1
- Lecture 41 - Geotechnical Reuse of Waste Materials - Part 2
- Lecture 42 - End-of-the-Course Review

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Energy Efficiency, Acoustics and Daylighting in Building

Subject Co-ordinator - Dr. B. Bhattacharjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Environmental Factors - 1  
Lecture 2 - Introduction to Environmental Factors - 2  
Lecture 3 - Introduction to Environmental Factors - 3  
Lecture 4 - Introduction to Environmental Factors - 4  
Lecture 5 - Introduction to Environmental Factors - 5  
Lecture 6 - Introduction to Environmental Factors - 6  
Lecture 7 - Introduction to Environmental Factors - 7  
Lecture 8 - Comfort and Heat Transfer Concepts  
Lecture 9 - Heat Flow in Buildings - 1  
Lecture 10 - Heat Flow in buildings - 2  
Lecture 11 - Heat Flow in buildings - 3  
Lecture 12 - Admittance Method - 1  
Lecture 13 - Admittance Method - 2  
Lecture 14 - Heat Flow in buildings - 1 (Frequency Domain)  
Lecture 15 - Heat Flow in buildings - 2 (Frequency Domain)  
Lecture 16 - Heat Flow in buildings - 2 (Frequency Domain)  
Lecture 17 - Heat flow in buildings  
Lecture 18 - Admittance Method  
Lecture 19 - Comfort - 1  
Lecture 20 - Comfort - 2  
Lecture 21 - Comfort and Thermal Design of Buildings - 1  
Lecture 22 - Comfort and Thermal Design of Buildings - 2  
Lecture 23 - Comfort and Thermal Design of Buildings - 3  
Lecture 24 - Thermal Design of Unconditioned Building  
Lecture 25 - External Shading Multipliers for external suns shading  
Lecture 26 - Passive Concepts  
Lecture 27 - Design for Thermal Efficiency  
Lecture 28 - Ventilation - 1  
Lecture 29 - Ventilation - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Natural ventilation design
- Lecture 31 - Noise and Acoustic Fundamentals - 1
- Lecture 32 - Noise and Acoustic Fundamentals - 2
- Lecture 33 - Noise and Acoustic Fundamentals - 3
- Lecture 34 - Noise and Acoustic Fundamentals, Noise Outdoors
- Lecture 35 - Noise outdoors
- Lecture 36 - Sound within enclosure - 1
- Lecture 37 - Sound within enclosure - 2
- Lecture 38 - Sound within enclosure - 3
- Lecture 39 - Sound within enclosure - 4
- Lecture 40 - Sound within enclosure - 5
- Lecture 41 - Sound within enclosure - 6
- Lecture 42 - Sound within enclosure, isolation
- Lecture 43 - Isolation - 1
- Lecture 44 - Isolation - 2
- Lecture 45 - Auditorium - 1
- Lecture 46 - Auditorium - 2
- Lecture 47 - Daylighting - 1
- Lecture 48 - Daylighting - 2
- Lecture 49 - Daylighting - 3
- Lecture 50 - Daylighting - 4
- Lecture 51 - Daylighting - 5
- Lecture 52 - Daylighting - 6
- Lecture 53 - Artificial Lighting
- Lecture 54 - Design Sky models
- Lecture 55 - Live Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Fire Protection, Services and Maintenance Management of Building

Subject Co-ordinator - Dr. B. Bhattacharjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic concepts of Fire Protection - I  
Lecture 2 - Basic concepts of Fire Protection - II  
Lecture 3 - Fire Resistance  
Lecture 4 - Introduction Process of Combustion  
Lecture 5 - ventilation and fuel Process of Combustion controlled fire  
Lecture 6 - Process of Combustion  
Lecture 7 - Effect of Fire on Construction Materials  
Lecture 8 - Design for Fire Resistance  
Lecture 9 - Design for Fire Resistance  
Lecture 10 - Design for Fire Resistance  
Lecture 11 - Fire Safety  
Lecture 12 - Fire Safety  
Lecture 13 - Fire safety  
Lecture 14 - Fire Safety  
Lecture 15 - Introduction to Lift Design  
Lecture 16 - Design of Lift systems  
Lecture 17 - Design of Lift systems  
Lecture 18 - Design of Lift systems  
Lecture 19 - Design of Lift systems  
Lecture 20 - Introduction to System and Flow Systems  
Lecture 21 - Water Supply System  
Lecture 22 - Water Supply System  
Lecture 23 - Diversity factor (Continued...)  
Lecture 24 - Control Systems  
Lecture 25 - Introduction to HVAC  
Lecture 26 - Governing Equations for HVAC Process  
Lecture 27 - Numerical Problem on HVAC System  
Lecture 28 - Numerical Problem on HVAC System (Continued...)  
Lecture 29 - Psychrometric Chart

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Flow in Pipe Networks and Fixture Units
- Lecture 31 - Flow in Pipe Networks (Continued...) and Design of Water Supply Distribution System
- Lecture 32 - Design of Water Supply Distribution System (Continued...) and Flow in Waste Water pipes
- Lecture 33 - Electrical Systems (introduction)
- Lecture 34 - Design of Electrical Systems
- Lecture 35 - Intelligent Building
- Lecture 36 - Life cycle cost and basics of building maintenance
- Lecture 37 - Stages of maintenance management
- Lecture 38 - Planning for building maintenance
- Lecture 39 - Periodicity of maintenance management
- Lecture 40 - Estimation of repair cycle
- Lecture 41 - Cost profile of maintenance
- Lecture 42 - Lamp replacement
- Lecture 43 - Building inspection, Planned and Ad-hoc maintenance
- Lecture 44 - Condition survey and health evaluation of buildings
- Lecture 45 - Diagnosis of building by visual survey
- Lecture 46 - Case studies of visual survey
- Lecture 47 - Effect of corrosion and Alkali Aggregate Reaction
- Lecture 48 - Sampling and choice of test location
- Lecture 49 - Non Destructive Testing - 1
- Lecture 50 - Non Destructive Testing - 2
- Lecture 51 - Core strength test
- Lecture 52 - Carbonation and Chloride measurement
- Lecture 53 - Electrical methods of progress measurement
- Lecture 54 - Repair, Rehabilitation and Retrofit
- Lecture 55 - Periodicity and economics of condition survey
- Lecture 56 - Interpretation of test results

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Advanced Hydraulics

Subject Co-ordinator - Dr. Suresh A Kartha

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - advanced hydraulics & course structure
- Lecture 2 - Various classifications of open channel flows
- Lecture 3 - Flow classifications & velocity distribution
- Lecture 4 - Pressure distribution
- Lecture 5 - Equation of continuity & energy
- Lecture 6 - Specific energy & critical flow
- Lecture 7 - Energy, momentum & specific force
- Lecture 8 - Computation of critical flow - Part 1
- Lecture 9 - Critical flow computations
- Lecture 10 - Introduction to uniform flow
- Lecture 11 - Manning's equation and normal depth
- Lecture 12 - Uniform Flow Computations - Part 1
- Lecture 13 - Uniform flow in compound sections, concept of normal slope
- Lecture 14 - Uniform flow approximation for flood discharge
- Lecture 15 - Design of channels for uniform flow
- Lecture 16 - Design of channels using uniform flow
- Lecture 17 - Design of erodible channels
- Lecture 18 - Introduction to gradually varied flows
- Lecture 19 - Gradually varied flow equations
- Lecture 20 - Classification of gradually varied flow - Part 1
- Lecture 21 - Classification of gradually varied flow - Part 2
- Lecture 22 - Gradually varied flow profiles with change in bed slopes
- Lecture 23 - GVF profile properties and transitional depths
- Lecture 24 - Gradually varied flow computations - Part 1
- Lecture 25 - Gradually varied flow computations RK method - Part 2
- Lecture 26 - Standard step method for gradually varied flow computations
- Lecture 27 - Spatially varied flow
- Lecture 28 - Features on spatially varied flow
- Lecture 29 - Rapidly varied flow - introduction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Theoretical aspects of hydraulic jump
- Lecture 31 - Characteristics of jumps in rectangular channel
- Lecture 32 - Features of hydraulic jumps
- Lecture 33 - Jumps as energy dissipators
- Lecture 34 - Jump controls
- Lecture 35 - Surges - Part 1
- Lecture 36 - Surges - Part 2
- Lecture 37 - Channel transitions - Part 1
- Lecture 38 - Channel transitions - Part 2
- Lecture 39 - Channel transitions - Part 3
- Lecture 40 - Application of momentum principles
- Lecture 41 - Pumps - 1
- Lecture 42 - Turbines - Part 3 (pumps, turbines)
- Lecture 43 - Turbines, cavitation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Design of Steel Structures

Subject Co-ordinator - Prof. Damodar Maity

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Design of Steel Structures
- Lecture 2 - Connections
- Lecture 3 - Riveted Connections
- Lecture 4 - Design of Rivet Joint
- Lecture 5 - Welding
- Lecture 6 - Design of Fillet and Butt Welds
- Lecture 7 - Bolted Connection
- Lecture 8 - Eccentric Connections
- Lecture 9 - Design of Eccentric Connection With Load Lying in Plane of Joint Rivet Bolt
- Lecture 10 - Eccentric Connection With Load Perpendicular to Plane of Riveted Joint
- Lecture 11 - Analysis and Design of Join with Seat Connection
- Lecture 12 - Eccentric Connection
- Lecture 13 - Load Lying Perpendicular to the Plane of Weld Joint
- Lecture 14 - Tension Member
- Lecture 15 - Design of Tension Member
- Lecture 16 - Design of Tension Member
- Lecture 17 - Design of Tension Member
- Lecture 18 - Compression Member
- Lecture 19 - Design of Compression Member
- Lecture 20 - Design of Eccentrically Loaded tension Member
- Lecture 21 - Built up Compression Member
- Lecture 22 - Design of Built up Compression Member
- Lecture 23 - Lacing for Built Up Compression Member
- Lecture 24 - Design of Lacing System
- Lecture 25 - Design of Batten Plates
- Lecture 26 - Introduction to Flexural Members
- Lecture 27 - Design Procedure of Beam Members
- Lecture 28 - Design of Laterally Supported Beams
- Lecture 29 - Design of Laterally Unsupported Beams

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Built-Up Beams
- Lecture 31 - Built-Up Beams
- Lecture 32 - Design of a Built-Up Beams
- Lecture 33 - Design of Shear Connections and Purlins
- Lecture 34 - Gantry Girders
- Lecture 35 - Design of Gantry Girders
- Lecture 36 - Introduction to Plate Girders - Part 1
- Lecture 37 - Introduction to Plate Girders - Part 2
- Lecture 38 - Design of a Plate Girder
- Lecture 39 - Column Base - Part 1
- Lecture 40 - Column Base - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Hydraulics

Subject Co-ordinator - Prof. Arup Kumar Sharma

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Hydraulics
- Lecture 2 - Open Channel Hydraulics - Part 1
- Lecture 3 - Open Channel Hydraulics - Part 2
- Lecture 4 - Velocity and Pressure Distribution
- Lecture 5 - Practical use of velocity co-efficient in channel flow
- Lecture 6 - Conservation Principles & Governing Equations
- Lecture 7 - Uniform Flow
- Lecture 8 - Uniform Flow Formula
- Lecture 9 - Computation of Uniform Flow - Part 1
- Lecture 10 - Computation of Uniform Flow - Part 2
- Lecture 11 - Uniform Flow in Mobile Boundary Channel
- Lecture 12 - Incipient Motion Condition and Regime of Flow
- Lecture 13 - Concept of Specific Energy
- Lecture 14 - Computation of Critical Depth
- Lecture 15 - Specific Force, Critical Depth & Sequent Depth
- Lecture 16 - Non-uniform Flow
- Lecture 17 - Classification of Gradually Varied Flow
- Lecture 18 - Characteristic of Gradually Varied Flow
- Lecture 19 - Characteristic of Gradually Varied Flow & its Computation
- Lecture 20 - Gradually Varied Flow & its Computation
- Lecture 21 - Computation of Gradually Varied Flow
- Lecture 22 - Gradually Varied Flow
- Lecture 23 - Rapidly Varied Flow
- Lecture 24 - Hydraulic Jump
- Lecture 25 - Flow Over Hump and Channel Contraction
- Lecture 26 - Canal Design - 1
- Lecture 27 - Canal Design - 2
- Lecture 28 - Design of Alluvial Channel - 1
- Lecture 29 - Design of Alluvial Channel - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design of Alluvial Channel - 3
- Lecture 31 - Unsteady Flow
- Lecture 32 - Unsteady Flow Part - 2
- Lecture 33 - Unsteady Flow Part - 3
- Lecture 34 - Pipe Flow
- Lecture 35 - Pipe Flow
- Lecture 36 - Pipe in Series & Parallel
- Lecture 37 - Pipe Network Analysis
- Lecture 38 - Water Hammer & Surge Tank
- Lecture 39 - Pipe Flow Friction Loss
- Lecture 40 - Pipe Flow

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Higher Surveying

Subject Co-ordinator - Prof. Ajay Dashora

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Higher Surveying
- Lecture 2 - Understanding reference system, reference frame, and coordinate system for Earth
- Lecture 3 - Coordinate and datum transformations
- Lecture 4 - Projected coordinate system
- Lecture 5 - Fundamentals of astronomy
- Lecture 6 - Applications of concepts of astronomy
- Lecture 7 - Time
- Lecture 8 - Application of concepts of astronomy and time
- Lecture 9 - Fundamental concepts of error, accuracy, and error propagation
- Lecture 10 - Applications of error propagation
- Lecture 11 - Observation Equation Method of adjustments
- Lecture 12 - Condition Equation Method and Combined Method of adjustments
- Lecture 13 - Analysis of adjustments and reporting of errors
- Lecture 14 - Global Positioning System (GPS)
- Lecture 15 - Introduction to Photogrammetry
- Lecture 16 - Vertical photogrammetry
- Lecture 17 - Stereo photogrammetry
- Lecture 18 - Analytical photogrammetry - I
- Lecture 19 - Analytical photogrammetry - II
- Lecture 20 - Photogrammetric products
- Lecture 21 - Image matching
- Lecture 22 - Close range photogrammetry
- Lecture 23 - Fundamentals of LiDAR
- Lecture 24 - LiDAR data acquisition
- Lecture 25 - Geolocation and errors of LiDAR data
- Lecture 26 - Information extraction from LiDAR data
- Lecture 27 - RADAR fundamentals - I
- Lecture 28 - RADAR fundamentals - II
- Lecture 29 - RADAR fundamentals - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Radargrammetry
- Lecture 31 - Geoscience perspective for RADAR applications
- Lecture 32 - Fundamental concepts of hydrographic survey
- Lecture 33 - Field procedures for hydrographic Surveying
- Lecture 34 - Modern techniques for hydrographic Survey
- Lecture 35 - Navigation
- Lecture 36 - Conclusive lecture

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Unsaturated Soil Mechanics

Subject Co-ordinator - Dr. Tadikonda Venkata Bharat

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamental Aspects of Unsaturated Soil Mechanics and its Basic Principles
- Lecture 2 - Phases of Unsaturated Soils-I
- Lecture 3 - Phases of Unsaturated Soils-II
- Lecture 4 - Equilibrium between Air and Water Phases
- Lecture 5 - Capillary Phenomenon in Unsaturated Soils - I
- Lecture 6 - Capillary Phenomenon in Unsaturated Soils - II
- Lecture 7 - Summary
- Lecture 8 - Concept of Water Retention and Soil Water Characteristics - I
- Lecture 9 - Concept of Water Retention and Soil Water Characteristics - II
- Lecture 10 - Hydraulic conductivity functions and determination of state variables
- Lecture 11 - Suction Measurement/Control Techniques - I
- Lecture 12 - Suction Measurement/Control Techniques - II
- Lecture 13 - Summary
- Lecture 14 - HCF Determination
- Lecture 15 - SWCC and HCF Models
- Lecture 16 - HCF Modelling
- Lecture 17 - Fitting of SWCC and HCF modelling
- Lecture 18 - Pedo-transfer Functions (PTF)
- Lecture 19 - Steady-State Flow Through Soils
- Lecture 20 - Steady-State and Transient Flow
- Lecture 21 - Analytical Methods for Transient Flow - I
- Lecture 22 - Analytical Methods for Transient Flow - II
- Lecture 23 - Shear Strength of Unsaturated Soils
- Lecture 24 - Suction-Controlled Direct Shear Test
- Lecture 25 - Suction-Controlled Triaxial Test
- Lecture 26 - Extended M-C Criterion - I
- Lecture 27 - Extended M-C Criterion - II
- Lecture 28 - Extended M-C Criterion - III
- Lecture 29 - Concept of Suction Stress - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Concept of Suction Stress - II
- Lecture 31 - Concept of Suction Stress - III
- Lecture 32 - Summary
- Lecture 33 - Swelling Behaviour of Soils
- Lecture 34 - Estimation of Swelling Pressure in the Laboratory and Behaviour of Collapsible soil
- Lecture 35 - Volume Change Behaviour of Bentonite and Kaolin Clay
- Lecture 36 - Demonstration of Various Experiments Related to Unsaturated Soil Mechanics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Advanced Hydrology

Subject Co-ordinator - Dr. Ashu Jain

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Concrete Engineering and Technology

Subject Co-ordinator - Dr. Sudhir Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and course overview
- Lecture 2 - Constituents of concrete - Part 1 of 2
- Lecture 3 - Constituents of concrete - Part 2 of 2
- Lecture 4 - Admixtures in concrete â mineral and chemical
- Lecture 5 - Hydration of cement
- Lecture 6 - Basic properties of concrete
- Lecture 7 - Proportioning of concrete mixes - Part 1 of 3
- Lecture 8 - Proportioning of concrete mixes - Part 2 of 3
- Lecture 9 - Proportioning of concrete mixes - Part 3 of 3
- Lecture 10 - Pores and porosity in concrete
- Lecture 11 - Porosimetry â measuring pores in concrete
- Lecture 12 - Principles of quality control in concrete construction
- Lecture 13 - Quality control and acceptance criteria for concrete based on compressive strength
- Lecture 14 - Fibre reinforced concrete
- Lecture 15 - High strength concrete
- Lecture 16 - Mass concrete - Part 1 of 2
- Lecture 17 - Mass concrete - Part 2 of 2
- Lecture 18 - Concreting in cold weather
- Lecture 19 - Concreting in hot weather
- Lecture 20 - Roller compacted concrete
- Lecture 21 - Self-compacting concrete
- Lecture 22 - Testing self-compacting concrete
- Lecture 23 - Shotcrete and underwater concrete
- Lecture 24 - Alkali â aggregate reaction - Part 1 of 2
- Lecture 25 - Alkali â aggregate reaction - Part 2 of 2
- Lecture 26 - Reinforcement corrosion in concrete
- Lecture 27 - Chloride penetration in concrete
- Lecture 28 - Using epoxy-coated bars in concrete structures
- Lecture 29 - Using FRP as reinforcement in concrete structures - Part 1 of 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Using FRP as reinforcement in concrete structures - Part 2 of 2
- Lecture 31 - Grouting and importance of formwork in concrete construction
- Lecture 32 - Carbonation and freezing & thawing in concrete structures
- Lecture 33 - Using recycled aggregates in concrete construction
- Lecture 34 - Basic non-destructive testing for concrete structures
- Lecture 35 - Measuring permeability in concrete
- Lecture 36 - Some additional topics
- Lecture 37 - Considerations in repair of concrete structures - Part 1 of 2
- Lecture 38 - Considerations in repair of concrete structures - Part 2 of 2
- Lecture 39 - Laboratory demonstration
- Lecture 40 - Review of the course

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Environmental Air Pollution

Subject Co-ordinator - Prof. Mukesh Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Atmosphere
- Lecture 2 - Air Pollution Systems
- Lecture 3 - Air Quality Standards
- Lecture 4 - Types and Forms of Air Pollutants
- Lecture 5 - Measurement Units and Particulate classification
- Lecture 6 - Interpretation and Particle size Distribution
- Lecture 7 - Atmospheric formation of Air Pollutants - I
- Lecture 8 - Atmospheric formation of Air Pollutants - II
- Lecture 9 - Atmospheric formation of Air Pollutants - III
- Lecture 10 - Kinetics of Air pollution and combustion processes
- Lecture 11 - Internal Combustion Engine and Air Pollution - I
- Lecture 12 - Internal Combustion Engine and Air Pollution - II
- Lecture 13 - Air Pollution and Health - I
- Lecture 14 - Air Pollution and Health - II
- Lecture 15 - Emission Inventory
- Lecture 16 - Sources of Air Pollution
- Lecture 17 - Emission from Fugitive Sources and Sulfuric Acid Production
- Lecture 18 - Aluminium Production and Air Pollution - I
- Lecture 19 - Aluminium Production and Air Pollution - II
- Lecture 20 - Coke Production and Air Pollution
- Lecture 21 - Examples for Practice
- Lecture 22 - Meteorological Measurements and their interpretation
- Lecture 23 - Examples for Practice - Dispersion Modeling
- Lecture 24 - Vertical Temperature Profile of Atmosphere
- Lecture 25 - Stability, Mixing Height and Plume Behavior - I
- Lecture 26 - Stability, Mixing Height and Plume Behavior - II
- Lecture 27 - Examples - Solar Radiation Based Stability Calculation
- Lecture 28 - Air Quality Modeling - I
- Lecture 29 - Air Quality Modeling - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Derivation of Gaussian Model
- Lecture 31 - Gaussian Model - Useful Formulation
- Lecture 32 - Plume rise, Area and Line Source Model
- Lecture 33 - Air Quality Modeling - Maximum Ground Level concentration
- Lecture 34 - Examples of Air Quality Modeling
- Lecture 35 - Air Pollution Control Devices - I
- Lecture 36 - Air Pollution Control Devices - II
- Lecture 37 - Source Emission Monitoring
- Lecture 38 - Receptor Source Modeling
- Lecture 39 - Environmental laws

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Surveying

Subject Co-ordinator - Dr. Bharat Lohani

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module 1 - Lecture 1  
Module 2 - Lecture 1  
Module 2 - Lecture 2  
Module 2 - Lecture 3  
Module 2 - Lecture 4  
Module 2 - Lecture 5  
Module 3 - Lecture 1  
Module 3 - Lecture 2  
Module 3 - Lecture 3  
Module 3 - Lecture 4  
Module 4 - Lecture 1  
Module 4 - Lecture 2  
Module 5 - Lecture 1  
Module 5 - Lecture 2  
Module 5 - Lecture 3  
Module 5 - Lecture 4  
Module 5 - Lecture 5  
Module 5 - Lecture 6  
Module 6 - Lecture 1  
Module 6 - Lecture 2  
Module 6 - Lecture 3  
Module 7 - Lecture 1  
Module 7 - Lecture 2  
Module 7 - Lecture 3  
Module 7 - Lecture 4  
Module 7 - Lecture 5  
Module 8 - Lecture 1  
Module 8 - Lecture 2  
Module 9 - Lecture 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Module 9 - Lecture 2  
Module 9 - Lecture 3  
Module 9 - Lecture 4  
Module 9 - Lecture 5  
Module 10 - Lecture 1  
Module 11 - Lecture 1  
Module 11 - Lecture 2  
Module 11 - Lecture 3  
Module 12 - Lecture 1  
Module 12 - Lecture 2  
Module 12 - Lecture 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Water Resources Engineering

Subject Co-ordinator - Dr. Pranab K Mohapatra, Prof. Rajesh Srivastava

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25 (Lecture Missing)

Lecture 26

Lecture 27

Lecture 28

Lecture 29

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Geotechnical Measurements and Explorations

Subject Co-ordinator - Dr. Nihar Ranjan Patra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Geotechnical Measurements & Explorations  
Lecture 2 - Geotechnical Measurements & Explorations  
Lecture 3 - Geotechnical Measurements & Explorations  
Lecture 4 - Geotechnical Measurements & Explorations  
Lecture 5 - Geotechnical Measurements & Explorations  
Lecture 6 - Geotechnical Measurements & Explorations  
Lecture 7 - Geotechnical Measurements & Explorations  
Lecture 8 - Geotechnical Measurements & Explorations  
Lecture 9 - Geotechnical Measurements & Explorations  
Lecture 10 - Geotechnical Measurements & Explorations  
Lecture 11 - Geotechnical Measurements & Explorations  
Lecture 12 - Geotechnical Measurements & Explorations  
Lecture 13 - Geotechnical Measurements & Explorations  
Lecture 14 - Geotechnical Measurements & Explorations  
Lecture 15 - Geotechnical Measurements & Explorations  
Lecture 16 - Geotechnical Measurements & Explorations  
Lecture 17 - Geotechnical Measurements & Explorations  
Lecture 18 - Geotechnical Measurements & Explorations  
Lecture 19 - Geotechnical Measurements & Explorations  
Lecture 20 - Geotechnical Measurements & Explorations  
Lecture 21 - Geotechnical Measurements & Explorations  
Lecture 22 - Geotechnical Measurements & Explorations  
Lecture 23 - Geotechnical Measurements & Explorations  
Lecture 24 - Geotechnical Measurements & Explorations  
Lecture 25 - Geotechnical Measurements & Explorations  
Lecture 26 - Geotechnical Measurements & Explorations  
Lecture 27 - Geotechnical Measurements & Explorations  
Lecture 28 - Geotechnical Measurements & Explorations  
Lecture 29 - Geotechnical Measurements & Explorations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Geotechnical Measurements & Explorations  
Lecture 31 - Geotechnical Measurements & Explorations  
Lecture 32 - Geotechnical Measurements & Explorations  
Lecture 33 - Geotechnical Measurements & Explorations  
Lecture 34 - Geotechnical Measurements & Explorations  
Lecture 35 - Geotechnical Measurements & Explorations  
Lecture 36 - Geotechnical Measurements & Explorations  
Lecture 37 - Geotechnical Measurements & Explorations  
Lecture 38 - Geotechnical Measurements & Explorations  
Lecture 39 - Geotechnical Measurements & Explorations  
Lecture 40 - Geotechnical Measurements & Explorations

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Application of Soil Mechanics

Subject Co-ordinator - Dr. Nihar Ranjan Patra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Application of Soil Mechanics  
Lecture 2 - Application of Soil Mechanics  
Lecture 3 - Application of Soil Mechanics  
Lecture 4 - Application of Soil Mechanics  
Lecture 5 - Application of Soil Mechanics  
Lecture 6 - Application of Soil Mechanics  
Lecture 7 - Application of Soil Mechanics  
Lecture 8 - Application of Soil Mechanics  
Lecture 9 - Application of Soil Mechanics  
Lecture 10 - Application of Soil Mechanics  
Lecture 11 - Application of Soil Mechanics  
Lecture 12 - Application of Soil Mechanics  
Lecture 13 - Application of Soil Mechanics  
Lecture 14 - Application of Soil Mechanics  
Lecture 15 - Application of Soil Mechanics  
Lecture 16 - Application of Soil Mechanics  
Lecture 17 - Application of Soil Mechanics  
Lecture 18 - Application of Soil Mechanics  
Lecture 19 - Application of Soil Mechanics  
Lecture 20 - Application of Soil Mechanics  
Lecture 21 - Application of Soil Mechanics  
Lecture 22 - Application of Soil Mechanics  
Lecture 23 - Application of Soil Mechanics  
Lecture 24 - Application of Soil Mechanics  
Lecture 25 - Application of Soil Mechanics  
Lecture 26 - Application of Soil Mechanics  
Lecture 27 - Application of Soil Mechanics  
Lecture 28 - Application of Soil Mechanics  
Lecture 29 - Application of Soil Mechanics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Application of Soil Mechanics  
Lecture 31 - Application of Soil Mechanics  
Lecture 32 - Application of Soil Mechanics  
Lecture 33 - Application of Soil Mechanics  
Lecture 34 - Application of Soil Mechanics  
Lecture 35 - Application of Soil Mechanics  
Lecture 36 - Application of Soil Mechanics  
Lecture 37 - Application of Soil Mechanics  
Lecture 38 - Application of Soil Mechanics  
Lecture 39 - Application of Soil Mechanics  
Lecture 40 - Application of Soil Mechanics



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geology and Soil Mechanics

Subject Co-ordinator - Dr. Priyanka Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Description of soil, Engineering Geology Of Soils and Thier Formation
- Lecture 2 - Index Properties Of Soil
- Lecture 3 - Index Properties Of Soil - A
- Lecture 4 - Index Properties Of Soil - B
- Lecture 5 - Index Properties Of Soil - C
- Lecture 6 - Index Properties Of soil - D
- Lecture 7 - Classification Of Soils - A
- Lecture 8 - Classification Of Soils - B
- Lecture 9 - Classification Of Soils And Clay Mineralogy - A
- Lecture 10 - Classification Of Soils And Clay Mineralogy - B
- Lecture 11 - Soil compaction - A
- Lecture 12 - Soil compaction - B
- Lecture 13 - Soil compaction - C
- Lecture 14 - Soil compaction - D
- Lecture 15 - Soil compaction and Permeability
- Lecture 16 - Permeability - A
- Lecture 17 - Permeability - B
- Lecture 18 - Permeability - C
- Lecture 19 - Problems on permeability
- Lecture 20 - Seepage
- Lecture 21 - Seepage - A
- Lecture 22 - Seepage - B
- Lecture 23 - Seepage and In situ stress
- Lecture 24 - In situ stresses - A
- Lecture 25 - In situ stresses - B
- Lecture 26 - In situ stresses - A
- Lecture 27 - In situ stresses - B
- Lecture 28 - In situ stresses - C
- Lecture 29 - Consolidation - A

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Consolidation - B
- Lecture 31 - Consolidation - A
- Lecture 32 - Consolidation - B
- Lecture 33 - Consolidation - C
- Lecture 34 - Consolidation - D
- Lecture 35 - Consolidation - E
- Lecture 36 - Consolidation - F
- Lecture 37 - Shear strength of Soil - A
- Lecture 38 - Shear strength of Soil - B
- Lecture 39 - Shear strength of Soil - C
- Lecture 40 - Shear Strength of Soils
- Lecture 41 - Shear Strength of Soils.
- Lecture 42 - Shear Strength of Soils..
- Lecture 43 - Shear strength of Soil
- Lecture 44 - Shear strength of Soil- e
- Lecture 45 - Shear strength of Soil\_B
- Lecture 46 - Problem on shear strength of soil
- Lecture 47 - Problem on shear strength of soil -a
- Lecture 48 - Problem on shear strength of soil -a
- Lecture 49 - Earth Pressure on retaining wall
- Lecture 50 - Earth Pressure on retaining wall -A
- Lecture 51 - Tutorial on Index properties of soil
- Lecture 52 - Tutorial on compaction
- Lecture 53 - Tutorial on Permeability - a
- Lecture 54 - Tutorial on Permeability - b
- Lecture 55 - Tutorial On Consoildation
- Lecture 56 - Tutorial on consoildation - a
- Lecture 57 - Tutorial on Sheer Strength
- Lecture 58 - Tutorial on Sheer Strength - a
- Lecture 59 - Earth Pressure on Retaining Wall - a
- Lecture 60 - Earth Pressure on Retaining Wall - 1
- Lecture 61 - Earth Pressure Theories and Problems on Earth Pressure on Retaining Wall
- Lecture 62 - Problems on Earth Pressure on Retaining Wall Edit Lesson
- Lecture 63 - Problems on Earth Pressure on Retaining Wall - 2
- Lecture 64 - Problems on Earth Pressure Theories - 3
- Lecture 65 - Problems on Earth Pressure Theories - 4

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Engineering Graphics

Subject Co-ordinator - Dr. Nihar Ranjan Patra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Objectives, Lettering and Numbering
- Lecture 2 - Geometric Constructions - Part I
- Lecture 3 - Geometric Constructions - Part II
- Lecture 4 - Orthographic Projections - Part I
- Lecture 5 - Orthographic Projections - Part II
- Lecture 6 - Orthographic Projections - Part III
- Lecture 7 - Orthographic Projections - Part IV
- Lecture 8 - Orthographic Projections - Part V
- Lecture 9 - Isometric Projections - Part I
- Lecture 10 - Isometric Projections - Part II
- Lecture 11 - Isometric Projections - Part III
- Lecture 12 - Isometric Projections - Part IV
- Lecture 13 - Isometric Projections - Part V and Oblique Projections - Part I
- Lecture 14 - Oblique Projections - Part II
- Lecture 15 - Sectioning
- Lecture 16 - Hatching
- Lecture 17 - Orthographic Projections - Assemblies
- Lecture 18 - Missing Lines and Missing Views
- Lecture 19 - Perspective View - Part I
- Lecture 20 - Perspective View - Part II
- Lecture 21 - Perspective View - Part III
- Lecture 22 - Angular Perspective and Circles in perspective
- Lecture 23 - Perspective View examples and Space Geometry
- Lecture 24 - Space Geometry (Continued...)
- Lecture 25 - True Length, Point View and Slope of Oblique lines
- Lecture 26 - Space Geometry - Introduction
- Lecture 27 - Space Geometry - Part 2
- Lecture 28 - Auxiliary View, Lines, Planes
- Lecture 29 - Relationship between Lines and Planes, Planes and Planes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Intersection of Solids
- Lecture 31 - AUTOCAD
- Lecture 32 - Development of Surfaces

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Earth Sciences for Civil Engineering

Subject Co-ordinator - Prof. Javed N. Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Geosciences in Civil Engineering - Part 1

Lecture 2 - Introduction to Geosciences in Civil Engineering - Part 2

Lecture 3 - Plate Tectonics and Continental Drift - Part 2

Lecture 4 - Plate Tectonics and Continental Drift - Part 3

Lecture 5 - Plate Tectonics and Continental Drift - Part 4

Lecture 6 - Rock Forming Minerals and their Properties - Part 1

Lecture 7 - Rock types and their Properties - Part 1

Lecture 8 - Rock types and their Properties - Part 2

Lecture 9 - Rock types and their Properties - Part 3

Lecture 10 - Rock types and their Properties - Part 4

Lecture 11 - Rock types and their properties - Part 5

Lecture 12 - Rock types and their properties - Part 6

Lecture 13 - Rock types and their properties - Part-6 Seismology and the internal structure of the earth - Part 1

Lecture 14 - Seismology and the internal structure of the earth - Part 2

Lecture 15 - Seismology and the internal structure of the earth - Part 3 Edit Lesson

Lecture 16 - Seismology and the internal structure of the earth - Part 4

Lecture 17 - Seismology and the internal structure of the earth - Part 5 and Geological Structures - Part 1

Lecture 18 - Geological Structures - Part 2

Lecture 19 - Geological Structures - Part 3

Lecture 20 - Geological Structures - Part 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Earth Sciences for Civil Engineering - Part 2

Subject Co-ordinator - Prof. Javed N. Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Geological Hazards and Enviromental Impact - Part 1

Lecture 2 - Introduction to Geological Hazards and Enviromental Impact - Part 2

Lecture 3 - Introduction to Geological Hazards and Enviromental Impact - Part 3

Lecture 4 - Active Faults and its Related Hazards in India - Part 1

Lecture 5 - Active Faults and its Related Hazards in India - Part 2

Lecture 6 - Active faults and its related hazards in India - Part 3

Lecture 7 - Active faults and its related hazards in India - Part 4

Lecture 8 - Active faults its related hazards in India - Part 5

Lecture 9 - Active faults its related hazards in India - Part 6

Lecture 10 - Active faults its related hazards in India - Part 7 and Civil Engineering applications - geologi

Lecture 11 - Civil Engineering applications Â geological considerations in dams, tunnels - Part 2

Lecture 12 - Civil Engineering applications Â geological considerations in dams, tunnels - Part 3 and Tsunan

Lecture 13 - Tsunami and related hazard - Part 2

Lecture 14 - Tsunami and related hazard - Part 3

Lecture 15 - Landslide and subsidence - Part 1

Lecture 16 - Landslide and subsidence - Part 2

Lecture 17 - Landslide and subsidence - Part 3

Lecture 18 - Flood and related hazard - Part 1

Lecture 19 - Flood and related hazard - Part 2

Lecture 20 - Groundwater

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Hydration, Porosity and Strength of Cementitious Materials

Subject Co-ordinator - Dr. Satyaki Roy, Dr. Sudhir Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1 - Introduction to the course  
Lecture 2 - Lecture 2 - Concrete - A Three Phase System  
Lecture 3 - Lecture 3 - Basic Properties of Concrete  
Lecture 4 - Lecture 4 - Portland Cement  
Lecture 5 - Lecture 5 - Portland Cement (Continued...)  
Lecture 6 - Lecture 6 - Introduction (Aggregates) - 1  
Lecture 7 - Lecture 7 - Introduction (Aggregates) - 2  
Lecture 8 - Lecture 8 - Introduction (Aggregates) - 3  
Lecture 9 - Lecture 9 - Introduction (Concrete Mixture Proportioning Strategies)  
Lecture 10 - Lecture 10 - Introduction (Chemical Admixtures)  
Lecture 11 - Lecture-11 - Portland Cement Based Paste Systems - I  
Lecture 12 - Lecture 12 - Portland Cement Based Paste Systems - II  
Lecture 13 - Lecture 13 - Portland Cement Based Paste Systems - III  
Lecture 14 - Lecture 14 - Portland Cement Paste Based Systems - IV  
Lecture 15 - Lecture 15 - Portland Cement Based Paste Systems - V  
Lecture 16 - Lecture 16 - 18 Part 1 - Portland Cement Based Paste Systems - VI  
Lecture 17 - Lecture 16 - 18 Part 2 - Portland Cement Based Paste Systems - VII  
Lecture 18 - Lecture 19 - Heat of hydration of Portland Cement  
Lecture 19 - Lecture 20 - Mass Concrete  
Lecture 20 - Lecture 21-22 - Mineral Admixtures - 1  
Lecture 21 - Lecture 23-24 - Mineral Admixtures - 2  
Lecture 22 - Lecture 25-27 - Mineral Admixtures - 3  
Lecture 23 - Lecture 28-30 - Mineral Admixtures - 4  
Lecture 24 - Lecture 31 - From paste to concrete  
Lecture 25 - Lecture 32 - Demonstration  
Lecture 26 - Lecture 33 - Pores and porosity - A revisit  
Lecture 27 - Lecture 34 - Measuring permeability of concrete  
Lecture 28 - Lecture 35 - Behavior under load  
Lecture 29 - Lecture 36 - Curing of concrete

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Lecture 37 - Stress strain behaviour  
Lecture 31 - Lecture 38 - Durability of concrete - I  
Lecture 32 - Lecture 39 - Durability of concrete - II - Specifications



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Mechanics of Solids

Subject Co-ordinator - Dr. Priyanka Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Handout
- Lecture 2 - Analysis of Mechanical System
- Lecture 3 - Conditions of equilibrium in 2D and 3D
- Lecture 4 - FBD with examples on modelling of typical supports and joints
- Lecture 5 - Support Conditions
- Lecture 6 - FBD of Frame Structures
- Lecture 7 - Stability of Truss
- Lecture 8 - Solutions of Plane Truss
- Lecture 9 - Method of Sections
- Lecture 10 - Friction 2
- Lecture 11 - Tutorial on Truss
- Lecture 12 - Tutorial on Friction
- Lecture 13 - Force Displacement Relationship
- Lecture 14 - Hoop Stresses
- Lecture 15 - Mechanism of belt around wheel
- Lecture 16 - Tutorial on Force Displacement Relationship and Geometric Compatibility - 1
- Lecture 17 - Tutorial on Force Displacement Relationship and Geometric Compatibility - 2
- Lecture 18 - Tutorial on Force Displacement Relationship and Geometric Compatibility - 3
- Lecture 19 - Concept of Stress
- Lecture 20 - Plane Stress
- Lecture 21 - State of Stresses
- Lecture 22 - Mohrs Circle representation of plane stress
- Lecture 23 - Construction of Mohrs Circle
- Lecture 24 - Principal Stresses and Introduction to Concept of Strain
- Lecture 25 - Normal Strain and Shear Strain
- Lecture 26 - Strain Transformation
- Lecture 27 - Strain Measurement
- Lecture 28 - Tutorial
- Lecture 29 - Tutorial on Concept of Strain.

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Elastic Stress Strain Relationship
- Lecture 31 - Von Mises Yield Criteria
- Lecture 32 - Tresca Criteria
- Lecture 33 - True Stress Strain
- Lecture 34 - Tutorial 2
- Lecture 35 - Forces and Moments Transmitted by Slender Members
- Lecture 36 - Bending Moment
- Lecture 37 - Shear Force and Bending Moment Diagrams
- Lecture 38 - Differential Equation Relationship
- Lecture 39 - Tutorial 3
- Lecture 40 - Tutorial 4
- Lecture 41 - Torsion
- Lecture 42 - Stress Components
- Lecture 43 - Tutorial A
- Lecture 44 - Tutorial B
- Lecture 45 - Stresses due to Bending
- Lecture 46 - Equilibrium Requirements
- Lecture 47 - Beam Transmitting both Shear Force and Bending Moment
- Lecture 48 - Shear Stress Distribution
- Lecture 49 - Distribution of Shear Stress in I Beam
- Lecture 50 - Tutorial 1
- Lecture 51 - Deflections due to Bending
- Lecture 52 - Integration of Moment Curvature Relation
- Lecture 53 - Superposition Continued
- Lecture 54 - Load Deflection Differential Equation
- Lecture 55 - Castigliano's Theorem
- Lecture 56 - Strain Energy Methods
- Lecture 57 - Introduction to Concept of Elastic Instability
- Lecture 58 - Critical Load
- Lecture 59 - Critical Load for Flexible Columns
- Lecture 60 - Concluding Lecture

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Principles of Construction Management

Subject Co-ordinator - Dr. Sudhir Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Interdisciplinary nature of modern construction projects
- Lecture 3 - Overview of steps in execution of a project
- Lecture 4 - Illustrative examples for evaluation of bids based on different schemes
- Lecture 5 - Resource management in construction projects
- Lecture 6 - Estimating quantities
- Lecture 7 - Description of items
- Lecture 8 - Estimation of project cost
- Lecture 9 - Discussion on the case study of boundary wall
- Lecture 10 - Running account bills
- Lecture 11 - Economic decision making in construction projects
- Lecture 12 - Depreciation of construction equipment
- Lecture 13 - Repayment of a loan
- Lecture 14 - Introduction to planning and scheduling
- Lecture 15 - Introduction to planning and scheduling (Continued...)
- Lecture 16 - Project scheduling
- Lecture 17 - Uncertainties in duration of activities -Using PERT in scheduling
- Lecture 18 - Project monitoring and control systems
- Lecture 19 - Resource leveling and allocation
- Lecture 20 - Crashing of networks
- Lecture 21 - Introduction to construction safety
- Lecture 22 - Accidents in construction industry - I
- Lecture 23 - Accidents in construction industry - II
- Lecture 24 - Personal protective equipment
- Lecture 25 - Implications of construction accidents
- Lecture 26 - Safety organization and safety officer
- Lecture 27 - Quality control in construction
- Lecture 28 - Quality in construction - welding
- Lecture 29 - Epoxy coated bars

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quality control of grouts in ducts of post-tensioned PC members
- Lecture 31 - Quality control (QC) issues in concrete

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Foundation Design

Subject Co-ordinator - Dr. Nihar Ranjan Patra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - (1A) Subsoil Investigation or Site Investigation - Part 1  
Lecture 2 - (1B) Subsoil Investigation or Site Investigation - Part 2  
Lecture 3 - (2A) Subsoil Investigation or Site Investigation - Part 3  
Lecture 4 - (2B) Subsoil Investigation or Site Investigation - Part 4  
Lecture 5 - (3A) Subsoil Investigation or Site Investigation - Part 5  
Lecture 6 - (3B) Subsoil Investigation or Site Investigation - Part 6  
Lecture 7 - (4A) Subsoil Investigation or Site Investigation - Part 7  
Lecture 8 - (4B) Foundations  
Lecture 9 - (5A) Bearing Capacity Of Shallow Foundations - Part 1  
Lecture 10 - (5B) Bearing Capacity Of Shallow Foundations - Part 2  
Lecture 11 - (6A) Bearing Capacity Of Shallow Foundations - Part 3  
Lecture 12 - (6B) Bearing Capacity Of Shallow Foundations - Part 4  
Lecture 13 - (7A) Bearing Capacity Of Shallow Foundations - Part 5  
Lecture 14 - (7B) Bearing Capacity Of Shallow Foundations - Part 6  
Lecture 15 - (8A) Settlement Analysis - Part 1  
Lecture 16 - (8B) Settlement Analysis - Part 2  
Lecture 17 - (9A) Settlement Analysis - Part 3  
Lecture 18 - (9B) Stress distribution in soils - Part 1  
Lecture 19 - (10A) Stress distribution in soils - Part 2  
Lecture 20 - (10B) Stress distribution in soils - Part 3  
Lecture 21 - (11A) Stress distribution in soils - Part 4  
Lecture 22 - (11B) Stress distribution in soils - Part 5  
Lecture 23 - (12A) Examples based on bearing capacity and settlement  
Lecture 24 - (12B) Design of foundation - Part 1  
Lecture 25 - (13A) Design of Foundation - Part 2  
Lecture 26 - (13B) Design of Foundation - Part 3  
Lecture 27 - (14A) Design of Foundation - Part 4  
Lecture 28 - (14B) Design of Foundation - Part 5  
Lecture 29 - (15A) Types of foundations (Combined Footing)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - (15B) Design of Raft Foundation
- Lecture 31 - (16A) Earth Pressure Theories - Part 1
- Lecture 32 - (16B) Earth Pressure Theories - Part 2
- Lecture 33 - (17A) Earth Pressure Theories - Part 3
- Lecture 34 - (17B) Earth Pressure Theories - Part 4
- Lecture 35 - (18A) Earth Pressure Theories - Part 5
- Lecture 36 - (18B) Deep Foundation - Part 1
- Lecture 37 - (18C) Deep Foundation - Part 2
- Lecture 38 - (18D) Deep Foundation - Part 3
- Lecture 39 - (20A) Deep Foundation - Part 4
- Lecture 40 - (20B) Deep Foundation - Part 5

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Photogeology In Terrain Evaluation

Subject Co-ordinator - Prof. Javed N. Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Remote Sensing - Photogeology
- Lecture 2 - Introduction to Remote Sensing - Photogeology
- Lecture 3 - Fundamental Principle in Remote Sensing
- Lecture 4 - Aerial Photography
- Lecture 5 - Stereo-photos and their Importance
- Lecture 6 - Photo-interpretation Techniques
- Lecture 7 - Photogrammetry and its Significance
- Lecture 8 - Sensors, Cameras and Panchromatic Data
- Lecture 9 - Stereoscopy and Methods
- Lecture 10 - Relief Displacement on Aerial Photographs
- Lecture 11 - Fluvial Processes and Landforms
- Lecture 12 - Geomorphology of River Channels
- Lecture 13 - Drainage Basins and their Features
- Lecture 14 - Morphometric Parameters of Fluvial Channels
- Lecture 15 - Drainage Patterns and their Morphology
- Lecture 16 - Determination of Flightline (Lab)
- Lecture 17 - Determination of Flightline (Lab)
- Lecture 18 - Exercise on Relief Displacement
- Lecture 19 - Exercise on Stereoscopic Parallax
- Lecture 20 - Exercise on Stereoscopic Parallax
- Lecture 21 - Generation of Digital Elevation Model and Anaglyph

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Photogeology In Terrain Evaluation - Part 2

Subject Co-ordinator - Prof. Javed N. Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Geological Structures, Photo interpretation and Terrain evaluation

Lecture 2 - Photo interpretation/identification of Landforms associated with Folds - 1

Lecture 3 - Photo interpretation/identification of Landforms associated with Folds - 2

Lecture 4 - Identification of features related to ongoing Crustal Deformation and Mountain Building process

Lecture 5 - Identification of Fault Topography

Lecture 6 - Photogeology

Lecture 7 - Photo Interpretations

Lecture 8 - Photo Interpretations

Lecture 9 - Photo Interpretations

Lecture 10 - Photo-Interpretations

Lecture 11 - Photo Interpretations

Lecture 12 - Photo Interpretations

Lecture 13 - Photo Interpretations

Lecture 14 - Photo Interpretations

Lecture 15 - Photo Interpretations

Lecture 16 - Exercise on Identification of Geological Structures and related Landforms

Lecture 17 - Exercise on Identification of Geomorphic Features related to Various Environments

Lecture 18 - Exercise on Identification of Tectonic Features and Geomorphic Mapping using Satellite Data

Lecture 19 - Exercise on Identification of Geological Structures and Geomorphic Landforms on Aerial/Satellite

Lecture 20 - Exercise on Morphometric Parameters and 3D observation of the Earth Surface Features

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Introduction to Accounting and Finance for Civil Engineers

Subject Co-ordinator - Dr. Sudhir Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of the Course
- Lecture 2 - Introduction
- Lecture 3 - General Discussion on Construction Projects
- Lecture 4 - Time value of money
- Lecture 5 - Economic Decision Making - I
- Lecture 6 - Economic decision making - II
- Lecture 7 - Incremental Rate of Return (IROR)
- Lecture 8 - Benefit cost ratio
- Lecture 9 - Sensitivity analysis - Part 1
- Lecture 10 - Sensitivity analysis - Part 2
- Lecture 11 - Break-even analysis - Part 1
- Lecture 12 - Break-even analysis - Part 2
- Lecture 13 - Depreciation of construction equipment
- Lecture 14 - Effect of depreciation on cash flows
- Lecture 15 - Effect of depreciation and inflation on economic decision making
- Lecture 16 - Replacement analysis
- Lecture 17 - Risk analysis - Part 1
- Lecture 18 - Risk analysis - Part 2
- Lecture 19 - Risk analysis - Part 3
- Lecture 20 - Simulation - Part 1
- Lecture 21 - Simulation - Part 2
- Lecture 22 - Bidding - Part 1
- Lecture 23 - Bidding - Part 2
- Lecture 24 - Bidding - Part 3
- Lecture 25 - Bidding - Part 4
- Lecture 26 - Bidding - Part 5
- Lecture 27 - Bidding - Part 6
- Lecture 28 - Bidding - Part 7
- Lecture 29 - Introduction to accounting - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to accounting - Part 2
- Lecture 31 - Introduction to accounting - Part 3
- Lecture 32 - Revenue recognition
- Lecture 33 - Construction Contract Status Reports
- Lecture 34 - Assets and Liabilities
- Lecture 35 - Accounting statements - case study
- Lecture 36 - Working capital
- Lecture 37 - Financing resources for working capital
- Lecture 38 - Ratio analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Advanced Foundation Engineering

Subject Co-ordinator - Dr. Kousik Deb

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Soil Exploration  
Lecture 3 - Soil Exploration - Penetration Tests  
Lecture 4 - Soil Exploration - Geophysical Exploration  
Lecture 5 - Shallow Foundation - Introduction  
Lecture 6 - Shallow Foundation  
Lecture 7 - Shallow Foundation  
Lecture 8 - Shallow Foundation  
Lecture 9 - Shallow Foundation  
Lecture 10 - Shallow Foundation  
Lecture 11 - Shallow Foundation - Settlement Calculation - I  
Lecture 12 - Shallow Foundation - Settlement Calculation - II  
Lecture 13 - Shallow Foundation - Settlement Calculation - III  
Lecture 14 - Design of Shallow Foundation  
Lecture 15 - Design of Raft Foundation  
Lecture 16 - Deep Foundation - Introduction  
Lecture 17 - Pile Foundation - Load Carrying Capacity - I  
Lecture 18 - Pile Foundation - Load Carrying Capacity - II  
Lecture 19 - Pile Foundation - Load Carrying Capacity - III and Settlement Calculation  
Lecture 20 - Tension and Lateral Loaded Piles  
Lecture 21 - Well Foundation  
Lecture 22 - Well Foundation (Continued...)  
Lecture 23 - Design of Retaining Wall  
Lecture 24 - Design of Retaining Wall (Continued...)  
Lecture 25 - Design of Sheet Piles  
Lecture 26 - Design of Sheet Piles (Continued...)  
Lecture 27 - Design of Sheet Piles (Continued...)  
Lecture 28 - Design of Sheet Piles (Continued...)  
Lecture 29 - Reinforced Earth

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Reinforced Retaining Wall
- Lecture 31 - Seismic Design of Retaining Wall
- Lecture 32 - Seismic Design of Retaining Walls (Continued...)
- Lecture 33 - Soil - Foundation Interaction
- Lecture 34 - Soil - Foundation Interaction (Continued...)
- Lecture 35 - Soil - Foundation Interaction (Continued...)
- Lecture 36 - Soil - Foundation Interaction (Continued...)
- Lecture 37 - Soil - Foundation Interaction (Continued...)
- Lecture 38 - Soil - Foundation Interaction (Continued...)
- Lecture 39 - Soil - Foundation Interaction (Continued...)
- Lecture 40 - Soil - Foundation Interaction (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Ground Water Hydrology

Subject Co-ordinator - Dr. Anirban Dhar, Dr. V.R. Desai

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Ground Water in Hydrologic Cycle (Continued...), Ground Water Budget, Ground Water Level Fluctuations

Lecture 3 - Ground water Level Fluctuations and Environmental Influence (Continued...) Literature/Data/Intern

Lecture 4 - Ground water Level Fluctuations and Environmental Influence (Continued...) Literature/Data/Intern

Lecture 5 - Occurrence and Movement of Ground Water

Lecture 6 - Zones of Aeration and Saturation; Aquifers and their characteristics/classification

Lecture 7 - Aquifer Classification (Continued...), Ground water Basins and Springs; Darcy's Law; Permeability

Lecture 8 - Determination of Permeability

Lecture 9 - Ground Water (GW) flowrates and flow directions; general flow equations through porous media

Lecture 10 - General Flow Equations Through Porous Media (Continued...), Dupuit's Assumptions

Lecture 11 - 1-D Unconfined Ground water Flows; Steady Flow into Wells

Lecture 12 - Steady Flow into Wells (Continued...); Unsteady Flow into Wells

Lecture 13 - Unsteady Flow into Wells (Continued...)

Lecture 14 - Unsteady Radial Flow in Confined and Unconfined Aquifers

Lecture 15 - Unsteady Radial Flow in Leaky Aquifers (Continued...); Well Flow Near Aquifer Boundaries

Lecture 16 - Well Flow for Special Conditions; Partially Penetrating Wells; Horizontal Wells and Collector Wells

Lecture 17 - Well Completion; Well Development; Well Protection; Well Rehabilitation; Well testing for Yields

Lecture 18 - Well Protection/Rehabilitation/Testing for yield (Continued...); Artificial Ground Water Recharge

Lecture 19 - Concept and methods of Artificial Ground Water Recharge (Continued...); Recharge Mounds and Induced

Lecture 20 - Induced Recharge (Continued...); Wastewater recharge for reuse; Water spreading

Lecture 21 - Pollution and Quality Analysis of Ground Water

Lecture 22 - Ground Water Pollution from Industrial, Agricultural and Miscellaneous Sources (Continued...)

Lecture 23 - Ground Water Pollution from Miscellaneous Sources (Continued...), Attenuation and Underground Disposition

Lecture 24 - Potential Evaluation of Ground water Pollution; Physical/Chemical/Biological analysis of Ground

Lecture 25 - Ground water salinity and samples ; Graphical representations of ground water quality

Lecture 26 - Graphical representations of ground water quality (Continued...), SURFACE/SUB-SURFACE INVESTIGATION

Lecture 27 - Surface Investigation of ground water (Continued...)

Lecture 28 - Seismic refraction/gravity/magnetic methods (Continued...); Sub-surface investigation of ground water

Lecture 29 - Sub-surface investigation of ground water (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Radiation method of logging (Continued...); Temperature/caliper/fluid conductivity/fluid velocity
- Lecture 31 - Saline Water Intrusion in Aquifers
- Lecture 32 - Saline Water Intrusion in Aquifers
- Lecture 33 - Saline Water Intrusion in Aquifers
- Lecture 34 - Saline Water Intrusion in Aquifers
- Lecture 35 - Modeling and Management of Ground Water
- Lecture 36 - Modeling and Management of Ground Water
- Lecture 37 - Modeling and Management of Ground Water
- Lecture 38 - Modeling and Management of Ground Water
- Lecture 39 - Modeling and Management of Ground Water
- Lecture 40 - Modeling and Management of Ground Water

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Numerical Methods in Civil Engineering

Subject Co-ordinator - Dr. A. Deb

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Numerical Methods
- Lecture 2 - Error Analysis
- Lecture 3 - Introduction to Linear Systems - I
- Lecture 4 - Linear Systems - II
- Lecture 5 - Linear Systems - III
- Lecture 6 - Linear Systems - Error Bounds
- Lecture 7 - Error Bounds and Iterative Methods for Solving Linear Systems
- Lecture 8 - Iterative Methods for Solving Linear Systems - I
- Lecture 9 - Iterative Methods - II
- Lecture 10 - Iterative Methods - III
- Lecture 11 - Iterative Methods for Eigen Value Extraction
- Lecture 12 - Solving Nonlinear Equations - I
- Lecture 13 - Solving Nonlinear Equations - II
- Lecture 14 - Solving Multi Dimensional Nonlinear Equations - I
- Lecture 15 - Solving Multi Dimensional Nonlinear Equations - II
- Lecture 16 - ARC Length and Gradient Based Methods
- Lecture 17 - Gradient Based Methods
- Lecture 18 - Conjugate Gradient Method - I
- Lecture 19 - Conjugate Gradient Method - II
- Lecture 20 - Nonlinear Conjugate Gradient and Introduction to PDEs
- Lecture 21 - Eigenfunction Solutions for the Wave Equation
- Lecture 22 - Analytical Methods for Solving the Wave Equation
- Lecture 23 - Analytical Methods for Hyperbolic and Parabolic PDEs
- Lecture 24 - Analytical Methods for Parabolic and Elliptic PDEs
- Lecture 25 - Analytical Methods for Elliptic PDE's
- Lecture 26 - Series Solutions for Elliptic PDE's and Introduction to Differential Operators
- Lecture 27 - Differential Operators - I
- Lecture 28 - Differential Operators - II
- Lecture 29 - Differential Operators - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interpolation
- Lecture 31 - Polynomial Fitting
- Lecture 32 - Orthogonal Polynomials - I
- Lecture 33 - Orthogonal Polynomials - II
- Lecture 34 - Orthogonal Polynomials - III
- Lecture 35 - Spline Functions
- Lecture 36 - Orthogonal Basis Functions for Solving PDE\'s - I
- Lecture 37 - Orthogonal Basis Functions for Solving PDE\'s - II
- Lecture 38 - Integral Equations - I
- Lecture 39 - Integral Equations - II
- Lecture 40 - Integral Equations - III



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Probability Methods in Civil Engineering

Subject Co-ordinator - Dr. Rajib Maity

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - Role of Probability in Civil Engineering
- Lecture 2 - Random Events and Probability Concept
- Lecture 3 - Set Theory and Set Operations
- Lecture 4 - Axioms of Probability
- Lecture 5 - Probability of Events
- Lecture 6 - Concept and Definition of Random Variables
- Lecture 7 - Probability Distribution of Random Variables
- Lecture 8 - CDF and Descriptors of Random Variables
- Lecture 9 - Further Descriptors of Random Variables
- Lecture 10 - Discrete Probability Distribution
- Lecture 11 - Probability Distribution of Continuous RVs
- Lecture 12 - Probability Distribution of Continuous RVs (Continued...1)
- Lecture 13 - Probability Distribution of Continuous RVs (Continued...2)
- Lecture 14 - Functions of Single Random Variables
- Lecture 15 - Functions of Random Variables - Different Methods
- Lecture 16 - Functions of Random Variables - Different Methods (Continued...)
- Lecture 17 - Expectation and Moments of Functions of RV
- Lecture 18 - Expectation and Moments of Functions of RV (Continued...)
- Lecture 19 - Joint Probability Distribution
- Lecture 20 - Marginal Probability Distribution
- Lecture 21 - Conditional Probability Distribution
- Lecture 22 - Conditional Probability Distribution (Continued...)
- Lecture 23 - Properties of Multiple Random Variables
- Lecture 24 - Properties of Multiple Random Variables (Continued...)
- Lecture 25 - MGF of Multivariate RVs and Multivariate Probability Distributions
- Lecture 26 - Multivariate Distribution and Functions of Multiple Random Variables
- Lecture 27 - Functions of Multiple Random Variables (Continued...1)
- Lecture 28 - Functions of Multiple Random Variables (Continued...2)
- Lecture 29 - Introduction to Copulas

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Copulas (Continued...)
- Lecture 31 - Probability Models using Normal Distribution
- Lecture 32 - Probability Models using Log Normal and Exponential Distribution
- Lecture 33 - Probability Models using Gamma and Extreme Value Distribution
- Lecture 34 - Probability Models using Discrete Probability Distributions
- Lecture 35 - Sampling Distribution and Parameter Estimation
- Lecture 36 - Sampling Distribution and Parameter Estimation (Continued...)
- Lecture 37 - Hypothesis Testing
- Lecture 38 - Goodness - of - fit tests
- Lecture 39 - Regression Analyses and Correlation
- Lecture 40 - Regression Analyses and Correlation (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Design of Reinforced Concrete Structures

Subject Co-ordinator - Prof. N. Dhang

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - I
- Lecture 2 - Materials
- Lecture 3 - Different Methods of Design of Reinforced Concrete Structures
- Lecture 4 - Working Stress Method
- Lecture 5 - Working Stress Method (Continued...)
- Lecture 6 - Limit State of Collapse Flexure - I
- Lecture 7 - Limit State of Collapse Flexure - II
- Lecture 8 - Design of Doubly Reinforced Beam Flexure - I
- Lecture 9 - Design of Doubly Reinforced Beam Flexure - II
- Lecture 10 - Design of Doubly Reinforced Beam Flexure
- Lecture 11 - Limit State of Collapse Shear
- Lecture 12 - Design for Shear
- Lecture 13 - Design for Shear (Continued...)
- Lecture 14 - Design of Slabs - Part I
- Lecture 15 - Design of Slabs - Part II
- Lecture 16 - Design of Slabs - Part III
- Lecture 17 - Design of Slabs - Part IV
- Lecture 18 - Design of Slabs - Part V
- Lecture 19 - Design of Columns - Part I
- Lecture 20 - Design of Columns - Part II
- Lecture 21 - Design of Columns - Part III
- Lecture 22 - Design of Columns - Part IV
- Lecture 23 - Design of Columns - Part V
- Lecture 24 - Design of Footings - Part I
- Lecture 25 - Design of Footings - Part II
- Lecture 26 - Design of Staircases
- Lecture 27 - Design for Torsion - Part I
- Lecture 28 - Design for Torsion - Part II
- Lecture 29 - Design of RC Slender Columns

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Deflection of RC Beams

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Engineering Geology

Subject Co-ordinator - Dr. Debasis Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Engineering Geology
- Lecture 2 - Geologic Structures
- Lecture 3 - Geologic Maps and Stratigraphic Sections
- Lecture 4 - Remote Sensing in Engineering Geology
- Lecture 5 - Physical Properties of Minerals
- Lecture 6 - Crystallography and Optical Properties
- Lecture 7 - Chemical Characteristics of Minerals
- Lecture 8 - Origin And Types of Rocks
- Lecture 9 - Origin And Types of Soils
- Lecture 10 - Igneous Rocks
- Lecture 11 - Sedimentary Rocks
- Lecture 12 - Metamorphic Rocks
- Lecture 13 - Weathering
- Lecture 14 - Sediment Transport and Deposition
- Lecture 15 - Introduction to Subsurface Exploration
- Lecture 16 - Introduction to Subsurface Exploration
- Lecture 17 - Sampling and Non - Intrusive Methods
- Lecture 18 - Index Properties and Classification of Soils
- Lecture 19 - Index Properties of Rock and Rock Mass
- Lecture 20 - Stress-Strain Behavior of Soil and Rock - I
- Lecture 21 - Stress-Strain Behavior of Soil and Rock - II
- Lecture 22 - In-situ State of Stress
- Lecture 23 - Geologic Considerations in Tunneling
- Lecture 24 - Geologic Considerations in Dam Construction
- Lecture 25 - Groundwater - Preliminaries
- Lecture 26 - Groundwater Flow - I
- Lecture 27 - Groundwater Flow - II
- Lecture 28 - Groundwater Related Engineering Issues
- Lecture 29 - Groundwater Over Utilization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Plate Tectonics
- Lecture 31 - Plate Tectonics - 2 and Earthquake
- Lecture 32 - Earthquake Hazard Assessment
- Lecture 33 - Geologic Hazards - Seismicity and Volcanism
- Lecture 34 - Geologic Hazards - Shoreline Processes
- Lecture 35 - Geologic Hazards - Shoreline Processes
- Lecture 36 - Geologic Hazards - Landslide Hazards - Zoning
- Lecture 37 - Geologic Hazards Subsidence , Collapsible Soils
- Lecture 38 - Preparation of Geologic Sections
- Lecture 39 - Index testing of soil & rocks
- Lecture 40 - Identification of minerals and rock samples

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Introduction to Transportation Engineering

Subject Co-ordinator - Dr. K.S. Reddy, Dr. Bhargab Maitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Transportation Engineering  
Lecture 2 - Elements of Concern and Components  
Lecture 3 - Traffic Stream Characteristics  
Lecture 4 - Traffic Studies  
Lecture 5 - Traffic Studies  
Lecture 6 - Highway Capacity and Level of Service  
Lecture 7 - Intersection Control and Signalization  
Lecture 8 - Functional Classification, Design Elements  
Lecture 9 - Cross Section Elements  
Lecture 10 - Stopping Sight Distance And Decision Sight  
Lecture 11 - Overtaking, Intermediate and Headlight Sight  
Lecture 12 - Intersection Sight Distance - I  
Lecture 13 - Intersection Sight Distance - II  
Lecture 14 - Horizontal Alignment - I  
Lecture 15 - Horizontal Alignment - II  
Lecture 16 - Horizontal Alignment - III  
Lecture 17 - Horizontal Alignment - IV  
Lecture 18 - Horizontal Alignment - V  
Lecture 19 - Horizontal Alignment - VI  
Lecture 20 - Vertical Alignment - I  
Lecture 21 - Vertical Alignment - II  
Lecture 22 - Vertical Alignment - III  
Lecture 23 - Highway Alignment  
Lecture 24 - Principles of Pavement Design  
Lecture 25 - Traffic Loading - I  
Lecture 26 - Traffic Loading - II  
Lecture 27 - Pavement Materials - I  
Lecture 28 - Pavement Materials - II  
Lecture 29 - Pavement Materials - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pavement Materials - IV
- Lecture 31 - Pavement Materials - V
- Lecture 32 - Design of Bituminous Mixes - I
- Lecture 33 - Design of Bituminous Mixes - II
- Lecture 34 - Analysis of Flexible Pavements
- Lecture 35 - Analysis of Concrete Pavements
- Lecture 36 - Flexible Pavement Design Indian Roads Congress
- Lecture 37 - Flexible Pavement Design AASHTO Method - 1993
- Lecture 38 - Concrete Pavement Design Indian Congress Method
- Lecture 39 - Concrete Pavement Design PCA and AASHTO Methods
- Lecture 40 - Pavement Evaluation and Rehabilitation
- Lecture 41 - Overlay Design - IRC Method



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Strength of Materials

Subject Co-ordinator - Prof. S.K. Bhattacharyya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Strength of Materials

Lecture 2 - Analysis of Stress - I

Lecture 3 - Analysis of Stress - II

Lecture 4 - Analysis of Stress - III

Lecture 5 - Analysis of Stress - IV

Lecture 6 - Analysis of Stress - V

Lecture 7 - Analysis of Strain - I

Lecture 8 - Analysis of Strain - II

Lecture 9 - Analysis of Strain - III

Lecture 10 - Analysis of Strain - IV

Lecture 11 - Analysis of Strain - V

Lecture 12 - Analysis of Strain - VI

Lecture 13 - Analysis of Strain - VII

Lecture 14 - Analysis of Strain - VIII

Lecture 15 - Application of Stress/Strain

Lecture 16 - Application of Stress / Strain

Lecture 17 - Application of Stress / Strain

Lecture 18 - Torsion - I

Lecture 19 - Torsion - II

Lecture 20 - Torsion - III

Lecture 21 - Torsion - IV

Lecture 22 - Bending of Beams - I

Lecture 23 - Bending of Beams - II

Lecture 24 - Bending of Beams - III

Lecture 25 - Bending of Beams - IV

Lecture 26 - Stresses in Beams - I

Lecture 27 - Stresses in Beams - II

Lecture 28 - Stresses in Beams - III

Lecture 29 - Stresses in Beams - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Deflection of Beams - I
- Lecture 31 - Deflection of Beams - II
- Lecture 32 - Deflection of Beams - III
- Lecture 33 - Deflection of Beams - IV
- Lecture 34 - Combined Stresses - I
- Lecture 35 - Combined Stresses - II
- Lecture 36 - Combined Stresses - III
- Lecture 37 - Stability of Columns - I
- Lecture 38 - Stability of Columns - II
- Lecture 39 - Springs - I
- Lecture 40 - Springs - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Probability Methods in Civil Engineering

Subject Co-ordinator - Dr. Rajib Maity

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Random Events and Probability Concept
- Lecture 2 - Set Theory and Set Operations
- Lecture 3 - Axioms of Probability
- Lecture 4 - Probability of Events
- Lecture 5 - Concept and definition of Random variables
- Lecture 6 - Probability distribution of random variables
- Lecture 7 - CDF and Descriptors of Random Variables
- Lecture 8 - Further Descriptors of Random Variables
- Lecture 9 - Discrete Probability Distribution
- Lecture 10 - Probability Distribution of Continuous RVs
- Lecture 11 - Probability Distribution of Continuous RVs (Continued.....1)
- Lecture 12 - Probability Distribution of Continuous RVs (Continued.....2)
- Lecture 13 - Functions of Single Random Variables
- Lecture 14 - Functions of Different Variables - Different Methods
- Lecture 15 - Functions of Random Variables
- Lecture 16 - Probability Models using Normal Distribution
- Lecture 17 - Probability Models using Log Normal and Exponential Distribution
- Lecture 18 - Probability Models using Gamma and Extreme Value Distribution
- Lecture 19 - Probability Models using Discrete Probability Distributions
- Lecture 20 - Sampling Distribution and Parameter Estimation
- Lecture 21 - Sampling Distribution and Parameter Estimation (Continued...)
- Lecture 22 - Hypothesis Testing
- Lecture 23 - Goodness of Fit-Tests
- Lecture 24 - Regression Analyses and Correlation
- Lecture 25 - Regression Analyses and Correlation (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Visual Semiotics for Visual Communication

Subject Co-ordinator - Prof. Mainak Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Visual Semantics for Visual Communication
- Lecture 2 - Visual Semantics for Visual Communication (Continued...)
- Lecture 3 - Visual Semantics for Visual Communication (Continued...)
- Lecture 4 - Visual Semantics for Visual Communication (Continued...)
- Lecture 5 - Introduction to Millimeter-Wave Technology (Continued...)
- Lecture 6 - Visual Semantics for Visual Communication (Continued...)
- Lecture 7 - Visual Semantics for Visual Communication (Continued...)
- Lecture 8 - Visual Semantics for Visual Communication (Continued...)
- Lecture 9 - Introduction to Millimeter-Wave Technology
- Lecture 10 - Visual Semantics for Visual Communication (Continued...)
- Lecture 11 - Visual Semantics for Visual Communication (Continued...)
- Lecture 12 - Visual Semantics for Visual Communication (Continued...)
- Lecture 13 - Conceptual Model and Affordances
- Lecture 14 - Visual Semantics for Visual Communication (Continued...)
- Lecture 15 - Visual Semantics for Visual Communication (Continued...)
- Lecture 16 - Visual Semantics for Visual Communication (Continued...)
- Lecture 17 - Visual Semantics for Visual Communication (Continued...)
- Lecture 18 - Visual Semantics for Visual Communication (Continued...)
- Lecture 19 - Visual Semantics for Visual Communication (Continued...)
- Lecture 20 - Visual Semantics for Visual Communication (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Life Cycle Assessment

Subject Co-ordinator - Prof. Brajesh Kumar Dubey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Life Cycle Assessment - Introduction  
Lecture 2 - Life Cycle Assessment - Introduction  
Lecture 3 - LCA and Sustainability  
Lecture 4 - LCA and Environmental Systems  
Lecture 5 - LCA and Water, Food and Energy  
Lecture 6 - RISK Assessment and LCA Frameworks  
Lecture 7 - RISK Assessment - Toxicology  
Lecture 8 - RISK Assessment Methods  
Lecture 9 - RISK Assessment Methods (Continued...)  
Lecture 10 - Environmental Risk Assessment  
Lecture 11 - Environmental Data Collection and LCA Methodology  
Lecture 12 - Environmental Data Collection and LCA Methodology (Continued...)  
Lecture 13 - Environmental Data Collection and LCA Methodology (Continued...)  
Lecture 14 - Environmental Data Collection and LCA Methodology (Continued...)  
Lecture 15 - LCA Methodology  
Lecture 16 - LCA - A Detailed Methodology  
Lecture 17 - LCA - A Detailed Methodology (Continued...)  
Lecture 18 - LCA Benefits and Drawbacks  
Lecture 19 - History of LCA  
Lecture 20 - The ISO Framework  
Lecture 21 - Unit Process, Data and LCI Databases  
Lecture 22 - Unit Process and System Boundary (Continued...)  
Lecture 23 - Inventory Data and LCIA  
Lecture 24 - LCIA  
Lecture 25 - LCA Interpretation  
Lecture 26 - ISO 14040  
Lecture 27 - Key Points of a Good LCA and Example LCA  
Lecture 28 - Chemical Release in Environment  
Lecture 29 - Green Sustainable Materials

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Green Sustainable Materials (Continued...)
- Lecture 31 - Design for Sustainability
- Lecture 32 - Design for Sustainability (Continued...)
- Lecture 33 - Design for Sustainability (Continued...)
- Lecture 34 - Sustainable Engineering Design Principles
- Lecture 35 - Sustainable Engineering Design Principles (Continued...)
- Lecture 36 - Summary and Case Studies
- Lecture 37 - Summary and Case Studies (Continued...)
- Lecture 38 - Summary and Case Studies (Continued...)
- Lecture 39 - Tutorial I
- Lecture 40 - Tutorial II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC: Integrated Waste Management for a Smart City

Subject Co-ordinator - Prof. Brajesh Kumar Dubey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Introduction (Continued...)
- Lecture 4 - Introduction (Continued...)
- Lecture 5 - Introduction (Continued...)
- Lecture 6 - Introduction (Continued...)
- Lecture 7 - Municipal Solid Waste Characteristics and Quantities
- Lecture 8 - Municipal Solid Waste Characteristics and Quantities (Continued...)
- Lecture 9 - Municipal Solid Waste Characteristics and Quantities (Continued...)
- Lecture 10 - Municipal Solid Waste Characteristics and Quantities (Continued...)
- Lecture 11 - MSW Characteristics - Thermal Properties and Chemical Composition
- Lecture 12 - Chemical Analysis Procedure
- Lecture 13 - Chemical Analysis Procedure (Continued...)
- Lecture 14 - Working with Data and Statistical Methods
- Lecture 15 - Waste Management Rules 2016
- Lecture 16 - Waste Management Rules 2016 (Continued...)
- Lecture 17 - Swachh Bharat Mission and Smart Cities Program Overview
- Lecture 18 - Storage of Solid Waste
- Lecture 19 - MSW Collection System
- Lecture 20 - MSW Collection System (Continued...)
- Lecture 21 - Waste Collection and Transport
- Lecture 22 - Waste Collection and Transport (Continued...)
- Lecture 23 - Waste Collection and Transport (Continued...)
- Lecture 24 - Waste Collection and Transport (Continued...)
- Lecture 25 - Waste Collection and Transport (Continued...)
- Lecture 26 - Collection System
- Lecture 27 - Collection System (Continued...)
- Lecture 28 - Review of MSW Management in Proposed Smart Cities
- Lecture 29 - Biological Treatment of Waste

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Biological Treatment of Waste (Continued...)
- Lecture 31 - Biological Treatment of Waste (Continued...)
- Lecture 32 - Biological Treatment of Waste (Continued...)
- Lecture 33 - Biological Treatment of Waste (Continued...)
- Lecture 34 - Thermal Treatment
- Lecture 35 - Thermal Treatment (Continued...)
- Lecture 36 - Thermal Treatment (Continued...)
- Lecture 37 - Thermal Treatment (Continued...)
- Lecture 38 - Thermal Treatment (Continued...)
- Lecture 39 - Thermal Treatment (Continued...)
- Lecture 40 - Landfill Disposal
- Lecture 41 - Landfill Disposal (Continued...)
- Lecture 42 - Landfill Disposal (Continued...)
- Lecture 43 - Landfill Disposal (Continued...)
- Lecture 44 - Landfill Disposal (Continued...)
- Lecture 45 - Landfill Disposal (Continued...)
- Lecture 46 - Landfill Disposal (Continued...)
- Lecture 47 - Landfill Disposal (Continued...)
- Lecture 48 - Construction and Demolition Waste Management
- Lecture 49 - Construction and Demolition Waste Management (Continued...)
- Lecture 50 - Construction and Demolition Waste Management (Continued...)
- Lecture 51 - Construction and Demolition Waste Management (Continued...)
- Lecture 52 - Construction and Demolition Waste Management (Continued...)
- Lecture 53 - E-Waste Management
- Lecture 54 - E-Waste Management (Continued...)
- Lecture 55 - E-Waste Management (Continued...)
- Lecture 56 - E-Waste Management (Continued...)
- Lecture 57 - E-Waste Management (Continued...)
- Lecture 58 - E-Waste Management (Continued...)
- Lecture 59 - E-Waste Management (Continued...)
- Lecture 60 - E-Waste Management (Continued...)
- Lecture 61 - Tutorial - I
- Lecture 62 - Tutorial - II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Computational Hydraulics

Subject Co-ordinator - Dr. Anirban Dhar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Computational Hydraulics
- Lecture 2 - Problem Definition and Governing Equations (GE)
- Lecture 3 - Classification of Problems based on Initial Condition (IC) and/or Boundary Conditions (BC)
- Lecture 4 - Classification of Differential Equations
- Lecture 5 - Numerical Methods
- Lecture 6 - Finite Difference Approximation
- Lecture 7 - Ordinary Differential Equation
- Lecture 8 - Ordinary Differential Equation
- Lecture 9 - Partial Differential Equation
- Lecture 10 - Partial Differential Equation
- Lecture 11 - Partial Differential Equation
- Lecture 12 - Partial Differential Equation
- Lecture 13 - Finite Volume Method - Overview
- Lecture 14 - Finite Volume Method - BVP
- Lecture 15 - Finite Volume Method - IBVP
- Lecture 16 - Finite Volume Method - Conservation Law
- Lecture 17 - Upwind Approach
- Lecture 18 - Godunov Approach
- Lecture 19
- Lecture 20
- Lecture 21 - Mesh-Tree Method
- Lecture 22 - Mesh-Free Method
- Lecture 23 - Mesh-Free Method
- Lecture 24 - Numerical Method
- Lecture 25 - Algebraic Equation
- Lecture 26 - Algebraic Equation
- Lecture 27 - Algebraic Equation
- Lecture 28 - Algebraic Equation
- Lecture 29 - Algebraic Equation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Algebraic Equation
- Lecture 31 - One-Dimensional Flow
- Lecture 32 - Steady Two-Dimensional Flow
- Lecture 33 - Unsteady Two-Dimensional Flow using Finite Difference Method
- Lecture 34
- Lecture 35
- Lecture 36
- Lecture 37
- Lecture 38
- Lecture 39
- Lecture 40 - Steady Channel Flow
- Lecture 41 - Steady Channel Flow
- Lecture 42 - Steady Channel Flow
- Lecture 43 - Steady Channel Flow
- Lecture 44
- Lecture 45
- Lecture 46
- Lecture 47
- Lecture 48
- Lecture 49 - Unsteady Flow in Pipes
- Lecture 50 - Surface Water and Ground Water Interaction
- Lecture 51 - Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Design of Steel Structures

Subject Co-ordinator - Prof. Damodar Maity

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Design of Steel Structures (Limit State Method)
- Lecture 2 - Steel as a Structural Material
- Lecture 3 - Limit State Design
- Lecture 4 - Introduction to Connections
- Lecture 5 - Introduction to Bolt Connections
- Lecture 6 - Design of Ordinary Black Bolts
- Lecture 7 - Worked out Examples on Design of Ordinary Black Bolts
- Lecture 8 - Design of High Strength Friction Grip Bolts
- Lecture 9 - Weld connection
- Lecture 10 - Design of Fillet Welds
- Lecture 11 - Design of Butt Welds
- Lecture 12 - Design of Plug and Slot Weld
- Lecture 13 - Eccentric Connection (Load Lying in Plane of Bolted Joint)
- Lecture 14 - Design of Eccentric Connection (Load Lying in Plane of Bolted Joint)
- Lecture 15 - Eccentric Connection (Load Lying in Plane of Welded Joint)
- Lecture 16 - Eccentric Connection (Load Lying Perpendicular to Plane of Bolted Joint)
- Lecture 17 - Design of Eccentric Connection (Load Lying Perpendicular to Plane of Bolted Joint)
- Lecture 18 - Eccentric Connection (Load Lying Perpendicular to Plane of Welded Joint)
- Lecture 19 - Tension Members and Net Area
- Lecture 20 - Calculation of Net Area in Tension Members
- Lecture 21 - Net area, Staggered bolt, Chain bolt, Staggered pitch, Deduction of area
- Lecture 22 - Strength Calculation of Tension Members
- Lecture 23 - Strength of Tension Members with Weld Connection
- Lecture 24 - Steps for Design of Tension Members
- Lecture 25 - Design Calculation for Tension Members
- Lecture 26 - Design of Gusset Plate
- Lecture 27 - Lug Angles
- Lecture 28 - Splices in Tension Members
- Lecture 29 - Compression Members

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design Strength of Compression Members
- Lecture 31 - Compressive Strength
- Lecture 32 - Compressive Strength of Angle Struts
- Lecture 33 - Compressive Strength of Double Angles
- Lecture 34 - Design of Compression Members
- Lecture 35 - Design of Builtup Compression Members
- Lecture 36 - Lacing Systems
- Lecture 37 - Design of Lacing Systems
- Lecture 38 - Connection Design of Lacing Systems
- Lecture 39 - Design of Double Lacing System
- Lecture 40 - Batten Plates
- Lecture 41 - Design of Batten Plates using Bolt Connection
- Lecture 42 - Design of Batten Plates using Weld Connection
- Lecture 43 - Design of Column Splices
- Lecture 44 - Design of Column Splices due to Shear
- Lecture 45 - Introduction to Flexural Members
- Lecture 46 - Failure Modes of Flexural Members
- Lecture 47 - Laterally Supported Beams
- Lecture 48 - Design of Laterally Supported Beams
- Lecture 49 - Laterally Supported Beams with High Shear
- Lecture 50 - Laterally Unsupported Beams
- Lecture 51 - Strength Calculation of Laterally Unsupported Beams
- Lecture 52
- Lecture 53
- Lecture 54
- Lecture 55
- Lecture 56
- Lecture 57
- Lecture 58 - Worked out Example for Gantry Girder
- Lecture 59 - Slab Base
- Lecture 60 - Design of Slab Base
- Lecture 61 - Eccentrically Loaded Base Plate
- Lecture 62 - Gusset Base
- Lecture 63 - Design of Gusset Base

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Reinforced Concrete Road Bridges

Subject Co-ordinator - Prof. Nirjhar Dhang

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Classification of Bridges
- Lecture 3 - General Features of Design
- Lecture 4 - IRC Loading
- Lecture 5 - Design Codes
- Lecture 6 - Working Stress Method
- Lecture 7 - Limit State Method of Design as per IS456
- Lecture 8 - Limit State Method of Design as per IRC 112
- Lecture 9 - Design of Slab Bridges - Part I
- Lecture 10 - Design of Slab Bridges - Part II
- Lecture 11 - Design of Slab Bridges - Part III
- Lecture 12 - Design of Slab Bridges - Part IV
- Lecture 13 - Design of Slab Bridges - Part V
- Lecture 14 - Design of Slab Bridges - Part VI
- Lecture 15 - Abutment
- Lecture 16 - Design of RCC T Beam Bridge - Part I
- Lecture 17 - Design of RCC T Beam Bridge - Part II
- Lecture 18 - Design of RCC T Beam Bridge - Part III
- Lecture 19 - Design of RCC T Beam Bridge - Part IV
- Lecture 20 - Summary and Closure

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Structural Analysis - I

Subject Co-ordinator - Prof. Amit Shaw

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Idealization of Structures, Threats and Responses
- Lecture 3 - Static Equilibrium
- Lecture 4 - Determinate and Indeterminate Structures
- Lecture 5 - Review of Bending Moment and Shear Force Diagram of Beam
- Lecture 6 - Tutorial - I
- Lecture 7 - Analysis of Statically Determinate Structures
- Lecture 8 - Analysis of Truss
- Lecture 9 - Analysis of Truss
- Lecture 10 - Analysis of Truss
- Lecture 11 - Analysis of Truss
- Lecture 12 - Analysis of Statically Determinate Structures
- Lecture 13 - Analysis of Statically Determinate Structures
- Lecture 14 - Analysis of Statically Determinate Structures
- Lecture 15 - Analysis of Statically Determinate Structures
- Lecture 16 - Analysis of Statically Determinate Structures
- Lecture 17 - Deflection of Beams and Frames
- Lecture 18 - Deflection of Beams and Frames (Continued...)
- Lecture 19 - Deflection of Beams and Frames (Continued...)
- Lecture 20 - Deflection of Beams and Frames (Continued...)
- Lecture 21 - Deflection of Beams and Frames (Continued...)
- Lecture 22 - Deflection of Beams and Frames (Continued...)
- Lecture 23 - Deflection of Beams and Frames (Continued...)
- Lecture 24 - Deflection of Beams and Frames (Continued...)
- Lecture 25 - Deflection of Beams and Frames (Continued...)
- Lecture 26 - Deflection of Beams and Frames (Continued...)
- Lecture 27 - Deflection of Beams and Frames (Continued...)
- Lecture 28 - Influence Line Diagram and moving Loads
- Lecture 29 - Influence Line Diagram and moving Loads (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Influence Line Diagram and moving Loads (Continued...)
- Lecture 31 - Influence Line Diagram and moving Loads (Continued...)
- Lecture 32 - Influence Line Diagram and moving Loads (Continued...)
- Lecture 33 - Analysis of Statically Indeterminate Structures
- Lecture 34 - Analysis of Statically Indeterminate Structures (Continued...)
- Lecture 35 - Analysis of Statically Indeterminate Structures (Continued...)
- Lecture 36 - Analysis of Statically Indeterminate Structures (Continued...)
- Lecture 37 - Analysis of Statically Indeterminate Structures (Continued...)
- Lecture 38 - Analysis of Statically Indeterminate Structures
- Lecture 39 - Analysis of Statically Indeterminate Structures
- Lecture 40 - Analysis of Statically Indeterminate Structures
- Lecture 41 - Analysis of Statically Indeterminate Structures
- Lecture 42 - Analysis of Statically Indeterminate Structures by Force Method
- Lecture 43 - Analysis of Statically Indeterminate Structures by Force Method (Continued...)
- Lecture 44 - Analysis of Statically Indeterminate Structures by Force Method (Continued...)
- Lecture 45 - Analysis of Statically Indeterminate Structures by Force Method (Continued...)
- Lecture 46 - Analysis of Statically Indeterminate Structures by Force Method (Continued...)
- Lecture 47 - Analysis of Indeterminate Structures by Displacement Methods
- Lecture 48 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 49 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 50 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 51 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 52 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 53 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 54 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 55 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 56 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Soil Mechanics, Geotechnical Engineering-I

Subject Co-ordinator - Prof. Dilip Kumar Baidya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Rock cycle
- Lecture 2 - Soil Formation
- Lecture 3 - Soil Classification
- Lecture 4 - Soil Classification (Continued...)
- Lecture 5 - Soil Classification (Continued...)
- Lecture 6 - Three-phase diagram
- Lecture 7 - Three-phase diagram (Continued...)
- Lecture 8 - Permeability and seepage
- Lecture 9 - Permeability and Seepage (Continued...)
- Lecture 10 - Permeability and seepage (Continued...)
- Lecture 11 - Permeability And Seepage
- Lecture 12 - Permeability And Seepage (Continued...)
- Lecture 13 - Permeability And Seepage (Continued...)
- Lecture 14 - Compaction Of Soils
- Lecture 15 - Compaction Of Soils (Continued...)
- Lecture 16 - Deep Dynamic Compaction
- Lecture 17 - Permeability/Compaction (Continued...)
- Lecture 18 - Effective Stress
- Lecture 19 - Effective Stress (Continued...)
- Lecture 20 - Effective Stress Application
- Lecture 21 - Vertical Stress Distribution
- Lecture 22 - Boussinesq Point Load Formula
- Lecture 23 - Vertical Stress For Distributed Load
- Lecture 24 - Vertical Stress
- Lecture 25 - Vertical Stress (Continued...)
- Lecture 26 - Vertical Stress (Continued...)
- Lecture 27 - Shear Strength
- Lecture 28 - Shear Strength (Continued...)
- Lecture 29 - Shear Strength (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Shear Strength (Continued...)
- Lecture 31 - Shear Strength (Continued...)
- Lecture 32 - Shear Strength (Continued...)
- Lecture 33 - Shear Strength (Continued...)
- Lecture 34 - Shear Strength (Continued...)
- Lecture 35 - Shear Strength (Continued...)
- Lecture 36 - Shear Strength (Continued...)
- Lecture 37 - Compressibility Of Soils
- Lecture 38 - Compressibility Of Soils (Continued...)
- Lecture 39 - Compressibility Of Soils (Continued...)
- Lecture 40 - Compressibility Of Soils (Continued...)
- Lecture 41 - Compressibility Of Soils (Continued...)
- Lecture 42 - Compressibility Of Soils (Continued...)
- Lecture 43 - Compressibility Of Soils (Continued...)
- Lecture 44 - Compressibility And Settlement Of Soil
- Lecture 45 - Compressibility And Settlement (Continued...)
- Lecture 46 - Compressibility And Secondary Compression
- Lecture 47 - Earth Pressure
- Lecture 48 - Earth Pressure (Continued...)
- Lecture 49 - Earth Pressure (Continued...)
- Lecture 50 - Earth Pressure (Continued...)
- Lecture 51 - Earth Pressure (Continued...)
- Lecture 52 - Earth Pressure (Continued...)
- Lecture 53 - Earth Pressure (Continued...)
- Lecture 54 - Earth Pressure (Continued...)
- Lecture 55 - Stability Of Slopes
- Lecture 56 - Stability Of Slopes (Continued...)
- Lecture 57 - Stability Of Slopes (Continued...)
- Lecture 58 - Slope Stability
- Lecture 59 - Slope Stability
- Lecture 60 - Concluding Remarks
- Lecture 61 - Live Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Electronic Waste Management - Issues and Challenges

Subject Co-ordinator - Prof. Brajesh Kumar Dubey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - E-Waste Overview
- Lecture 2 - E-waste Overview
- Lecture 3 - E-waste Overview
- Lecture 4 - E-waste Management Overview
- Lecture 5 - E-waste Management Overview
- Lecture 6 - Environmental and Public Health Issues
- Lecture 7 - Environmental and Public Health Issues (Continued...)
- Lecture 8 - E-waste Health Risk Assessment
- Lecture 9 - Environmental and Public Health Issues (Continued...)
- Lecture 10 - Environmental and Public Health Issues (Continued...)
- Lecture 11 - Recovery of Materials from E-Waste
- Lecture 12 - Metal Recovery Process
- Lecture 13 - Recovery of Metals from Electronic Waste
- Lecture 14 - Recovery of Metals from Electronic Waste
- Lecture 15 - Recovery of Metals from Electronic Waste
- Lecture 16 - E-waste Management
- Lecture 17 - E-waste Management
- Lecture 18 - E-waste Management
- Lecture 19 - Electronics and LCA
- Lecture 20 - LCA applications for Electronics
- Lecture 21 - Tutorial-I
- Lecture 22 - Tutorial-II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Mineral Resources - Geology, Exploration, Economics and Environment

Subject Co-ordinator - Prof. M.K.Panigrahi

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Mineral Deposits in Space and Time
- Lecture 3 - Mineral Deposits in Space and Time (Continued...)
- Lecture 4 - Mineral Deposits in Time, Attributes of Mineral Deposits and Theories of Mineral Deposits
- Lecture 5 - Classification of Mineral Deposits
- Lecture 6 - Magmatic Processes
- Lecture 7 - Magmatic Processes
- Lecture 8 - Magmatic Processes
- Lecture 9 - Magmatic Processes
- Lecture 10 - Sedimentary Processes and Resultant Mineral Deposits
- Lecture 11 - Sedimentary Processes and Resultant Deposits
- Lecture 12 - Sedimentary Processes and Resultant Deposits
- Lecture 13 - Sedimentary Processes and Resultant Deposits
- Lecture 14 - Sedimentary Processes and Resultant Deposits
- Lecture 15 - Morphology of Ore Deposits
- Lecture 16 - Hydrothermal Processes
- Lecture 17 - Hydrothermal Processes (Continued...)
- Lecture 18 - Hydrothermal Processes
- Lecture 19 - Hydrothermal Processes
- Lecture 20 - Hydrothermal Processes
- Lecture 21 - Hydrothermal Processes (Continued...)
- Lecture 22 - Hydrothermal Processes (Continued...)
- Lecture 23 - Hydrothermal Processes (Continued...)
- Lecture 24 - Hydrothermal Systems
- Lecture 25 - Hydrothermal Systems (Continued...)
- Lecture 26 - Hydrothermal Processes and Resultant Deposits
- Lecture 27 - Hydrothermal Processes and Resultant Deposits (Continued...)
- Lecture 28 - Hydrothermal Processes and Resultant Mineralization
- Lecture 29 - Indian Mineral Deposits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Indian Mineral Deposits (Continued...)
- Lecture 31 - Indian Mineral Deposits (Continued...)
- Lecture 32 - Mineral Exploration
- Lecture 33 - Mineral Exploration (Continued...)
- Lecture 34 - Mineral Exploration (Continued...)
- Lecture 35 - Mineral Exploration (Continued...)
- Lecture 36 - Mineral Exploration (Continued...)
- Lecture 37 - Mineral Exploration (Continued...)
- Lecture 38 - Mineral Exploration (Continued...)
- Lecture 39 - Mineral Exploration (Continued...)
- Lecture 40 - Mineral Exploration (Continued...)
- Lecture 41 - Mineral Exploration (Continued...)
- Lecture 42 - Mineral Exploration (Continued...)
- Lecture 43 - Mineral Exploration (Continued...)
- Lecture 44 - Mineral Exploration (Continued...)
- Lecture 45 - Mineral Inventory Estimation
- Lecture 46 - Mineral Inventory Estimation (Continued...)
- Lecture 47 - Mineral Inventory Estimation (Continued...)
- Lecture 48 - Mineral Inventory Estimation (Continued...)
- Lecture 49 - Geostatistical Method of Mineral Inventory Estimation
- Lecture 50 - Geostatistical Method of Mineral Inventory Estimation (Continued...)
- Lecture 51 - Mineral Economics
- Lecture 52 - Mineral Economics (Continued...)
- Lecture 53 - Mineral Economics (Continued...)
- Lecture 54 - Mineral Economics (Continued...)
- Lecture 55 - Mineral Economics (Continued...)
- Lecture 56 - Environmental Impact of Mineral Resource Exploitation
- Lecture 57 - Environmental Impact of Mineral Resource Exploitation (Continued...)
- Lecture 58 - Environmental Impact of Mineral Resource Exploitation (Continued...)
- Lecture 59 - Environmental Impact of Mineral Resource Exploitation (Continued...)
- Lecture 60 - Environmental Impact of Mineral Resource Exploitation (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Introduction to Mineral Processing

Subject Co-ordinator - Prof. Arun Kumar Majumder

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Importance of Mineral Processing  
Lecture 2 - Importance to Mineral Processing (Continued...)  
Lecture 3 - Importance of Mineral Processing (Continued...)  
Lecture 4 - Importance of Mineral Processing (Continued...)  
Lecture 5 - Importance of Mineral Processing (Continued...)  
Lecture 6 - Particle Characterization  
Lecture 7 - Particle Characterization (Continued...)  
Lecture 8 - Particle Characterization (Continued...)  
Lecture 9 - Particle Characterization (Continued...)  
Lecture 10 - Particle Characterization (Continued...)  
Lecture 11 - Particle Characterization (Continued...)  
Lecture 12 - Sampling  
Lecture 13 - Sampling (Continued...)  
Lecture 14 - Plant Sampling  
Lecture 15 - Plant Sampling (Continued...)  
Lecture 16 - Comminution  
Lecture 17 - Comminution (Continued...)  
Lecture 18 - Comminution Fundamentals  
Lecture 19 - Comminution Fundamentals (Continued...)  
Lecture 20 - Crushers  
Lecture 21 - Crushers (Continued...)  
Lecture 22 - Crushers (Continued...)  
Lecture 23 - Grinding  
Lecture 24 - Grinding (Continued...)  
Lecture 25 - Grinding (Continued...)  
Lecture 26 - Grinding (Continued...)  
Lecture 27 - Grinding (Continued...)  
Lecture 28 - Industrial Screening  
Lecture 29 - Industrial Screening (Continued...)

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- Lecture 30 - Industrial Screening (Continued...)
- Lecture 31 - Industrial Screening (Continued...)
- Lecture 32 - Industrial Screening (Continued...)
- Lecture 33 - Industrial Screening (Continued...)
- Lecture 34 - Industrial Screening (Continued...)
- Lecture 35 - Movement of Solids in Fluids
- Lecture 36 - Movement of Solids in Fluids (Continued...)
- Lecture 37 - Movement of Solids in Fluids (Continued...)
- Lecture 38 - Classifier
- Lecture 39 - Classifier (Continued...)
- Lecture 40 - Hydrocyclone
- Lecture 41 - Hydrocyclone (Continued...)
- Lecture 42 - Hydrocyclone (Continued...)
- Lecture 43 - Hydrocyclone (Continued...)
- Lecture 44 - Hydrocyclone (Continued...)
- Lecture 45 - Mass Balancing
- Lecture 46 - Mass Balancing (Continued...)
- Lecture 47 - Closed-Circuit Grinding
- Lecture 48 - Gravity Concentration
- Lecture 49 - Gravity Concentration (Continued...)
- Lecture 50 - Gravity Concentration (Continued...)
- Lecture 51 - Gravity Concentration (Continued...)
- Lecture 52 - Gravity Concentration (Continued...)
- Lecture 53 - Flotation
- Lecture 54 - Flotation (Continued...)
- Lecture 55 - Flotation (Continued...)
- Lecture 56 - Flotation Chemicals
- Lecture 57 - Flotation Chemicals (Continued...)
- Lecture 58 - Flotation Chemicals (Continued...)
- Lecture 59 - Flotation Machines
- Lecture 60 - Flotation Machines (Continued...)
- Lecture 61 - Magnetic Separation
- Lecture 62 - Electric Separation
- Lecture 63 - Flow Sheets
- Lecture 64 - Flow Sheets (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Foundation Engineering

Subject Co-ordinator - Prof. Koushik Deb

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Shear Strength  
Lecture 4 - Soil Exploration - Boring  
Lecture 5 - Standard Penetration Test  
Lecture 6 - Standard Penetration Test and Cone Penetration Test  
Lecture 7 - Cone Penetration Test and Other In-Situ Tests  
Lecture 8 - Types of Samples  
Lecture 9 - Geophysical Exploration - I  
Lecture 10 - Geophysical Exploration - II  
Lecture 11 - Shallow Foundation - Bearing Capacity I  
Lecture 12 - Shallow Foundation - Bearing Capacity II  
Lecture 13 - Shallow Foundation - Bearing Capacity III  
Lecture 14 - Shallow Foundation - Bearing Capacity IV  
Lecture 15 - Shallow Foundation - Bearing Capacity V  
Lecture 16 - Shallow Foundation - Settlement I  
Lecture 17 - Shallow Foundation - Settlement II  
Lecture 18 - Shallow Foundation - Settlement III  
Lecture 19 - Shallow Foundation - Settlement IV  
Lecture 20 - Shallow Foundation - Settlement V  
Lecture 21 - Shallow Foundation - Design I  
Lecture 22 - Shallow Foundation - Design II  
Lecture 23 - Shallow Foundation - Design III  
Lecture 24 - Shallow Foundation - Design IV  
Lecture 25 - Shallow Foundation - Design V  
Lecture 26 - Shallow Foundation - Design VI  
Lecture 27 - Pile Foundation - I  
Lecture 28 - Pile Foundation - II  
Lecture 29 - Pile Foundation - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pile Foundation - IV
- Lecture 31 - Pile Foundation - V
- Lecture 32 - Pile Foundation - VI
- Lecture 33 - Pile Foundation - VII
- Lecture 34 - Pile Foundation - VIII
- Lecture 35 - Pile Foundation - IX
- Lecture 36 - Pile Foundation - X
- Lecture 37 - Pile Foundation - XI
- Lecture 38 - Pile Foundation - XII
- Lecture 39 - Pile Foundation - XIII
- Lecture 40 - Pile Foundation - XIV
- Lecture 41 - Earth Pressure - I
- Lecture 42 - Earth Pressure - II
- Lecture 43 - Earth Pressure - III
- Lecture 44 - Earth Pressure - IV
- Lecture 45 - Earth Pressure - V
- Lecture 46 - Earth Pressure - VI
- Lecture 47 - Earth Pressure - VII
- Lecture 48 - Earth Pressure and Retaining Wall
- Lecture 49 - Retaining Wall - II
- Lecture 50 - Retaining Wall - III
- Lecture 51 - Retaining Wall - IV
- Lecture 52 - Retaining Wall - V and Sheet Piles - I
- Lecture 53 - Sheet Piles - II
- Lecture 54 - Sheet Piles - III
- Lecture 55 - Sheet Piles - IV
- Lecture 56 - Sheet Piles - V
- Lecture 57 - Sheet Piles - VI
- Lecture 58 - Sheet Piles and Braced Excavation
- Lecture 59 - Braced Excavation and Underground Conduits
- Lecture 60 - Underground Conduits - II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Theory of Elasticity

Subject Co-ordinator - Prof. Biswanath Banjerjee, Prof. Amit Shaw

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction to Tensor
- Lecture 3 - Introduction to Tensor (Continued...)
- Lecture 4 - Introduction to Tensor (Continued...)
- Lecture 5 - Introduction to Tensor (Continued...)
- Lecture 6 - Introduction to Tensor (Continued...)
- Lecture 7 - Concept of Stress and Strain
- Lecture 8 - Concept of Stress and Strain (Continued...)
- Lecture 9 - Concept of Stress and Strain (Continued...)
- Lecture 10 - Concept of Stress and Strain (Continued...)
- Lecture 11 - Concept of Stress and Strain (Continued...)
- Lecture 12 - Constitutive Relation - I
- Lecture 13 - Constitutive Relation - I (Continued...)
- Lecture 14 - Constitutive Relation - I (Continued...)
- Lecture 15 - Constitutive Relation - I (Continued...)
- Lecture 16 - Constitutive Relation - I (Continued...)
- Lecture 17 - Constitutive Relation - II
- Lecture 18 - Constitutive Relation - II (Continued...)
- Lecture 19 - Constitutive Relation - II (Continued...)
- Lecture 20 - Constitutive Relation - II (Continued...)
- Lecture 21 - Constitutive Relation - II (Continued...)
- Lecture 22 - Formulation of Boundary Value Problems
- Lecture 23 - Formulation of Boundary Value Problems (Continued...)
- Lecture 24 - Formulation of Boundary Value Problems (Continued...)
- Lecture 25 - Formulation of Boundary Value Problems (Continued...)
- Lecture 26 - Formulation of Boundary Value Problems (Continued...)
- Lecture 27 - Solution of Boundary Value Problems
- Lecture 28 - Solution of Boundary Value Problems (Continued...)
- Lecture 29 - Solution of Boundary Value Problems (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solution of Boundary Value Problems (Continued...)
- Lecture 31 - Solution of Boundary Value Problems (Continued...)
- Lecture 32 - Solution of Boundary Value Problems (Continued...)
- Lecture 33 - Problems in Flexure
- Lecture 34 - Problems in Flexure (Continued...)
- Lecture 35 - Problems in Flexure (Continued...)
- Lecture 36 - Problems in Flexure (Continued...)
- Lecture 37 - Problems in Flexure (Continued...)
- Lecture 38 - Boundary Value Problems in Elasticity
- Lecture 39 - Boundary Value Problems in Elasticity (Continued...)
- Lecture 40 - Boundary Value Problems in Elasticity (Continued...)
- Lecture 41 - Boundary Value Problems in Elasticity (Continued...)
- Lecture 42 - Boundary Value Problems in Elasticity (Continued...)
- Lecture 43 - Complex Variable Method
- Lecture 44 - Complex Variable Method (Continued...)
- Lecture 45 - Complex Variable Method (Continued...)
- Lecture 46 - Complex Variable Method (Continued...)
- Lecture 47 - Complex Variable Method (Continued...)
- Lecture 48 - Complex Variable Method (Continued...)
- Lecture 49 - Thermoelasticity
- Lecture 50 - Thermoelasticity (Continued...)
- Lecture 51 - Thermoelasticity (Continued...)
- Lecture 52 - Thermoelasticity (Continued...)
- Lecture 53 - Thermoelasticity (Continued...)
- Lecture 54 - Photo-Elasticity
- Lecture 55 - Photo-Elasticity (Continued...)
- Lecture 56 - Photo-Elasticity (Continued...)
- Lecture 57 - Photo-Elasticity (Continued...)
- Lecture 58 - Photo-Elasticity (Continued...)
- Lecture 59 - Introduction to Nonlinear Elasticity
- Lecture 60 - Closure

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Wastewater Treatment and Recycling

Subject Co-ordinator - Prof. Manoj Kumar Tiwari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - Sources and Types of Wastewater
- Lecture 3 - Pollutants in Wastewater
- Lecture 4 - Wastewater Management
- Lecture 5 - Wastewater Management
- Lecture 6 - Wastewater Generation and Quantity Estimation
- Lecture 7 - Quantity Estimation of Sewage
- Lecture 8 - Population Forecasting Methods
- Lecture 9 - Quantity Estimation of Sewage Flow
- Lecture 10 - Sewage Quantity Estimation
- Lecture 11 - Wastewater Characteristics
- Lecture 12 - Wastewater Characteristics
- Lecture 13 - Wastewater Characteristics
- Lecture 14 - Wastewater Characteristics
- Lecture 15 - Wastewater Characteristics
- Lecture 16 - Terrace - Introduction
- Lecture 17 - Bench Terraces
- Lecture 18 - Problems on Bench Terraces
- Lecture 19 - Broad-base Terraces
- Lecture 20 - Problems on Broad-base Terraces
- Lecture 21 - Mass Balance
- Lecture 22 - Mass Balance in Reactors
- Lecture 23
- Lecture 24
- Lecture 25
- Lecture 26
- Lecture 27
- Lecture 28 - Secondary Treatment Processes
- Lecture 29 - Biological Treatment of Wastewater

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Biological Treatment of Wastewater
- Lecture 31 - Biological Treatment of Wastewater
- Lecture 32 - Biological Treatment of Wastewater
- Lecture 33
- Lecture 34
- Lecture 35
- Lecture 36
- Lecture 37
- Lecture 38 - Introduction to Sludge Management
- Lecture 39 - Wastewater Sludge
- Lecture 40 - Wastewater Sludge Processing and Treatment
- Lecture 41 - Wastewater Sludge Processing and Treatment
- Lecture 42 - Wastewater Sludge Processing and Treatment
- Lecture 43 - Tertiary (Advanced) Treatment of Wastewater
- Lecture 44 - Tertiary Treatment
- Lecture 45 - Tertiary Treatment
- Lecture 46 - Tertiary Treatment
- Lecture 47 - Tertiary Treatment
- Lecture 48 - Wastewater Treatment Systems
- Lecture 49 - Wastewater Treatment Systems
- Lecture 50 - Alternate Wastewater Treatment Systems
- Lecture 51 - Alternate Wastewater Treatment Systems
- Lecture 52
- Lecture 53
- Lecture 54
- Lecture 55
- Lecture 56
- Lecture 57 - Wastewater Reuse and Recycling
- Lecture 58 - Decision Making in Wastewater Reuse and Recycling
- Lecture 59 - Public Acceptance for Recycled Water Use
- Lecture 60 - Wastewater Reuse and Recycling
- Lecture 61 - Course Summary
- Lecture 62 - Course Summary (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Fluid Inclusion in Mineral Principles, Methodology, Practice and

Subject Co-ordinator - Prof. M.K.Panigrahi

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Introduction (Continued...)
- Lecture 4 - Introduction (Continued...)
- Lecture 5 - Introduction (Continued...)
- Lecture 6 - Microthermometry
- Lecture 7 - Microthermometry
- Lecture 8 - Microthermometry
- Lecture 9 - Microthermometry
- Lecture 10 - Fluid Inclusion Petrography
- Lecture 11 - Aqueous Fluid Inclusions
- Lecture 12 - Aqueous Fluid Inclusions (Continued...)
- Lecture 13 - Response to Heating Experiment
- Lecture 14 - Aqueous Fluid Inclusions (Continued...)
- Lecture 15 - Aqueous Fluid Inclusions (Continued...)
- Lecture 16 - Pure Carbonic Inclusion
- Lecture 17 - Pure Carbonic Inclusion (Continued...)
- Lecture 18 - Microthermometry of Aqueous-Carbonic Inclusion
- Lecture 19 - Microthermometry of Aqueous-Carbonic Inclusion (Continued...)
- Lecture 20 - Microthermometry of Aqueous-Carbonic Fluid Inclusion
- Lecture 21 - Application of Fluid Inclusion to Ore Environment
- Lecture 22 - Application of Fluid Inclusion Studies to Ore Environment
- Lecture 23 - Application of fluid Inclusion to Ore Forming Environments
- Lecture 24 - Application of fluid Inclusion to Ore Forming Environments (Continued...)
- Lecture 25 - Application of fluid Inclusion to Ore Forming Environments (Continued...)
- Lecture 26 - Application of fluid Inclusion to Deformation, Metamorphism
- Lecture 27 - Application of fluid Inclusion to Deformation, Metamorphism (Continued...)
- Lecture 28 - Application of fluid Inclusion to Deformation, Metamorphism (Continued...)
- Lecture 29 - Application of fluid Inclusion to Deformation, Metamorphism (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Application of fluid Inclusion to Deformation, Metamorphism (Continued...)
- Lecture 31 - Analysis of Fluid Inclusion
- Lecture 32 - Analysis of Fluid Inclusion (Continued...)
- Lecture 33 - Analysis of Fluid Inclusion (Continued...)
- Lecture 34 - Analysis of Fluid Inclusion (Continued...)
- Lecture 35 - Analysis of Fluid Inclusion (Continued...)
- Lecture 36 - Computer Software for Fluid Inclusion Data
- Lecture 37 - Computer Software for Fluid Inclusion Data (Continued...)
- Lecture 38 - Computer Software for Fluid Inclusion Data (Continued...)
- Lecture 39 - Review of the Course
- Lecture 40 - Review of the Course (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Matrix Method of Structural Analysis

Subject Co-ordinator - Prof. Biswanath Banerjee, Prof. Amit Shaw

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Review of Structural Analysis - I
- Lecture 3 - Review of Structural Analysis - I (Continued...)
- Lecture 4 - Review of Structural Analysis - I (Continued...)
- Lecture 5 - Review of Structural Analysis - I (Continued...)
- Lecture 6 - Review of Structural Analysis - I (Continued...)
- Lecture 7 - Review of Structural Analysis - I (Continued...)
- Lecture 8 - Review of Structural Analysis - I (Continued...)
- Lecture 9 - Review of Structural Analysis - I (Continued...)
- Lecture 10 - Review of Structural Analysis - I (Continued...)
- Lecture 11 - Matrix Algebra Review
- Lecture 12 - Matrix Algebra Review (Continued...)
- Lecture 13 - Matrix Algebra Review (Continued...)
- Lecture 14 - Matrix Algebra Review (Continued...)
- Lecture 15 - Matrix Algebra Review (Continued...)
- Lecture 16 - Matrix Method of Analysis of Trusses
- Lecture 17 - Matrix Method of Analysis of Trusses (Continued...)
- Lecture 18 - Matrix Method of Analysis of Trusses (Continued...)
- Lecture 19 - Matrix Method of Analysis of Trusses (Continued...)
- Lecture 20 - Matrix Method of Analysis of Trusses (Continued...)
- Lecture 21 - Matrix Method of Analysis
- Lecture 22 - Matrix Method of Analysis
- Lecture 23 - Matrix Method of Analysis
- Lecture 24 - Matrix Method of Analysis
- Lecture 25 - Matrix Method of Analysis
- Lecture 26 - Matrix Method of Analysis
- Lecture 27 - Matrix Method of Analysis
- Lecture 28 - Matrix Method of Analysis
- Lecture 29 - Matrix Method of Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Matrix Method of Analysis
- Lecture 31 - Computer Implementation
- Lecture 32 - Computer Implementation (Continued...)
- Lecture 33 - Analysis of 3D Truss
- Lecture 34 - Analysis of 3D Truss (Continued...)
- Lecture 35 - Analysis of Beam
- Lecture 36 - Introduction to Finite Element Method
- Lecture 37 - Introduction to Finite Element Method (Continued...)
- Lecture 38 - Introduction to Finite Element Method (Continued...)
- Lecture 39 - Introduction to Finite Element Method (Continued...)
- Lecture 40 - Introduction to Finite Element Method (Continued...)
- Lecture 41 - Introduction to Finite Element Method (Continued...)
- Lecture 42 - Introduction to Finite Element Method (Continued...)



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Advanced Structural Analysis

Subject Co-ordinator - Prof. Devdas Menon

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Review of Basic Structural Analysis - I  
Lecture 2 - Review of Basic Structural Analysis - I  
Lecture 3 - Review of Basic Structural Analysis - I  
Lecture 4 - Review of Basic Structural Analysis - I  
Lecture 5 - Review of Basic Structural Analysis - I  
Lecture 6 - Review of Basic Structural Analysis - I  
Lecture 7 - Review of Basic Structural Analysis - II  
Lecture 8 - Review of Basic Structural Analysis - II  
Lecture 9 - Review of Basic Structural Analysis - II  
Lecture 10 - Review of Basic Structural Analysis - II  
Lecture 11 - Review of Basic Structural Analysis - II  
Lecture 12 - Review of Basic Structural Analysis - II  
Lecture 13 - Review of Basic Structural Analysis - II  
Lecture 14 - Review of Basic Structural Analysis - II  
Lecture 15 - Review of Basic Structural Analysis - II  
Lecture 16 - Review of Basic Structural Analysis - II  
Lecture 17 - Basic Matrix Concepts  
Lecture 18 - Basic Matrix Concepts  
Lecture 19 - Basic Matrix Concepts  
Lecture 20 - Basic Matrix Concepts  
Lecture 21 - Basic Matrix Concepts  
Lecture 22 - Matrix Analysis of Structures with Axial Elements  
Lecture 23 - Matrix Analysis of Structures with Axial Elements  
Lecture 24 - Matrix Analysis of Structures with Axial Elements  
Lecture 25 - Matrix Analysis of Structures with Axial Elements  
Lecture 26 - Matrix Analysis of Structures with Axial Elements  
Lecture 27 - Matrix Analysis of Beams and Grids  
Lecture 28 - Matrix Analysis of Beams and Grids  
Lecture 29 - Matrix Analysis of Beams and Grids

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Matrix Analysis of Beams and Grids
- Lecture 31 - Matrix Analysis of Beams and Grids
- Lecture 32 - Matrix Analysis of Beams and Grids
- Lecture 33 - Matrix Analysis of Plane and Space Frames
- Lecture 34 - Matrix Analysis of Plane and Space Frames
- Lecture 35 - Matrix Analysis of Plane and Space Frames
- Lecture 36 - Matrix Analysis of Plane and Space Frames
- Lecture 37 - Matrix Analysis of Plane and Space Frames
- Lecture 38 - Analysis of elastic instability and second-order effects
- Lecture 39 - Analysis of elastic instability and second-order effects
- Lecture 40 - Analysis of elastic instability and second-order effects
- Lecture 41 - Life beyond Structures & Analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Finite Element Analysis

Subject Co-ordinator - Dr. B.N. Rao

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Geosynthetics and Reinforced Soil Structures

Subject Co-ordinator - Dr. K. Rajagopal

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction & Need for Geosynthetics
- Lecture 2 - Types and Functions of Geosynthetics
- Lecture 3 - Polymers in Geosynthetics and Manufacturing Techniques
- Lecture 4 - Strength Analysis of Reinforced Soils - I
- Lecture 5 - Strength Analysis of Reinforced Soils - II
- Lecture 6 - Testing of Geosynthetics - I
- Lecture 7 - Testing of Geosynthetics - II
- Lecture 8 - Testing of Geosynthetics - III
- Lecture 9 - Different Types of Soil Retaining Structures
- Lecture 10 - Construction Aspects of Geosynthetic Reinforced Soil Retaining Walls
- Lecture 11 - Design Codes for Reinforced Soil Retaining Walls
- Lecture 12 - External Stability Analysis of Reinforced Soil Retaining Walls
- Lecture 13 - Seismic Loads and Internal Stability Analysis of Reinforced Soil Walls
- Lecture 14 - Testing Requirements for Reinforced Soil Retaining Walls
- Lecture 15 - Design Example of Reinforced Soil Retaining Walls - I
- Lecture 16 - Design Example of Reinforced Soil Retaining Walls - II
- Lecture 17 - Design Example of Reinforced Soil Retaining Walls - III
- Lecture 18 - Design Example of Reinforced Soil Retaining Walls - IV
- Lecture 19 - Case Study of Construction of Very High Tiered Reinforced Soil Walls
- Lecture 20 - Controlled Yielding to Reduce Lateral Earth Pressures on Rigid Walls
- Lecture 21 - Geosynthetic Reinforced Soil Embankments - I
- Lecture 22 - Geosynthetic Reinforced Soil Embankments - II
- Lecture 23 - Two-Part Wedge Analysis of Reinforced Soil Embankments
- Lecture 24 - Soil Embankments Supported on Geocell Mattresses
- Lecture 25 - Accelerated Pre-Consolidation of Soft Clay Soils Using Geosynthetics
- Lecture 26 - Geosynthetic Reinforced Pile Systems for High Embankments
- Lecture 27 - Geosynthetic Encasement for Stronger and Stiffer Stone Columns
- Lecture 28 - Response of Footings Resting on Reinforced Foundation Soils
- Lecture 29 - Bearing Capacity Analysis of Footings Resting on Reinforced Foundation Soils

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design and Construction of Container Yards Using Geosynthetics
- Lecture 31 - Geosynthetics in Flexible Pavements - I
- Lecture 32 - Geosynthetics in Flexible Pavements - II
- Lecture 33 - Geosynthetics in Flexible Pavements and Carbon Foot Print Analysis
- Lecture 34 - Filtration of Soils Using Geosynthetics
- Lecture 35 - Drainage Applications of Geosynthetics
- Lecture 36 - Erosion Control of Soils Using Geosynthetics
- Lecture 37 - Sustainable Infrastructure Development & Natural Geosynthetics
- Lecture 38 - Introduction to Geosynthetics in Landfills
- Lecture 39 - Case Study of the Construction of Airport Runway at Pakyong, Sikkim Using Geosynthetics (Guest I
- Lecture 40 - Landfill Engineering Systems (Guest Lecture)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Modern Construction Materials

Subject Co-ordinator - Dr. Ravindra Gettu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Prologue

Lecture 2 - The Science, Engineering and Technology of Materials An Introduction - I

Lecture 3 - The Science, Engineering and Technology of Materials An Introduction - II

Lecture 4 - Review of Atomic Bonding - I

Lecture 5 - Review of Atomic Bonding - II

Lecture 6 - Structure of Solids - I

Lecture 7 - Structure of Solids - II

Lecture 8 - Structure of Solids - III

Lecture 9 - Movement of Atoms in Solids

Lecture 10 - Development of Microstructure - I

Lecture 11 - Development of Microstructure - II

Lecture 12 - Surface Properties

Lecture 13 - Response to Stress - Part 1

Lecture 14 - Response to Stress - Part 2

Lecture 15 - Response to Stress - Part 3

Lecture 16 - Failure Theories

Lecture 17 - Fracture Mechanics - Part 1

Lecture 18 - Fracture Mechanics - Part 2

Lecture 19 - Rheology of Liquids and Solids

Lecture 20 - Thermal Properties

Lecture 21 - Review of Construction Materials

Lecture 22 - Wood and Wood Products - 1

Lecture 23 - Wood and Wood Products - 2

Lecture 24 - Wood and Wood Products - Guest Lecture

Lecture 25 - Polymers

Lecture 26 - Fibre Reinforced Polymer - 1

Lecture 27 - Fibre Reinforced Polymer - 2

Lecture 28 - Metals - Part 1

Lecture 29 - Metals - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Metals - Part 3
- Lecture 31 - Bituminous Material - Part 1
- Lecture 32 - Bituminous Material - Part 2
- Lecture 33 - Concrete - Part 1
- Lecture 34 - Concrete - Part 2
- Lecture 35 - Concrete - Part 3
- Lecture 36 - Concrete - Part 4
- Lecture 37 - Concrete - Part 5
- Lecture 38 - Glass - Guest Lecture
- Lecture 39 - Social Perception - Guest Lecture
- Lecture 40 - Water Proofing - Guest Lecture
- Lecture 41 - Floor Finishes - Guest Lecture
- Lecture 42 - Anchors - Guest Lecture



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Urban transportation planning

Subject Co-ordinator - Dr. V. Thamizh Arasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Course Outline  
Lecture 5 - Conceptual Aspects  
Lecture 6 - Conceptual Aspects (Continued...)  
Lecture 7 - Conceptual Aspects (Continued...)  
Lecture 8 - Conceptual Aspects (Continued...)  
Lecture 9 - Trip Generation Analysis  
Lecture 10 - Trip Generation Analysis (Continued...)  
Lecture 11 - Trip Generation Analysis (Continued...)  
Lecture 12 - Trip Generation Analysis (Continued...)  
Lecture 13 - Modal Split Analysis  
Lecture 14 - Modal Split Analysis (Continued...)  
Lecture 15 - Modal Split Analysis (Continued...)  
Lecture 16 - Modal Split Analysis (Continued...)  
Lecture 17 - Modal Split Analysis (Continued...)  
Lecture 18 - Modal Split Analysis (Continued...)  
Lecture 19 - Modal Split Analysis (Continued...)  
Lecture 20 - Trip Distribution Analysis  
Lecture 21 - Trip Distribution Analysis (Continued...)  
Lecture 22 - Trip Distribution Analysis (Continued...)  
Lecture 23 - Trip Distribution Analysis (Continued...)  
Lecture 24 - Trip Distribution Analysis (Continued...)  
Lecture 25 - Trip Distribution Analysis (Continued...)  
Lecture 26 - Trip Distribution Analysis (Continued...)  
Lecture 27 - Route Assignment  
Lecture 28 - Route Assignment (Continued...)  
Lecture 29 - Route Assignment (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Route Assignment (Continued...)
- Lecture 31 - Transportation Surveys
- Lecture 32 - Transportation Surveys (Continued...)
- Lecture 33 - Transportation Surveys (Continued...)
- Lecture 34 - Transport Related Land-Use Models
- Lecture 35 - Transport Related Land-Use Models (Continued...)
- Lecture 36 - Transport Related Land-Use Models (Continued...)
- Lecture 37 - Urban Structure
- Lecture 38 - Urban Structure (Continued...)
- Lecture 39 - Urban Goods Movement
- Lecture 40 - Urban Goods Movement (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Mechanics of Solids

Subject Co-ordinator - Prof. M.S. Sivakumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Planar Rigid Body
- Lecture 2 - Degrees of freedom
- Lecture 3 - Equations of Equilibrium
- Lecture 4 - Planar rigid body Statics - Example 1
- Lecture 5 - Rigid Body Statics - Example 2
- Lecture 6 - Structural Systems with rigid bodies
- Lecture 7 - Types of 1-D Structural Elements
- Lecture 8 - Trusses - Axial members
- Lecture 9 - Analysis of Truss Systems
- Lecture 10 - Stability of Structural systems
- Lecture 11 - Trusses - additional discussions
- Lecture 12 - Trusses - Method of Sections
- Lecture 13 - Beams - Example 1
- Lecture 14 - Beams - BMD & SFD
- Lecture 15 - Beams - loading, shear and BM relationships
- Lecture 16 - Virtual work method
- Lecture 17 - Virtual displacements
- Lecture 18 - Finding virtual displacements
- Lecture 19 - Virtual Work Method - Example 1
- Lecture 20 - Virtual Work Method - Example 2
- Lecture 21 - Static Friction - an understanding
- Lecture 22 - Belt Friction
- Lecture 23 - Friction
- Lecture 24 - General concepts - rigid bodies
- Lecture 25 - Motion of a rigid body = a translation + a rotation
- Lecture 26 - Motion of a point of the rigid body
- Lecture 27 - Motion of one point on a rigid body relative to another
- Lecture 28 - Understanding rotational motion  $\dot{r} = \omega \times r$
- Lecture 29 - Kinematics velocity and acceleration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Understanding Coriolis Acceleration
- Lecture 31 - Kinematics - Solving problems
- Lecture 32 - Equations of motion of a rigid body
- Lecture 33 - Tips and Techniques 1/2
- Lecture 34 - Tips and Techniques 2/2
- Lecture 35 - Solving Problems 1/4
- Lecture 36 - Solving Problems 2/4
- Lecture 37 - Solving Problems 3/4
- Lecture 38 - Solving Problems 4/4
- Lecture 39 - Engineering Statics - Solving problems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Pre-stressed Concrete Structures

Subject Co-ordinator - Prof. Devdas Menon, Dr. Amlan Kumar Sengupta

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Prestressing System
- Lecture 2 - Types of Prestressing
- Lecture 3 - Prestressing System and Devices (Pre-Tensioning)
- Lecture 4 - Prestressing System and Devices (Post-Tensioning)
- Lecture 5 - Concrete - Part-1
- Lecture 6 - Concrete, Grout - Part-2
- Lecture 7 - Prestressing Steel
- Lecture 8 - Losses in Prestress
- Lecture 9 - Friction & Anchorage Slip
- Lecture 10 - Creep, Shrinkage & Relaxation Losses
- Lecture 11 - Analysis of Members
- Lecture 12 - Analysis of Members Under Flexure
- Lecture 13 - Cracking Moment, Kern Point and Pressure Line
- Lecture 14 - Analysis of Rectangular sections
- Lecture 15 - Analysis of Flanged Sections
- Lecture 16 - Analysis of Partially Prestressed Section
- Lecture 17 - Design of Members
- Lecture 18 - Design of Members for Flexure (Type1 Members)
- Lecture 19 - Design of Members for Flexure (Type1 & Type3)
- Lecture 20 - Choice of Sections and Determination of Limiting
- Lecture 21 - Magnel's Graphical Method
- Lecture 22 - Detailing Requirements
- Lecture 23 - Analysis and Design for Shear and Torsion
- Lecture 24 - Design for Shear - Part-1
- Lecture 25 - Design for Shear - Part-2
- Lecture 26 - Analysis of Torsion
- Lecture 27 - Analysis of Torsion - Part-1
- Lecture 28 - Analysis of Torsion - Part-2
- Lecture 29 - Calculations of Deflection and Crack Width

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transmission of Prestress
- Lecture 31 - Post-tensioned Members
- Lecture 32 - Cantilever Beams
- Lecture 33 - Continuous Beams - Part-1
- Lecture 34 - Continuous Beams - Part-2
- Lecture 35 - Composite Sections
- Lecture 36 - One-Way Slabs
- Lecture 37 - Two-Way Slabs - Part-1
- Lecture 38 - Two-Way Slabs - Part-2
- Lecture 39 - compression Members
- Lecture 40 - Circular Prestressing, Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Water and Waste Water Engineering

Subject Co-ordinator - Prof. B.S. Murty, Prof. C. Venkobachar, Prof. Ligy Philip

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction To Water & Waste Water Engineering
- Lecture 2 - Water & Waste Water Quality Enhancement
- Lecture 3 - Water & Waste Water Quantity Estimation
- Lecture 4 - Water & Waste Water Quantity Estimation (Continued...)
- Lecture 5 - Water & Waste Water Characteristics
- Lecture 6 - Water & Waste Water Characteristics (Continued...)
- Lecture 7 - Water Treatment System Unit Operations
- Lecture 8 - Sedimentation
- Lecture 9 - Sedimentation (Continued...)
- Lecture 10 - Coagulation & Flocculation
- Lecture 11 - Coagulation & Flocculation (Continued...)
- Lecture 12 - Softening
- Lecture 13 - Filtration
- Lecture 14 - Filtration (Continued...)
- Lecture 15 - Disinfection
- Lecture 16 - Introduction To Domestic Waste Water Treatment
- Lecture 17 - Physical Unit Processes For Waste Water Treatment
- Lecture 18 - Introduction To Microbiology
- Lecture 19 - Microbiology - (Continued...)
- Lecture 20 - Waste Water Treatment Reactor Analysis
- Lecture 21 - Biological Unit Processes - Activated Sludge Process
- Lecture 22 - Activated Sludge Process - Modification
- Lecture 23 - Activated Sludge Process (Continued...)
- Lecture 24 - Aeration, Nitrification And Denitrification
- Lecture 25 - Natural Waste Water Treatment Systems
- Lecture 26 - Attached Growth Aerobic Process
- Lecture 27 - Anaerobic Treatment
- Lecture 28 - Anaerobic Process-UASB Reactor (Continued...)
- Lecture 29 - UASB- Continued & Sludge Treatment

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- Lecture 30 - Sludge Treatment (Continued...)
- Lecture 31 - Sludge Treatment (Continued...) & Waste Water Disposal
- Lecture 32 - Waste Water Disposal And Reuse
- Lecture 33 - Advanced Waste Water Treatment
- Lecture 34 - Adsorption
- Lecture 35 - Ion Exchange, Advanced Oxidation Process
- Lecture 36 - Industrial Waste Water Treatment
- Lecture 37 - Water Distribution Networks
- Lecture 38 - Sanitary sewerage systems
- Lecture 39 - Storm water sewerage systems
- Lecture 40 - Intake Structures And Pumping Installations



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Sustainable River Basin Management

Subject Co-ordinator - Dr. Franziska Steinbruch

Co-ordinating Institute - IGCS

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
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Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Project Planning and Control

Subject Co-ordinator - Dr. Koshy Varghese

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is Project Management? Is Project Management an Art/Science ?

Lecture 2 - Objectives of a Project, Scientific Way of Managing of Objectives

Lecture 3 - Course Scope and Plan, Questions and Discussions

Lecture 4 - Construction Industry and National Growth

Lecture 5 - Project Stakeholders, Project Phases, Project Organization

Lecture 6 - Project Scheduling Levels (Scheduling Engineer Responsibilities)

Lecture 7 - Time Management - Overview

Lecture 8 - Basics of Work Breakdown Structure (WBS)

Lecture 9 - Tools for Time Management

Lecture 10 - Gantt / Bar Chart - History, Representation, Progress Monitoring, Uses, Steps to draw a Bar Chart

Lecture 11 - Develop a Bar Chart (Exercise)

Lecture 12 - Bar Charts for Resource Usage, Pros and Cons

Lecture 13 - Duration Estimation - Types, Inputs, Methods, Parametric Estimation

Lecture 14 - Factors influencing Productivity, Example for Ideal Productivity, Factored Productivity and Work

Lecture 15 - Piling Activity Example, Applicability of different methods to Estimate Activity Duration

Lecture 16 - Summary of Key Topics, Types of Networks

Lecture 17 - Networks - Introduction, Techniques

Lecture 18 - Representing Results in a Bar Chart, AON Example-2

Lecture 19 - Introduction to Floats, Types of Floats and Example-1 Discussion

Lecture 20 - Example 4, Usage of Floats for Project Decisions

Lecture 21 - Two-Span Bridge

Lecture 22 - Two-Span Bridge

Lecture 23 - Two-Span Bridge

Lecture 24 - Review Network Analysis Concepts, Apply Network Analysis to Two-Span Bridge (Continued...)

Lecture 25 - Two-Span Bridge

Lecture 26 - Two-Span Bridge

Lecture 27 - Fast-Tracking vs Crashing, Relationship between Activity Direct Cost and Activity Duration - Ass

Lecture 28 - Time-Cost trade-off

Lecture 29 - Time-Cost trade-off

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Time-Cost trade-off
- Lecture 31 - Incorporating Factors such as Bonus and Penalty; Problem-4
- Lecture 32 - What is Resource?, Influence of Resources on Schedule, Two-Span Bridge Example, Resource Decision
- Lecture 33 - Projects and Resources, Example of Two Resources, Exercise, Two-Span Bridge Example
- Lecture 34 - Review Problem-1; Problem-2 (Cash Resource); Resolving Over-Allocation
- Lecture 35 - Problem 1 - Two Resources; Resolving Resource Allocation Problems
- Lecture 36 - Resource Profile Requirements
- Lecture 37 - Resource Leveling - Example Network
- Lecture 38 - Minimum Moment Concept
- Lecture 39 - Applying Improvement Factor - Illustration
- Lecture 40 - Introduction to Precedence Diagramming Method (PDM)
- Lecture 41 - PDM network representation and its issues, Network Calculation
- Lecture 42 - PDM - Problem #1
- Lecture 43 - Issues in PDM, Negative Lags, Problem #2 Solution
- Lecture 44 - PDM - Analysis with non-continuous duration, Floats
- Lecture 45 - Defining Relationship (Based on Construction Method) - Simple Shed
- Lecture 46 - Project Monitoring & Control - Typical Project Time Monitoring Process, Levels and Frequency of
- Lecture 47 - Project Control Process, Daily Progress Report, Macro Level Update- Data Need, Standard Progress
- Lecture 48 - Application
- Lecture 49 - Review of Key Issues in Project Monitoring, Earned Value Concept Through Examples
- Lecture 50 - Basic Earned Value Definitions and Terminology, Summary
- Lecture 51 - Uncertainty in Project Schedules
- Lecture 52 - PERT Background & Assumptions, Stepwise Procedure
- Lecture 53 - PERT Example Problem, Summary
- Lecture 54 - Course Conclusion
- Lecture 55 - Emerging Trends / Tools in Project Planning
- Lecture 56 - Industry Perspective - Prof. N. Raghavan
- Lecture 57 - Final Exam Pattern, Acknowledgements

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Structural Dynamics

Subject Co-ordinator - Prof. Ramancharala Pradeep Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1: Introduction of Structural Dynamics  
Lecture 2 - Module 2: Types of Analysis  
Lecture 3 - Module 3: Degrees of Freedom  
Lecture 4 - Module 4: Vibrations of SDOF Systems  
Lecture 5 - Module 5: Methods Solution of Equilibrium Equation  
Lecture 6 - Module 6: UnDamped free Vibration  
Lecture 7 - What is MATLAB?  
Lecture 8 - Getting Started with MATLAB Online  
Lecture 9 - MATLAB Variables  
Lecture 10 - MATLAB as a Calculator  
Lecture 11 - MATLAB Functions  
Lecture 12 - Creating Vectors  
Lecture 13 - Creating Uniformly Spaced Vectors (Colon Operator)  
Lecture 14 - Creating Uniformly Spaced Vectors (Linspace)  
Lecture 15 - Accessing Elements of a Vector  
Lecture 16 - Calculations with Vectors  
Lecture 17 - Creating Matrices  
Lecture 18 - Matrix Creation Functions  
Lecture 19 - Accessing Elements of a Matrix  
Lecture 20 - Matrix Multiplication  
Lecture 21 - Logical Operators  
Lecture 22 - Writing a FOR Loop  
Lecture 23 - If - Else Statements  
Lecture 24 - While Loop  
Lecture 25 - Line Plots  
Lecture 26 - Annotating Graphs  
Lecture 27 - Exploring Figures in MATLAB Online  
Lecture 28 - Damped Free Vibration  
Lecture 29 - Types of Damping

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Logarithmic Decrement
- Lecture 31 - Dynamic Equilibrium Equation Using Energy Method
- Lecture 32 - Module 1: UnDamped Forced Vibration
- Lecture 33 - Module 2: Damped Forced Vibration
- Lecture 34 - Module 3: Relationship between  $R_d$ ,  $R_v$  &  $R_a$
- Lecture 35 - Module 4: Resonant Frequency & Half Power Band Width
- Lecture 36 - Module 5: Transmissibility
- Lecture 37 - Module 1: Response to Arbitrary Force
- Lecture 38 - Module 2: Special Cases in Arbitrary Force
- Lecture 39 - Module 3: Fourier Transformation
- Lecture 40 - Module 1: Numerical Methods
- Lecture 41 - Module 2: Methods Based on Interpolation of Excitation
- Lecture 42 - Module 3: Central Difference Method
- Lecture 43 - Module 4: Numerical Methods based on Variation of Acceleration: Newmark's Method
- Lecture 44 - Central Difference Method (Tutorial)
- Lecture 45 - Module 1: Response Spectrum
- Lecture 46 - Module 2: Special Cases of Response Spectrum
- Lecture 47 - Module 3: Development of Tripartite Plot
- Lecture 48 - Module 1: Multi-Degree of Freedom System
- Lecture 49 - Module 2: Multi-Degree of Freedom System: Solution of Equilibrium Equation
- Lecture 50 - Module 3: Multi-Degree of Freedom System: Modal Orthogonality
- Lecture 51 - Module 4: Approximate Methods For Finding Natural Frequency
- Lecture 52 - Tutorial 01: Generation of Mass Matrix
- Lecture 53 - Tutorial 2: Eigen vector and Modal Orthogonality
- Lecture 54 - Module 1: Time History Analysis
- Lecture 55 - Module 2: Response Spectrum Analysis
- Lecture 56 - Module 1: Three Dimensional Dynamic Analysis
- Lecture 57 - Module 2: Generation of Elastic Design Response Spectra
- Lecture 58 - W09T01: Centre of Mass & Centre of Stiffness
- Lecture 59 - Module 1: Vibration of Continuous Systems
- Lecture 60 - Module 2: Example Problem on Continuous system
- Lecture 61 - Module 3: Theory of Seismometer
- Lecture 62 - Module 1: Dynamics of Non Structural Elements
- Lecture 63 - Module 2: Non Structural Elements Example
- Lecture 64 - W11T: Non Structural Elements
- Lecture 65 - Module 1: Classical and Non-classical Damping
- Lecture 66 - Module 2: Vibration Control
- Lecture 67 - Module 3: Base Isolation
- Lecture 68 - Module 4: Tuned Mass Damper

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Mechanics of Materials

Subject Co-ordinator - Dr. U. Saravanan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Why this course?
- Lecture 2 - Concepts and equations in this course
- Lecture 3 - Objectives and prerequisite
- Lecture 4 - Linear Algebra
- Lecture 5 - Vector Algebra
- Lecture 6 - Representation of Vector
- Lecture 7 - Concept of Force
- Lecture 8 - Definition of a body
- Lecture 9 - Motion and Displacement field
- Lecture 10 - Traction
- Lecture 11 - Properties of traction
- Lecture 12 - Definition of stress tensor and linear function
- Lecture 13 - Tensor Algebra
- Lecture 14 - Meaning of components of the stress tensor
- Lecture 15 - Transformation of stress components
- Lecture 16 - Mohr's Circle derivation
- Lecture 17 - Example 1
- Lecture 18 - Example 2
- Lecture 19 - Example 3
- Lecture 20 - Uniaxial stress
- Lecture 21 - Hydrostatic, pure shear and deviatoric stress
- Lecture 22 - Biaxial and Plane state of stress
- Lecture 23 - Extreme stress for 3D stresses
- Lecture 24 - Extremum shear stress
- Lecture 25 - Stresses in the Octahedral plane
- Lecture 26 - 2D Equilibrium equations
- Lecture 27 - 3D Equilibrium equations
- Lecture 28 - Stretch ratio and strain
- Lecture 29 - Curves and arc Length

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gradient
- Lecture 31 - Deformation and displacement Gradient
- Lecture 32 - Right Cauchy Green Deformation tensor
- Lecture 33 - Homogeneous deformation
- Lecture 34 - Engineering strain
- Lecture 35 - Change in Angle
- Lecture 36 - Transformation of strain components/ Strain Rosette
- Lecture 37 - Compatibility condition
- Lecture 38 - Constitutive relation
- Lecture 39 - Young's Modulus and Poisson's Ratio
- Lecture 40 - Shear Modulus
- Lecture 41 - Bulk Modulus
- Lecture 42 - Restriction on material parameters
- Lecture 43 - Thermal strain
- Lecture 44 - Strain energy, load potential and total potential
- Lecture 45 - Stepped shaft subjected to axial force
- Lecture 46 - Inhomogeneous bar subjected to axial force
- Lecture 47 - Stepped shaft subjected to raise in temperature
- Lecture 48 - Traction in member subjected to bending
- Lecture 49 - Governing equilibrium equations
- Lecture 50 - Displacement field
- Lecture 51 - Bending equation
- Lecture 52 - Radius of curvature
- Lecture 53 - Shear force and bending moment diagram
- Lecture 54 - Variation of axial stress
- Lecture 55 - Deflected shape and rotation of cross section
- Lecture 56 - Expression to find shear stress
- Lecture 57 - Finding centroid of a cross section
- Lecture 58 - Parallel axis theorem and its application
- Lecture 59 - Vertical shear stress in I section
- Lecture 60 - Horizontal shear stress in I section
- Lecture 61 - Connection design
- Lecture 62 - Definition of shear center
- Lecture 63 - Shear center of Channel section
- Lecture 64 - Expression to find shear center
- Lecture 65 - Shear force and bending moment diagram
- Lecture 66 - Deflected shape and rotation of cross section
- Lecture 67 - Finding allowable load
- Lecture 68 - Modified bending equation

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- Lecture 69 - Bending of a composite beam
- Lecture 70 - Connection design
- Lecture 71 - Moment of Intertia about arbitrarily oriented axis
- Lecture 72 - Example
- Lecture 73 - Bending equation for bending about principal axis
- Lecture 74 - Bending equation about arbitrary axis
- Lecture 75 - Neutral axis
- Lecture 76 - Load not about principal axis
- Lecture 77 - Load about principal axis
- Lecture 78 - Displacement field
- Lecture 79 - Torsion equation
- Lecture 80 - Example problems
- Lecture 81 - Expression relating angle of twist with torsion and shear stress
- Lecture 82 - Example problems
- Lecture 83 - Thin walled closed sections
- Lecture 84 - Example problems
- Lecture 85 - Cylindrical polar coordinate system
- Lecture 86 - Displacement field
- Lecture 87 - Governing differential equation and solution
- Lecture 88 - Example problems
- Lecture 89 - Thin walled pressure vessels
- Lecture 90 - General Principals
- Lecture 91 - Different failure modes
- Lecture 92 - Tresca Condition
- Lecture 93 - vonMises condition
- Lecture 94 - Maximum normal stress or rankine condition
- Lecture 95 - Mohr - Columb condition
- Lecture 96 - Drucker-Prager Condition
- Lecture 97 - General Concepts
- Lecture 98 - Euler critical load for simply supported column
- Lecture 99 - Euler critical load for column with any boundary condition
- Lecture 100 - Secant formula
- Lecture 101 - Pressure vessel and failure theory
- Lecture 102 - Determination of maximum load carrying capacity of a simple truss

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Advanced Concrete Technology

Subject Co-ordinator - Prof. Manu Santhanam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 0 - Introduction to course  
Lecture 1 - Cement Production - Part 1  
Lecture 2 - Cement Production - Part 2  
Lecture 3 - Cement Composition - Part 1  
Lecture 4 - Cement Composition - Part 2  
Lecture 5 - Cement Classification - Part 1  
Lecture 6 - Cement Classification - Part 2  
Lecture 7 - Cement Chemistry - Part 1  
Lecture 8 - Cement Chemistry - Part 2  
Lecture 9 - Cement Chemistry - Part 3  
Lecture 10 - Cement Chemistry - Part 4  
Lecture 11 - Cement Chemistry - Part 5  
Lecture 12 - Aggregates for concrete - Part 1  
Lecture 13 - Aggregates for concrete - Part 2  
Lecture 14 - Chemical admixtures - Part 1  
Lecture 15 - Chemical admixtures - Part 2  
Lecture 16 - Chemical admixtures - Part 3  
Lecture 17 - Chemical admixtures - Part 4  
Lecture 18 - Chemical admixtures - Part 5  
Lecture 19 - Mineral admixtures - Part 1  
Lecture 20 - Mineral admixtures - Part 2  
Lecture 21 - Mineral admixtures - Part 3  
Lecture 22 - Mineral admixtures - Part 4  
Lecture 23 - Mineral admixtures - Part 5  
Lecture 24 - Mineral admixtures - Part 6  
Lecture 25 - Mineral admixtures - Part 7  
Lecture 26 - Mixture proportioning  
Lecture 27 - Fresh concrete - Part 1  
Lecture 28 - Fresh concrete - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Fresh properties - Part 3
- Lecture 30 - Introduction to Harden concrete properties
- Lecture 31 - Post peak response and Fibre reinforced concrete
- Lecture 32 - Shrinkage
- Lecture 33 - Creep
- Lecture 34 - Shrinkage
- Lecture 35 - Shrinkage
- Lecture 36 - Introduction to Durability
- Lecture 37 - Performance based specifications for durable concrete
- Lecture 38 - Durability issues in concrete - Part 1
- Lecture 39 - Durability issues in concrete - Part 2
- Lecture 40 - Durability issues in concrete - Part 3
- Lecture 41 - Durability issues in concrete - Part 4
- Lecture 42 - Durability issues in concrete - Part 5
- Lecture 43 - Durability issues in concrete - Part 6

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Glass in Buildings: Design and Application

Subject Co-ordinator - Prof. K.N. Satyanarayana

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Float Process for Manufacturing Glass - Part 1
- Lecture 3 - Float Process for Manufacturing Glass - Part 2
- Lecture 4 - Coatings on Glass - Need and Types - Part 2
- Lecture 5 - Coatings on Glass - Need and Types - Part 2
- Lecture 6 - Glass Design for Safety, Sustainability and Aesthetic - Part 1
- Lecture 7 - Glass Design for Safety, Sustainability and Aesthetic - Part 2
- Lecture 8 - Structural Control and Design for Energy Efficiency - Part I
- Lecture 9 - Structural Control and Design for Energy Efficiency - Part II
- Lecture 10 - Structural Control and Design for Energy Efficiency - Part III
- Lecture 11 - Structural Control and Design for Energy Efficiency - Part IV
- Lecture 12 - Structural Control and Design for Energy Efficiency - Part V
- Lecture 13 - Design Tools for Glass Selection - Part I
- Lecture 14 - Design Tools for Glass Selection - Part II
- Lecture 15 - Modeling the Building Envelope - Part I
- Lecture 16 - Modeling the Building Envelope - Part II
- Lecture 17 - Modeling the Building Envelope - Part III
- Lecture 18 - Innovations in Glass Future Facades - Part I
- Lecture 19 - Innovations in Glass Future Facades - Part II
- Lecture 20 - Standards Related to Glass
- Lecture 21 - Introduction to Useful Daylighting in Buildings
- Lecture 22 - Fundamentals of Daylighting - Part I
- Lecture 23 - Fundamentals of Daylighting - Part II
- Lecture 24 - Daylighting Strategies - Techniques - Part I - Video 1
- Lecture 25 - Daylighting Strategies - Techniques - Part I - Video 2
- Lecture 26 - Daylighting Strategies - Techniques - Part II - Video 1
- Lecture 27 - Daylighting Strategies - Techniques - Part II - Video 2
- Lecture 28 - Daylighting Strategies - Techniques - Part II - Video 3
- Lecture 29 - ECBC and Green Building Requirements

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Daylight Simulation
- Lecture 31 - Daylighting Controls - Part I
- Lecture 32 - Daylighting Controls - Part II
- Lecture 33 - Achieving Acoustics Through Glass
- Lecture 34 - Glass Processing Overview - Part I
- Lecture 35 - Glass Processing Overview - Part II
- Lecture 36 - Interior Glazing Program - Part I
- Lecture 37 - Interior Glazing Program - Part II
- Lecture 38 - Interior Glazing Applications-Shower Enclosure - Part I
- Lecture 39 - Interior Glazing Applications-Shower Enclosure - Part II
- Lecture 40 - Interior Glazing Applications-Shower Enclosure - Part III
- Lecture 41 - Interior Glazing Applications-Shower Enclosure - Part IV
- Lecture 42 - Glass in Passive Fire Protection - Part I
- Lecture 43 - Glass in Passive Fire Protection - Part II
- Lecture 44 - Glass in Passive Fire Protection - Part III
- Lecture 45 - Glazing Choices for Project Segment - Part I
- Lecture 46 - Glazing Choices for Project Segment - Part II
- Lecture 47 - National Building Code 2016 - Part I
- Lecture 48 - National Building Code 2016 - Part II
- Lecture 49 - National Building Code 2016 - Part III
- Lecture 50 - National Building Code 2016 - Part IV
- Lecture 51 - Facade Fundamentals - Part I
- Lecture 52 - Facade Fundamentals - Part II
- Lecture 53 - Facade Fundamentals - Part III
- Lecture 54 - Facade Fundamentals - Part IV
- Lecture 55 - Glass Application on Facades - Part I
- Lecture 56 - Glass Application on Facades - Part II
- Lecture 57 - Glass Application on Facades - Part III
- Lecture 58 - Energy Efficiency Facade System
- Lecture 59 - Structural Design of Facades - Part I
- Lecture 60 - Structural Design of Facades - Part II
- Lecture 61 - Silicone for Structural Glazing - Part - I
- Lecture 62 - Silicone for Structural Glazing - Part - II
- Lecture 63 - Silicone for Structural Glazing - Part - III
- Lecture 64 - Facade Factory Operations - Part I
- Lecture 65 - Facade Factory Operations - Part II
- Lecture 66 - Performance Testing for Facades - Part I
- Lecture 67 - Performance Testing for Facades - Part II
- Lecture 68 - The Role of Windows in Building Design - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - The Role of Windows in Building Design - Part II
- Lecture 70 - Standards Related to Glass II
- Lecture 71 - FAQs about usage of Glass in Buildings
- Lecture 72 - Case Study of a Different Concept of Facade
- Lecture 73 - Case Studies-Envelope Design and Its Impact - Part I
- Lecture 74 - Case Studies-Envelope Design and Its Impact - Part II
- Lecture 75 - A Case Study of Building Envelope in the context of Environmentally Sustainable Design - Part I
- Lecture 76 - A Case Study of Building Envelope in the context of Environmentally Sustainable Design - Part II
- Lecture 77 - Sustainable Building and Facades - Part I
- Lecture 78 - Sustainable Building and Facades - Part II
- Lecture 79 - Building Envelope Design for Sustainable Buildings
- Lecture 80 - Building Envelope Design
- Lecture 81 - Case Study for Building Envelop Design - Part I
- Lecture 82 - Case Study for Building Envelop Design - Part II
- Lecture 83 - Case study-Commercial Buildings - Part I
- Lecture 84 - Case study-Commercial Buildings - Part II
- Lecture 85 - Case study-Commercial Buildings - Part III
- Lecture 86 - Case Study-The Untold Truth of the Unbuilt - Part I
- Lecture 87 - Case Study-The Untold Truth of the Unbuilt - Part II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Glass Processing Technology

Subject Co-ordinator - Prof. K.N. Satyanarayana

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Glass as Building Material - Part I
- Lecture 3 - Glass as Building Material - Part II
- Lecture 4 - Float Glass Manufacturing - Part I
- Lecture 5 - Float Glass Manufacturing - Part II
- Lecture 6 - Glass Coating Technology - Part I
- Lecture 7 - Glass Coating Technology - Part II
- Lecture 8 - Safety in Industries - Part I
- Lecture 9 - Safety in Industries - Part II
- Lecture 10 - Safety in Glass Handling - Part I
- Lecture 11 - Safety in Glass Handling - Part II
- Lecture 12 - Process Flow- PPE
- Lecture 13 - Serviceability-Sales - Production Planning in Solutions Business - Part I
- Lecture 14 - Serviceability-Sales - Production Planning in Solutions Business - Part II
- Lecture 15 - Serviceability-Sales - Production Planning in Solutions Business - Part III
- Lecture 16 - Environment and Eco packaging
- Lecture 17 - Glass Warehouse Management - Part I
- Lecture 18 - Glass Warehouse Management - Part II
- Lecture 19 - Cutting and Snapping
- Lecture 20 - Pre-Processing-Drilling - Part I
- Lecture 21 - Pre-Processing-Drilling - Part II
- Lecture 22 - Grinding and Fabrication
- Lecture 23 - Pre-Processing - Washing
- Lecture 24 - Tempering - Part I
- Lecture 25 - Tempering - Part II
- Lecture 26 - Tempering - Part III
- Lecture 27 - Tempering - Part IV
- Lecture 28 - Tempering - Part V
- Lecture 29 - Tempering - Part VI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tempering - Part VII
- Lecture 31 - Lamination - Part I
- Lecture 32 - Lamination - Part II
- Lecture 33 - Lamination - Part III
- Lecture 34 - Insulating Glass Unit - Part I
- Lecture 35 - Insulating Glass Unit - Part II
- Lecture 36 - Insulating Glass Unit - Part III
- Lecture 37 - Insulating Glass Unit - Part IV
- Lecture 38 - Insulating Glass Unit - Part V
- Lecture 39 - Insulating Glass Unit - Part VI
- Lecture 40 - Insulating Glass Unit - Part VII
- Lecture 41 - Insulating Glass Unit - Part VIII
- Lecture 42 - Insulating Glass Unit - Part IX
- Lecture 43 - Silicone Sealant for Insulated Glass - Part I
- Lecture 44 - Silicone Sealant for Insulated Glass - Part II
- Lecture 45 - Insulating Glass Unit - Part X
- Lecture 46 - Insulating Glass Unit - Part XI
- Lecture 47 - Insulating Glass Unit - Part XII
- Lecture 48 - Processing Standards and Checks
- Lecture 49 - Quality Testing - Part I
- Lecture 50 - Quality Testing - Part II
- Lecture 51 - Quality Testing - Part III
- Lecture 52 - Quality Testing - Part IV - Video 1
- Lecture 53 - Quality Testing - Part IV - Video 2
- Lecture 54 - Quality Testing - Part V
- Lecture 55 - Quality Testing - Part VI
- Lecture 56 - Quality Testing - Part VII
- Lecture 57 - Heat soaking - Part I
- Lecture 58 - Heat soaking - Part II
- Lecture 59 - Ceramic Printing on Glass - Part I
- Lecture 60 - Ceramic Printing on Glass - Part II
- Lecture 61 - Ceramic Printing on Glass - Part III
- Lecture 62 - Ceramic Printing on Glass - Part IV
- Lecture 63 - Glass Breakage Reasons
- Lecture 64 - Internal Process Loss - Part I
- Lecture 65 - Internal Process Loss - Part II
- Lecture 66 - Internal Process Loss - Part III
- Lecture 67 - Root Cause Analysis - Part I
- Lecture 68 - Root Cause Analysis - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Post Manufacturing Expenses
- Lecture 70 - 5S in Glass Processing
- Lecture 71 - Introduction to Quality Management System - Part I
- Lecture 72 - Introduction to Quality Management System - Part II
- Lecture 73 - Glass Processing - Applications, Innovations and Futuristic Trends - Part I
- Lecture 74 - Glass Processing - Applications, Innovations and Futuristic Trends - Part II
- Lecture 75 - Sustainability on Glass Processing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Foundation Engineering

Subject Co-ordinator - Prof. Priti Maheswari, Prof. N.K. Samadhiya, Prof. Mahendra Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Shallow Foundation - 1  
Lecture 2 - Shallow Foundation - 2  
Lecture 3 - Shallow Foundation - 3  
Lecture 4 - Shallow Foundation - 4  
Lecture 5 - Shallow Foundation - 5  
Lecture 6 - Shallow Foundation - 6  
Lecture 7 - Shallow Foundation - 7  
Lecture 8 - Lateral Earth pressure Theories Retaining Walls - 1  
Lecture 9 - Lateral Earth pressure Theories Retaining Walls - 2  
Lecture 10 - Lateral Earth pressure Theories Retaining Walls - 3  
Lecture 11 - Lateral Earth Pressure Theories Retaining Walls - 4  
Lecture 12 - Lateral Earth Pressure Theories Retaining Walls - 5  
Lecture 13 - Pile Foundations - 1  
Lecture 14 - Pile Foundations - 2  
Lecture 15 - Pile Foundations - 3  
Lecture 16 - Pile Foundations - 4  
Lecture 17 - Pile Foundations - 5  
Lecture 18 - Pile Foundations - 6  
Lecture 19 - Pile Foundations - 7  
Lecture 20 - Machine Foundations - 1  
Lecture 21 - Machine Foundations - 2  
Lecture 22 - Machine Foundations - 3  
Lecture 23 - Machine Foundations - 4  
Lecture 24 - Well Foundations - 1  
Lecture 25 - Well Foundations - 2  
Lecture 26 - Well Foundations - 3  
Lecture 27 - Foundation Engineering - 1  
Lecture 28 - Foundation Engineering - 2  
Lecture 29 - Foundation Engineering - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30	-	Foundation Engineering	-	4
Lecture 31	-	Foundation Engineering	-	5
Lecture 32	-	Foundation Engineering	-	6
Lecture 33	-	Foundation Engineering	-	7
Lecture 34	-	Foundation Engineering	-	8
Lecture 35	-	Foundation Engineering	-	9
Lecture 36	-	Foundation Engineering	-	10
Lecture 37	-	Foundation Engineering	-	11
Lecture 38	-	Foundation Engineering	-	12
Lecture 39	-	Foundation Engineering	-	13
Lecture 40	-	Foundation Engineering	-	14

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Modern Surveying Techniques

Subject Co-ordinator - Prof. S.K. Ghosh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Geographic Information System An Introduction  
Lecture 2 - Introduction to Global Positioning System  
Lecture 3 - GPS Positioning Methods  
Lecture 4 - GPS Solutions and Errors  
Lecture 5 - GPS Application  
Lecture 6 - Remote Sensing Introduction  
Lecture 7 - Electromagnetic Spectrum  
Lecture 8 - Sensors and Platform  
Lecture 9 - Sensors and Platform  
Lecture 10 - Image Interpretation  
Lecture 11 - Statistical Evaluation of RS Data  
Lecture 12 - Rectification and Restoration  
Lecture 13 - Image Enhancement  
Lecture 14 - Image Transformation  
Lecture 15 - Orthogonal Transformation  
Lecture 16 - Image Classification (Supervised Classification)  
Lecture 17 - Image Classification (Unsupervised Classification)  
Lecture 18 - Spatial Filtering-Noise Removal  
Lecture 19 - Spatial Filtering-Edge Removal  
Lecture 20 - Photogramatic-Basic concepts of a single photography  
Lecture 21 - Stereoscopy-Basic concepts  
Lecture 22 - Stereoscopy-Geometry of overlapping photograph  
Lecture 23 - Terrestrial Photogrammetry  
Lecture 24 - Digital Elevation Model-Basic Concepts  
Lecture 25 - Digital Elevation Model-Data Input and Stamping  
Lecture 26 - Digital Elevation Model-Surface representation and analysis  
Lecture 27 - GIS-Introductory Concepts  
Lecture 28 - GIS-Data Input  
Lecture 29 - Data Verification and Editing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - GIS Data Model
- Lecture 31 - GIS Data Base
- Lecture 32 - Spatial Analysis
- Lecture 33 - Map Overlay and Spatial Correlation
- Lecture 34 - Application to Drought Management
- Lecture 35 - GIS base planning model for educational facilities in rural areas
- Lecture 36 - Application extraction of building attributes
- Lecture 37 - Zonal based tourism planning
- Lecture 38 - Zonal Planning using remote sensing
- Lecture 39 - Municipal GIS for assessment of property tax
- Lecture 40 - Application of remote sensing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Transportation Engineering II

Subject Co-ordinator - Prof. Rajat Rastogi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Railway Engineering  
Lecture 2 - Gauges and Permanent Way  
Lecture 3 - Wheel and Axles, Coning of Wheels  
Lecture 4 - Track Resistances, Hauling Capacity  
Lecture 5 - Track Modulus, Stresses in Track  
Lecture 6 - Stresses in Components of Track  
Lecture 7 - Rails  
Lecture 8 - Creep in Rails  
Lecture 9 - Wears & Failures in Rails  
Lecture 10 - Jointed or Welded rails  
Lecture 11 - Sleepers  
Lecture 12 - Ballast  
Lecture 13 - Fastenings  
Lecture 14 - Geometric Design - Alignment of Track  
Lecture 15 - Horizontal Curve and Super elevation  
Lecture 16 - Speeds on Track  
Lecture 17 - Transition Curve & Widening of Track  
Lecture 18 - Vertical Curve & Gradients  
Lecture 19 - Turnouts - Components  
Lecture 20 - Crossing and Design of Turnout  
Lecture 21 - Track Junctions and Designs  
Lecture 22 - Signals - Part 1  
Lecture 23 - Signals - Part 2  
Lecture 24 - Train Control Systems  
Lecture 25 - Interlocking of Track  
Lecture 26 - High Speed Tracks  
Lecture 27 - Introduction of Air Transport  
Lecture 28 - Aircraft Characteristics  
Lecture 29 - Aircraft Controls, Airport Site&Size Selection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Airport Obstructions
- Lecture 31 - Runway Orientation
- Lecture 32 - Runway Length
- Lecture 33 - Runway Geometric
- Lecture 34 - Taxiway
- Lecture 35 - Exit Taxiway
- Lecture 36 - Aprons and Aircraft Parking
- Lecture 37 - Terminal Area and Building
- Lecture 38 - Terminal Planning and Hangers
- Lecture 39 - Visual Aids-Markings
- Lecture 40 - Visual Aids-Lighting and Signage

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Introduction to Geographic Information Systems

Subject Co-ordinator - Dr.Arun K.Saraf

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Geographic Information Systems ?
- Lecture 2 - Different components of GIS
- Lecture 3 - Different types of vector data and concept of topology
- Lecture 4 - Raster data models and comparisons with vector
- Lecture 5 - TIN data model and comparisons with raster
- Lecture 6 - Non-spatial data (attributes) and their type
- Lecture 7 - Raster data compression techniques
- Lecture 8 - Spatial database systems and their types
- Lecture 9 - Pre-processing of spatial datasets
- Lecture 10 - Geo-referencing
- Lecture 11 - Different map projections
- Lecture 12 - Spatial interpolation techniques
- Lecture 13 - Digital Elevation Models and different types of resolutions
- Lecture 14 - Quality assessment of freely available DEMS
- Lecture 15 - GIS analysis - Part 1
- Lecture 16 - GIS analysis - Part 2 (Overlaying Operations)
- Lecture 17 - GIS analysis - Part 3 (Buffer Analysis)
- Lecture 18 - Classification Methods
- Lecture 19 - Errors in GIS and Key elements of maps
- Lecture 20 - Limitations of GIS

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Principles and Applications of Building Science

Subject Co-ordinator - Dr. E. Rajasekar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Solar Geometry

Lecture 2 - Climate Classification

Lecture 3 - Thermal Comfort in Built Environment - 1

Lecture 4 - Thermal Comfort in Built Environment - 2

Lecture 5 - Thermal Adaptation

Lecture 6 - Bioclimatic Assessment

Lecture 7 - Thermal Performance of Building Envelop

Lecture 8 - Thermal Performance of Building Envelop - Indices and Measures (1/2)

Lecture 9 - Thermal Performance of Building Envelop - Indices and Measures (2/2)

Lecture 10 - Glazing and Shading Systems

Lecture 11 - Shading Analysis

Lecture 12 - Energy Efficiency and Simulation

Lecture 13 - Building Acoustics - Basics

Lecture 14 - Sound Propagation

Lecture 15 - Acoustic Quality Indicators (1/2)

Lecture 16 - Acoustic Quality Indicators (2/2)

Lecture 17 - Acoustic Design Considerations

Lecture 18 - Acoustic Materials

Lecture 19 - Lighting - Basics

Lecture 20 - Lighting Design Concepts

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:GPS Surveying

Subject Co-ordinator - Dr.Jayanta Kumar Ghosh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction (GPS Surveying and Applications)
- Lecture 2 - GPS System
- Lecture 3 - GPS Signal (Civilian Perspective)
- Lecture 4 - GPS Receiver
- Lecture 5 - GPS Software
- Lecture 6 - GPS Position
- Lecture 7 - GPS Positioning (Principle and Methods)
- Lecture 8 - Field demonstration of GPS Positioning Method
- Lecture 9 - GPS Observables (Types, Errors and Quality)
- Lecture 10 - Errors in GPS Observables (Systematics Errors)
- Lecture 11 - GPS Data Pre-Processing - I
- Lecture 12 - GPS Data Pre-Processing - II
- Lecture 13 - GPS Data Processing - I
- Lecture 14 - GPS Data Processing - II
- Lecture 15 - Quality Assessment of GPS Surveying
- Lecture 16 - Procedure of GPS Surveying - I
- Lecture 17 - Procedure of GPS Surveying - II
- Lecture 18 - Procedure of GPS Surveying - III
- Lecture 19 - GPS Field Surveying
- Lecture 20 - GPS Data Processing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Digital Land Surveying And Mapping

Subject Co-ordinator - Prof. Jayanta Kumar Ghosh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Applications

Lecture 2 - Fundamentals and Operations

Lecture 3 - Overview of Digital Land Surveying

Lecture 4 - Introduction of GPS

Lecture 5 - GPS Signal (Civilian Perspective)

Lecture 6 - GPS User Segment

Lecture 7 - GPS Positioning of Control Point

Lecture 8 - Demonstration of GPS Receivers, Software and Positioning of Control Point

Lecture 9 - GPS Position

Lecture 10 - Principle of GPS Positioning and GPS Observables

Lecture 11 - Errors in GPS Observables

Lecture 12 - GPS Data Pre-processing

Lecture 13 - GPS Data Pre-processing

Lecture 14 - GPS Data Processing

Lecture 15 - GPS Data Processing

Lecture 16 - Quality Assessment of GPS Surveying

Lecture 17 - Introduction to Total Station

Lecture 18 - Parts of Total Station

Lecture 19 - Accessories of Total Station

Lecture 20 - Handling and Setting of Total Station

Lecture 21 - Measurement of Distance

Lecture 22 - Measurement of Distance Using TS

Lecture 23 - Measurement of Horizontal Angle Using TS

Lecture 24 - Measurement of Vertical Angle and Height Using TS

Lecture 25 - Errors in Total Station

Lecture 26 - Other Errors in Total Station

Lecture 27 - Errors and Quality of Surveying Measurements

Lecture 28 - Error Propagation and Survey Specifications

Lecture 29 - Basics of Vertical Representation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Contouring
- Lecture 31 - Mapping Fundamentals
- Lecture 32 - Mapping Basics
- Lecture 33 - Mapping Software
- Lecture 34 - Automated Mapping
- Lecture 35 - Working Steps
- Lecture 36 - Establishment of Control Point
- Lecture 37 - Detailing of Digital Land Surveying
- Lecture 38 - Demonstration of Digital Land Survey Detailing
- Lecture 39 - Data Preparation and Map Making
- Lecture 40 - Overview of the Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Digital Image Processing of Remote Sensing Data

Subject Co-ordinator - Dr.Arun K.Saraf

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Remote-sensing Image and How it is represented
- Lecture 2 - Different Techniques of Image Acquisition
- Lecture 3 - Why is Digital Image processing Important ?
- Lecture 4 - Image characteristics and Different Resolutions in Remote Sensing
- Lecture 5 - Electromagnetic spectrum, solar reflection, and thermal emission
- Lecture 6 - Color Representation and Transformations
- Lecture 7 - Image histograms and statistics
- Lecture 8 - Geo-referencing Techniques
- Lecture 9 - Image Enhancement Techniques part 1
- Lecture 10 - Image Enhancement Techniques part 2
- Lecture 11 - Multispectral Transform, Scatter Plot, Principal Component Analysis and Decorrelation Stretch
- Lecture 12 - Spatial Filtering Techniques
- Lecture 13 - Frequency Domain Fourier Transformation
- Lecture 14 - Basic Image Compression Techniques and Different Image File Formats
- Lecture 15 - Image Classification Techniques
- Lecture 16 - Principles of Image Interpretation
- Lecture 17 - SAR Interferometry (InSAR) Techniques
- Lecture 18 - Image Merging and Image Mosaicing Techniques
- Lecture 19 - Application of Image Analysis
- Lecture 20 - Limitations and Future of Digital Image Processing

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Applied Environmental Microbiology

Subject Co-ordinator - Dr. Gargi Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - I  
Lecture 2 - Introduction - II  
Lecture 3 - Cell Structure - I  
Lecture 4 - Cell Structure - II  
Lecture 5 - Central Dogma - I  
Lecture 6 - Central Dogma - II  
Lecture 7 - Microbial Energetics - I  
Lecture 8 - Microbial Energetics - II  
Lecture 9 - Microbial Energetics - III  
Lecture 10 - Microbial Energetics - IV  
Lecture 11 - Microbial Metabolism - I  
Lecture 12 - Microbial Metabolism - II  
Lecture 13 - Functional Diversity of Bacteria - I  
Lecture 14 - Functional Diversity of Bacteria - II  
Lecture 15 - Functional Diversity of Bacteria - III  
Lecture 16 - Microbial Ecosystem - I  
Lecture 17 - Microbial Ecosystem - II  
Lecture 18 - Microbial Ecosystem - III  
Lecture 19 - Microbial Ecosystem - IV  
Lecture 20 - Microbial Ecosystem - V  
Lecture 21 - Environmental Genomics - I  
Lecture 22 - Environmental Genomics - II  
Lecture 23 - Environmental Genomics - III  
Lecture 24 - Environmental Genomics - IV  
Lecture 25 - Environmental Genomics - V  
Lecture 26 - Microbial Symbiosis - I  
Lecture 27 - Microbial Symbiosis - II  
Lecture 28 - Virus - I  
Lecture 29 - Virus - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Applied Environmental Microbiology
- Lecture 31 - Techniques in Environmental Microbiology - I
- Lecture 32 - Techniques in Environmental Microbiology - II
- Lecture 33 - Bioremediation - I
- Lecture 34 - Bioremediation - II
- Lecture 35 - Bioremediation - III
- Lecture 36 - Wastewater Microbiology - I
- Lecture 37 - Wastewater Microbiology - II
- Lecture 38 - Built Microbiology
- Lecture 39 - Exposomes - I
- Lecture 40 - Exposomes - II
- Lecture 41 - Drinking Water Microbiology - I
- Lecture 42 - Drinking Water Microbiology - II
- Lecture 43 - Drinking Water Microbiology - III
- Lecture 44 - Drinking Water Microbiology - IV
- Lecture 45 - Drinking Water Microbiology - V
- Lecture 46 - Solid Waste Microbiology - I
- Lecture 47 - Solid Waste Microbiology - II
- Lecture 48 - Solid Waste Microbiology - III
- Lecture 49 - Antimicrobial Resistance - I
- Lecture 50 - Antimicrobial Resistance - II
- Lecture 51 - Epidemiology - I
- Lecture 52 - Epidemiology - II
- Lecture 53 - Biosensors - I
- Lecture 54 - Biosensors - II
- Lecture 55 - Biosensors - III
- Lecture 56 - Bioinformatics - I
- Lecture 57 - Bioinformatics - II
- Lecture 58 - Bioinformatics - III
- Lecture 59 - Bioinformatics - IV
- Lecture 60 - Bioinformatics - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Digital Elevation Models and Applications

Subject Co-ordinator - Prof. Arun K. Saraf

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concept of Digital Elevation Model and How It Is Represented
- Lecture 2 - Various Techniques to Generate Digital Elevation Model - 1
- Lecture 3 - Various Techniques to Generate Digital Elevation Model - 2
- Lecture 4 - Various Techniques to Generate Digital Elevation Model - 3
- Lecture 5 - Importance of Spatial Resolution With DEMs
- Lecture 6 - How To Assess Quality of DEM?
- Lecture 7 - Integration of DEMs With Satellite Data
- Lecture 8 - Common Derivatives of DEMs- Slope and Aspect
- Lecture 9 - Triangulated Irregular Network (TIN) and Its Derivatives
- Lecture 10 - Shaded Relief Models and Thier Applications
- Lecture 11 - DEMs Derivatives - 1
- Lecture 12 - DEMs Derivatives - 2
- Lecture 13 - DEMs Derivatives - 3
- Lecture 14 - DEMs Derivatives - 4
- Lecture 15 - DEM Based Surface Hydrologic Modelling - 1
- Lecture 16 - DEM Based Surface Hydrologic Modelling - 2
- Lecture 17 - DEM and DAM Simulation and Its Application In Ground Water Hydrology
- Lecture 18 - Applications of DEMs In Solar and Wind Energy Potential Estimations
- Lecture 19 - Applications of DEMs in Viewshed and Flood Hazard Mapping
- Lecture 20 - DEMs Sources, Limitations and Future of Digital Elevation Models

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Environmental Engineering-Chemical Processes

Subject Co-ordinator - Prof. Bhanu Prakash Vellanki

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Fundamentals of Equilibrium and Kinetics
- Lecture 2 - Equilibrium-Process Feasibility, Gibbs Energy-Standard Condition
- Lecture 3 - Gibbs Free Energy-Non Standard Conditions - I
- Lecture 4 - Gibbs Free Energy-Non Standard Conditions - II
- Lecture 5 - Phase Equilibrium
- Lecture 6 - Component Balance
- Lecture 7 - Reaction Kinetics
- Lecture 8 - Rate of Reaction - I
- Lecture 9 - Rate of Reaction - II, Types of Reactors
- Lecture 10 - Mass Balance on different types of Reactors
- Lecture 11 - Material Balance for Complex Reactions
- Lecture 12 - Material Balance for Reversible Reactions
- Lecture 13 - Determination of Kinetic Equations
- Lecture 14 - Acid-Base Reactions
- Lecture 15 - Acid Dissociation Constant, Strength of Acid
- Lecture 16 - Ionization Fractions
- Lecture 17 - Introduction to VMINTEQ
- Lecture 18 - Estimation of pH using VMINTEQ
- Lecture 19 - Mixing Problems
- Lecture 20 - Inverse Dose Problems
- Lecture 21 - logC-pH Diagram
- Lecture 22 - Carbonate System
- Lecture 23 - Carbonate System
- Lecture 24 - VMINTEQ
- Lecture 25 - VMINTEQ
- Lecture 26 - VMINTEQ
- Lecture 27 - Buffer Intensity
- Lecture 28 - Alkalinity
- Lecture 29 - Alkalinity

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- Lecture 30 - Acidity and its Applications
- Lecture 31 - Alkalinity and Acidity
- Lecture 32 - Mixing of Two Solutions and Conservative Quantities - I
- Lecture 33 - Mixing of Two Solutions and Conservative Quantities - II
- Lecture 34 - Carbonate and Non-Carbonate Alkalinity
- Lecture 35 - Anaerobic Digester
- Lecture 36 - Aqueous Complexes
- Lecture 37 - Aqueous Complexes
- Lecture 38 - Aqueous Complexes of Aluminium (Al)
- Lecture 39 - Aqueous Complexes of Mercury (Hg)
- Lecture 40 - Precipitation and Dissolution
- Lecture 41 - Applications of Precipitation and Dissolution
- Lecture 42 - Different Stages in Precipitation, Equilibrium of Precipitation - I
- Lecture 43 - Equilibrium of Precipitation - II
- Lecture 44 - Examples Related to Equilibrium of Precipitation
- Lecture 45 - Other Examples of Equilibrium of Precipitation
- Lecture 46 - Solubility and Competitive Precipitation
- Lecture 47 - Predominance Area Diagram and Introduction to Redox Processes
- Lecture 48 - Redox Reactions and its Applications
- Lecture 49 - Balancing of Redox and Development of Half Reaction
- Lecture 50 - Kinetics of Redox Processes
- Lecture 51 - Equilibrium of Redox - I
- Lecture 52 - Equilibrium of Redox - II and Reaction Feasibility
- Lecture 53 - Reaction Feasibility Based on  $P_e$  - I
- Lecture 54 - Reaction Feasibility Based on  $P_e$  - II
- Lecture 55 - Effect of Complexation on Redox
- Lecture 56 - Effect of Complexation and Solid Phase on Redox
- Lecture 57 - Reaction Feasibility based on  $E_h$
- Lecture 58 - Introduction to Electrochemical cell ( $E_{cell}$ )
- Lecture 59 - Applications of  $E_{cell}$
- Lecture 60 -  $\log C$ - $P_e$  and  $pH$ - $P_e$  Diagram

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Ground Improvement Techniques

Subject Co-ordinator - Dr. G.L. Sivakumar Babu

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Need for Ground Improvement
- Lecture 2 - Classification of ground modification techniques
- Lecture 3 - Emerging trends in ground improvement
- Lecture 4 - Mechanical modification
- Lecture 5 - Compaction Control
- Lecture 6 - Deep compaction
- Lecture 7 - Dynamic compaction
- Lecture 8 - Vibro-compaction methods
- Lecture 9 - Case studies in stone columns
- Lecture 10 - Prefabricated Vertical Drains (PVDS) - I
- Lecture 11 - Prefabricated drains (PVDS) - II
- Lecture 12 - Dewatering - I
- Lecture 13 - Dewatering - II
- Lecture 14 - Electro-kinetic stabilization
- Lecture 15 - Heating and freezing methods, Blasting methods - I
- Lecture 16 - Heating and freezing methods, Blasting methods - II
- Lecture 17 - Ground Treatment with lime - I
- Lecture 18 - Ground Treatment with lime - II
- Lecture 19 - Ground treatment with cement
- Lecture 20 - Grouting procedures
- Lecture 21 - Grouting
- Lecture 22 - Micropiles
- Lecture 23 - Introduction to Geosynthetics - I
- Lecture 24 - Introduction to Geosynthetics - II
- Lecture 25 - Reinforced soil principles and mechanisms
- Lecture 26 - Material properties
- Lecture 27 - Factors affecting reinforced soil
- Lecture 28 - Bearing capacity improvement - I
- Lecture 29 - Bearing capacity improvement - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Reinforced soil slopes
- Lecture 31 - Reinforced Soil Walls
- Lecture 32 - Reinforced Soil Walls - I
- Lecture 33 - Soil Nailing
- Lecture 34 - Design of embankments on soft soil using geosynthetics
- Lecture 35 - Design of embankments on soft soil using geocells, Use of geosynthetics for filtration and drainage
- Lecture 36 - Applications in filtration and drainage & erosion control
- Lecture 37 - Geosynthetics in pavements
- Lecture 38 - Sustainable development and energy geotechnology
- Lecture 39 - Microbial geotechnology and Ground Improvement
- Lecture 40 - Nano-technologies in ground improvement and site remediation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Stochastic Hydrology

Subject Co-ordinator - Prof. P.P. Mujumdar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Bivariate Distributions
- Lecture 3 - Independence ; Functions of Random Variables
- Lecture 4 - Moments of a Distribution
- Lecture 5 - Normal Distribution
- Lecture 6 - Other Continuous Distributions
- Lecture 7 - Parameter Estimation
- Lecture 8 - Covariance and Correlation
- Lecture 9 - Data Generation
- Lecture 10 - Time Series Analysis (1)
- Lecture 11 - Time Series Analysis (2)
- Lecture 12 - Time Series Analysis (3)
- Lecture 13 - Frequency Domain Analysis (1)
- Lecture 14 - Frequency Domain Analysis (2) and ARIMA Models (1)
- Lecture 15 - ARIMA Models (2)
- Lecture 16 - ARIMA Models (3)
- Lecture 17 - ARIMA Models (4)
- Lecture 18 - Case Studies (1)
- Lecture 19 - Case Studies (2)
- Lecture 20 - Case Studies (3)
- Lecture 21 - Case Studies (4)
- Lecture 22 - Markov Chains (1)
- Lecture 23 - Markov Chains (2)
- Lecture 24 - Frequency Analysis (1)
- Lecture 25 - Frequency Analysis (2)
- Lecture 26 - Frequency Analysis (3) and Probability Plotting (1)
- Lecture 27 - Probability Plotting (2)
- Lecture 28 - Goodness of Fit
- Lecture 29 - IDF Relationships

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multiple Linear Regression
- Lecture 31 - Principal Component Analysis
- Lecture 32 - Regression on Principal Components
- Lecture 33 - Multivariate Stochastic Models (1)
- Lecture 34 - Multivariate Stochastic Models (2)
- Lecture 35 - Multivariate Stochastic Models (3)
- Lecture 36 - Data Consistency Checks (1)
- Lecture 37 - Data Consistency Checks (2)
- Lecture 38 - Data Consistency Checks (3)
- Lecture 39 - Recent Applications
- Lecture 40 - Summary of the Course

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Stochastic Structural Dynamics

Subject Co-ordinator - Prof. C.S. Manohar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition of probability measure and conditional probability
- Lecture 2 - Scalar random variables - 1
- Lecture 3 - Scalar random variables - 2
- Lecture 4 - Multi-dimensional random variables - 1
- Lecture 5 - Multi-dimensional random variables - 2
- Lecture 6 - Random processes - 1
- Lecture 7 - Random processes - 2
- Lecture 8 - Random processes - 3
- Lecture 9 - Random processes - 4, Random vibrations of sdof systems - 1
- Lecture 10 - Random processes - 4, Random vibrations of sdof systems - 1
- Lecture 11 - Random vibrations of sdof systems - 2
- Lecture 12 - Random vibrations of sdof systems - 3
- Lecture 13 - Random vibrations of sdof systems - 4
- Lecture 14 - Random vibrations of mdof systems - 1
- Lecture 15 - Random vibrations of mdof systems - 2
- Lecture 16 - Random vibrations of mdof systems - 3
- Lecture 17 - Random vibrations of mdof systems - 4
- Lecture 18 - Failure of randomly vibrating systems - 1
- Lecture 19 - Failure of randomly vibrating systems - 2
- Lecture 20 - Failure of randomly vibrating systems - 3
- Lecture 21 - Failure of randomly vibrating systems - 4
- Lecture 22 - Markov vector approach - 1
- Lecture 23 - Markov vector approach - 2
- Lecture 24 - Markov vector approach - 3
- Lecture 25 - Markov vector approach - 4
- Lecture 26 - Markov vector approach - 5, Monte Carlo simulation approach - 1
- Lecture 27 - Markov vector approach - 5 & Monte Carlo simulation approach - 1
- Lecture 28 - Monte Carlo simulation approach - 2
- Lecture 29 - Monte Carlo simulation approach - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Monte Carlo simulation approach - 4
- Lecture 31 - Monte Carlo simulation approach - 5
- Lecture 32 - Monte Carlo simulation approach - 6
- Lecture 33 - Monte Carlo simulation approach - 7
- Lecture 34 - Probabilistic methods in earthquake engineering - 1
- Lecture 35 - Probabilistic methods in earthquake engineering - 2
- Lecture 36 - Probabilistic methods in earthquake engineering - 3
- Lecture 37 - Probabilistic methods in earthquake engineering - 4
- Lecture 38 - Fatigue failure & Vibration energy flow models
- Lecture 39 - Problem solving session - 1
- Lecture 40 - Problem solving session - 2
- Lecture 41 - Problem solving session - 3
- Lecture 42 - Problem solving session - 4



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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NPTEL Video Course - Civil Engineering - Water Resources Systems : Modeling Techniques and Analysis

Subject Co-ordinator - Prof. P.P. Mujumdar

Co-ordinating Institute - IISc - Bangalore

- Lecture 1 - Introduction
- Lecture 2 - Definitions and types of systems
- Lecture 3 - Optimization
- Lecture 4 - Optimization
- Lecture 5 - Constrained optimization (1)
- Lecture 6 - Constrained optimization (2)
- Lecture 7 - Kuhn-Tucker conditions and Introduction to Linear Programming
- Lecture 8 - Linear Programming
- Lecture 9 - Linear Programming
- Lecture 10 - Linear Programming
- Lecture 11 - Linear Programming
- Lecture 12 - Linear Programming
- Lecture 13 - Linear Programming
- Lecture 14 - Introduction to Dynamic Programming
- Lecture 15 - Dynamic Programming
- Lecture 16 - Dynamic Programming
- Lecture 17 - Dynamic Programming
- Lecture 18 - Simulation
- Lecture 19 - Multi-objective planning
- Lecture 20 - Reservoir sizing
- Lecture 21 - Reservoir capacity using Linear Programming (1)
- Lecture 22 - Reservoir capacity using Linear Programming (2)
- Lecture 23 - Reservoir operation
- Lecture 24 - Multi-reservoir systems
- Lecture 25 - Stationary policy using Dynamic Programming
- Lecture 26 - Hydropower generation
- Lecture 27 - Basic probability theory (1)
- Lecture 28 - Basic probability theory (2)
- Lecture 29 - Chance constrained Linear Programming for reservoir operation and design (1)
- Lecture 30 - Chance constrained Linear Programming for reservoir operation and design (2)
- Lecture 31 - Stochastic Dynamic Programming for reservoir operation (1)
- Lecture 32 - Stochastic Dynamic Programming for reservoir operation (2)
- Lecture 33 - Stochastic Dynamic Programming for reservoir operation (3)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 34 - Fuzzy optimization (1)
- Lecture 35 - Fuzzy optimization (2)
- Lecture 36 - Fuzzy optimization for water quality control and reservoir operation
- Lecture 37 - Conjunctive use of ground and surface water
- Lecture 38 - Hydropower optimization
- Lecture 39 - Crop yield optimization
- Lecture 40 - Multi-basin and multi-reservoir systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Finite Element method for vibration and Stability analyses

Subject Co-ordinator - Prof. C.S. Manohar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Equations of motion using Hamilton's principle
- Lecture 2 - Equations of motion for continuous systems and Rayleigh's quotient
- Lecture 3 - Rayleigh Ritz method and method of weighted residuals
- Lecture 4 - FEM
- Lecture 5 - Beam elements. Reference system. Assembly of matrices. Imposition of BCS. Final equation of motion
- Lecture 6 - FE modelling of planar structures
- Lecture 7 - FE modelling of planar structures (Continued...)
- Lecture 8 - FRF-s and damping models-1
- Lecture 9 - FRF-s and damping models-2
- Lecture 10 - Material damping models. Dynamic stiffness and transfer matrices
- Lecture 11 - Twisting of circular bars and rectangular bars. Analysis of grids
- Lecture 12 - 3D frames
- Lecture 13 - Mathematical preliminaries and terminologies; Euler's forward and backward difference methods
- Lecture 14 - Forward and backward Euler method. Central difference method
- Lecture 15 - Second order implicit methods
- Lecture 16 - Energy conservation. Nonlinear systems
- Lecture 17 - Model reduction schemes
- Lecture 18 - Substructuring schemes
- Lecture 19 - Plane stress models
- Lecture 20 - Plane stress models (Continued...)
- Lecture 21 - 3d Solid element
- Lecture 22 - Axisymmetric models. Plate bending elements.
- Lecture 23 - Plate bending elements (Continued...)
- Lecture 24 - Plate bending elements (Continued...)
- Lecture 25 - Plate bending elements (Continued...)
- Lecture 26 - Introduction
- Lecture 27 - Introduction (Continued...)
- Lecture 28 - Nonlinear dynamical systems, fixed points and bifurcations
- Lecture 29 - Energy methods in stability analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - FEM for stability analysis. Euler-Bernoulli beam and general formulations
- Lecture 31 - 3D beam element; plate element; imperfection sensitive structures; beams on elastic foundations;
- Lecture 32 - Dynamic analysis of stability and analysis of time varying systems
- Lecture 33 - Dynamic analysis of stability and analysis of time varying systems
- Lecture 34 - FE modelling of vehicle structure interactions
- Lecture 35 - Inverse response sensitivity analysis
- Lecture 36 - Inverse response sensitivity analysis (Continued...)
- Lecture 37 - Introduction and review of continuum mechanics
- Lecture 38 - Review of measures of strain and stress; balance laws
- Lecture 39 - Total and updated Lagrangian formulations
- Lecture 40 - Closure

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Natural Language Processing

Subject Co-ordinator - Prof. Pushpak Bhattacharya

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Stages of NLP
- Lecture 3 - Stages of NLP Continue...
- Lecture 4 - Two approaches to NLP
- Lecture 5 - Sequence Labelling and Noisy Channel
- Lecture 6 - Noisy Channel
- Lecture 7 - Argmax Based Computation
- Lecture 8 - Noisy Channel Application to NLP
- Lecture 9 - Brief on Probabilistic Parsing & Start of Part of Speech Tagging
- Lecture 10 - Part of Speech Tagging
- Lecture 11 - Part of Speech Tagging counted ...
- Lecture 12 - Part of Speech Tagging counted ... and Indian Language in Focus; Morphology Analysis
- Lecture 13 - PoS Tagging contd... , Indian Language Consideration; Accuracy Measure
- Lecture 14 - PoS Tagging; Fundamental Principle; Why Challenging; accuracy
- Lecture 15 - PoS Tagging; Accuracy Measurement; Word categories
- Lecture 16 - AI and Probability; HMM
- Lecture 17 - HMM
- Lecture 18 - HMM, Viterbi, Forward Backward Algorithm
- Lecture 19 - HMM, Viterbi, Forward Backward Algorithm (Continued...)
- Lecture 20 - HMM, Forward Backward Algorithms, Baum Welch Algorithm
- Lecture 21 - HMM, Forward Backward Algorithms, Baum Welch Algorithm (Continued...)
- Lecture 22 - Natural Language Processing and Informational Retrieval
- Lecture 23 - CLIA; IR Basics
- Lecture 24 - IR Models
- Lecture 25 - IR Models
- Lecture 26 - NLP and IR
- Lecture 27 - Least Square Method; Recap of PCA; Towards Latent Semantic Indexing (LSI)
- Lecture 28 - PCA; SVD; Towards Latent Semantic Indexing (LSI)
- Lecture 29 - Wordnet and Word Sense Disambiguation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wordnet and Word Sense Disambiguation (Continued...)
- Lecture 31 - Wordnet; Metonymy and Word Sense Disambiguation
- Lecture 32 - Word Sense Disambiguation
- Lecture 33 - Word Sense Disambiguation; Overlap Based Method; Supervised Method
- Lecture 34 - Word Sense Disambiguation
- Lecture 35 - Word Sense Disambiguation
- Lecture 36 - Resource Constrained WSD; Parsing
- Lecture 37 - Parsing
- Lecture 38 - Parsing Algorithm
- Lecture 39 - Parsing Ambiguous Sentences; Probabilistic Parsing
- Lecture 40 - Probabilistic Parsing Algorithms

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Design and Analysis of Algorithms

Subject Co-ordinator - Prof. Sundar Viswanathan, Prof. Ajit A Diwan, Prof. Abhiram G Ranade

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of the course
- Lecture 2 - Framework for Algorithms Analysis
- Lecture 3 - Algorithms Analysis Framework - II
- Lecture 4 - Asymptotic Notations
- Lecture 5 - Algorithm Design Techniques
- Lecture 6 - Divide And Conquer - I
- Lecture 7 - Divide And Conquer - II Median Finding
- Lecture 8 - Divide And Conquer - III Surfing Lower Bounds
- Lecture 9 - Divide And Conquer - IV Closest Pair
- Lecture 10 - Greedy Algorithms - I
- Lecture 11 - Greedy Algorithms - II
- Lecture 12 - Greedy Algorithms - III
- Lecture 13 - Greedy Algorithms - IV
- Lecture 14 - Pattern Matching - I
- Lecture 15 - Pattern Matching - II
- Lecture 16 - Combinational Search and Optimization - I
- Lecture 17 - Combinational Search and Optimization - II
- Lecture 18 - Dynamic Programming
- Lecture 19 - Longest Common Subsequences
- Lecture 20 - Matrix Chain Multiplication
- Lecture 21 - Scheduling with Startup and Holding Costs
- Lecture 22 - Average case Analysis of Quicksort
- Lecture 23 - Bipartite Maximum Matching
- Lecture 24 - Lower Bounds for Sorting
- Lecture 25 - Element Distinctness Lower Bounds
- Lecture 26 - NP-Completeness - I - Motivation
- Lecture 27 - NP-Completeness - II
- Lecture 28 - NP-Completeness - III
- Lecture 29 - NP-Completeness - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - NP-Completeness - V
- Lecture 31 - NP-Completeness - VI
- Lecture 32 - Approximation Algorithms
- Lecture 33 - Approximation Algorithms
- Lecture 34 - Approximation Algorithms for NP



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Software Engineering

Subject Co-ordinator - Prof. N.L. Sarda, Prof. Umesh Bellur, Prof. Rushikesh K Joshi

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Software Engineering - Challenges
- Lecture 2 - Introduction to Software Engineering
- Lecture 3 - Overview of Phases
- Lecture 4 - Overview of Phases
- Lecture 5 - Requirements Engineering / Specification
- Lecture 6 - Formal Specification
- Lecture 7 - Algebraic Specification Methods
- Lecture 8 - Systems Modeling Overview
- Lecture 9 - Process Modeling - DFD , Function Decomp
- Lecture 10 - Process Modeling - DFD, Function Decomp
- Lecture 11 - Data Modeling - ER Diagrams, Mapping
- Lecture 12 - Data Modeling - ER Diagrams, Mapping
- Lecture 13 - Production Quality Software - Introduction
- Lecture 14 - Software Design - Primary Consideration
- Lecture 15 - Design Patterns
- Lecture 16 - Class and Component Level Design
- Lecture 17 - Architectural Design
- Lecture 18 - Software Testing - I
- Lecture 19 - Software Testing - II
- Lecture 20 - Structural Programming and Some implementation
- Lecture 21 - Software Metrics and Quality
- Lecture 22 - Verification and Validation
- Lecture 23 - Case Study
- Lecture 24 - Case Study
- Lecture 25 - Software Evolution
- Lecture 26 - Agile Development
- Lecture 27 - Software Reuse CBSE
- Lecture 28 - Reuse Continued
- Lecture 29 - Introduction to Project Management

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Project Scope Management
- Lecture 31 - Project Time Management
- Lecture 32 - Estimation - I
- Lecture 33 - Estimation - II
- Lecture 34 - Project Quality Management
- Lecture 35 - Quality Management Systems - I
- Lecture 36 - Quality Management Systems
- Lecture 37 - Project Configuration Management
- Lecture 38 - Project Risk Management
- Lecture 39 - Other PM Processes

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Software Testing (2017)

Subject Co-ordinator - Prof. Meenakshi D'souza

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation
- Lecture 2 - Terminologies
- Lecture 3 - Testing based on Models and Criteria
- Lecture 4 - Automation - JUnit as an example
- Lecture 5 - Basics of Graphs
- Lecture 6 - Structural Graph Coverage Criteria
- Lecture 7 - Elementary Graph Algorithms - Part 1
- Lecture 8 - Elementary Graph Algorithms - Part 2
- Lecture 9 - Algorithms
- Lecture 10 - Assignment 2
- Lecture 11 - Data Flow Graphs
- Lecture 12 - Algorithms
- Lecture 13 - Graph Coverage Criteria
- Lecture 14 - Testing Source Code
- Lecture 15 - Data Flow Graph Coverage Criteria
- Lecture 16 - Software Design and Integration Testing
- Lecture 17 - Design Integration Testing and Graph Coverage
- Lecture 18 - Specification Testing and Graph Coverage
- Lecture 19 - Graph Coverage and Finite state Machines
- Lecture 20 - Assignment 4
- Lecture 21 - Logic
- Lecture 22 - Logic
- Lecture 23 - Coverage Criteria, (Continued...)
- Lecture 24 - Logic Coverage Criteria
- Lecture 25 - Logic Coverage Criteria
- Lecture 26 - Logic Coverage Criteria
- Lecture 27 - Logic Coverage Criteria
- Lecture 28 - Logic Coverage Criteria
- Lecture 29 - Logic Coverage Criteria

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Week 6 Assignment Solving
- Lecture 31 - Functional Testing
- Lecture 32 - Input Space Partitioning
- Lecture 33 - Input Space Partitioning
- Lecture 34 - Input Space Partitioning Coverage Criteria
- Lecture 35 - Syntax-Based Testing
- Lecture 36 - Mutation Testing
- Lecture 37 - Mutation Testing for Programs
- Lecture 38 - Mutation Testing
- Lecture 39 - Mutation Testing Vs. Graphs and Logic Based Testing
- Lecture 40 - Assignment Solving for Week8
- Lecture 41 - Mutation testing
- Lecture 42 - Mutation Testing
- Lecture 43 - Mutation testing
- Lecture 44 - Software Testing Course
- Lecture 45 - Testing of web Applications and Web Services
- Lecture 46 - Testing of web Applications and Web Services
- Lecture 47 - Testing of web Applications and Web Services
- Lecture 48 - Testing of Object-Oriented Applications
- Lecture 49 - Testing of Object-Oriented Applications
- Lecture 50 - Symbolic Testing - 1
- Lecture 51 - Symbolic Testing - 2
- Lecture 52 - DART
- Lecture 53 - DART
- Lecture 54 - DART
- Lecture 55 - Testing of Object-Oriented Applications
- Lecture 56 - Testing of Mobile Applications
- Lecture 57 - Non-Functional System Testing
- Lecture 58 - Regression Testing
- Lecture 59 - Assignment
- Lecture 60 - Software Testing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Design and Pedagogy of the Introductory Programming

Subject Co-ordinator - Prof. Abhiram G Ranade

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview  
Lecture 2 - Introduction and Survey.0  
Lecture 3 - Introduction and Survey.1  
Lecture 4 - Introduction and Survey.2  
Lecture 5 - Basic Ideas in Our Approach.0  
Lecture 6 - Basic Ideas in Our Approach.1  
Lecture 7 - Basic Ideas in Our Approach.2  
Lecture 8 - Basic Ideas in Our Approach.3  
Lecture 9 - Basic Ideas in Our Approach.4  
Lecture 10 - Basic Ideas in Our Approach.5  
Lecture 11 - Basic Ideas in Our Approach.6  
Lecture 12 - Pedagogy.0  
Lecture 13 - Pedagogy.1  
Lecture 14 - Pedagogy.2  
Lecture 15 - Pedagogy.3  
Lecture 16 - Pedagogy.4  
Lecture 17 - Advanced Programming Topics.0  
Lecture 18 - Advanced Programming Topics.1  
Lecture 19 - Advanced Programming topics.2  
Lecture 20 - In class questions, Assignments, Examinations.0  
Lecture 21 - In class questions, Assignments, Examinations.1  
Lecture 22 - Summing up

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computational Geometry

Subject Co-ordinator - Prof. Sandeep Sen

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Visibility Problems
- Lecture 3 - 2D Maxima
- Lecture 4 - Line Sweep Method
- Lecture 5 - Segment Intersection Problem
- Lecture 6 - Line Sweep
- Lecture 7 - Convex Hull
- Lecture 8 - Convex Hull Contd
- Lecture 9 - Quick Hull
- Lecture 10 - More Convex Hull Algorithms
- Lecture 11 - Intersection of Half Planes and Duality
- Lecture 12 - Intersection of Half Planes and Duality Contd
- Lecture 13 - Lower Bounds
- Lecture 14 - Planar Point Location
- Lecture 15 - Point Location and Triangulation Contd...
- Lecture 16 - Triangulation of Arbitrary Polygon
- Lecture 17 - Voronoi Diagram
- Lecture 18 - Voronoi Diagram Construction
- Lecture 19 - Delaunay Triangulation
- Lecture 20 - Quick sort and Backward Analysis
- Lecture 21 - Generalized RIC
- Lecture 22 - RIC Continued
- Lecture 23 - Arrangements
- Lecture 24 - Zone Theorem and Application
- Lecture 25 - Levels
- Lecture 26 - Range Searching
- Lecture 27 - Orthogonal Range searching
- Lecture 28 - Priority Search Trees
- Lecture 29 - Non - Orthogonal Range Searching

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Half - Plane Range Query
- Lecture 31 - Well Separated Partitioning
- Lecture 32 - Quadtrees Epsilon -WSPD
- Lecture 33 - Construction of Epsilon - WSPD
- Lecture 34 - Epsilon - WSPD to Geometric Spanner
- Lecture 35 - Epsilon-Nets & VC Dimension
- Lecture 36 - Epsilon-Nets & VC Dimension contd
- Lecture 37 - Geometric Set Cover
- Lecture 38 - Geometric Set Cover (with Bounded VC Dimension)
- Lecture 39 - Shape Representation
- Lecture 40 - Shape Comparison

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Logic for CS

Subject Co-ordinator - Prof. S. Arun Kumar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Propositional Logic Syntax  
Lecture 3 - Semantics of Propositional Logic  
Lecture 4 - Logical and Algebraic Concepts  
Lecture 5 - Identities and Normal forms  
Lecture 6 - Tautology Checking  
Lecture 7 - Propositional Unsatisfiability  
Lecture 8 - Analytic Tableaux  
Lecture 9 - Consistency and Completeness  
Lecture 10 - The Completeness Theorem  
Lecture 11 - Maximally Consistent Sets  
Lecture 12 - Formal Theories  
Lecture 13 - Proof Theory  
Lecture 14 - Derived Rules  
Lecture 15 - The Hilbert System  
Lecture 16 - The Hilbert System  
Lecture 17 - Introduction to Predicate Logic  
Lecture 18 - The Semantic of Predicate Logic  
Lecture 19 - Substitutions  
Lecture 20 - Models  
Lecture 21 - Structures and Substructures  
Lecture 22 - First-Order Theories  
Lecture 23 - Predicate Logic  
Lecture 24 - Existential Quantification  
Lecture 25 - Normal Forms  
Lecture 26 - Skolemization  
Lecture 27 - Substitutions and Instantiations  
Lecture 28 - Unification  
Lecture 29 - Resolution in FOL

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - More on Resolution in FOL
- Lecture 31 - Resolution
- Lecture 32 - Resolution and Tableaux
- Lecture 33 - Completeness of Tableaux Method
- Lecture 34 - Completeness of the Hilbert System
- Lecture 35 - First-Order Theories
- Lecture 36 - Towards Logic Programming
- Lecture 37 - Verification of Imperative Programs
- Lecture 38 - Verification of WHILE Programs
- Lecture 39 - References

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computer Architecture (Prof. Anshul Kumar)

Subject Co-ordinator - Prof. Anshul Kumar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Computer Architecture
- Lecture 2 - History of Computers
- Lecture 3 - Instruction Set Architecture - I
- Lecture 4 - Instruction Set Architecture - II
- Lecture 5 - Instruction Set Architecture - III
- Lecture 6 - Recursive Programs
- Lecture 7 - Architecture Space
- Lecture 8 - Architecture Examples
- Lecture 9 - Performance
- Lecture 10 - Performance
- Lecture 11 - Binary Arithmetic, ALU Design
- Lecture 12 - ALU Design, Overflow
- Lecture 13 - Multiplier Design
- Lecture 14 - Divider Design
- Lecture 15 - Fast Addition , Multiplication
- Lecture 16 - Floating Point Arithmetic
- Lecture 17 - Processor Design - Introduction
- Lecture 18 - Processor Design
- Lecture 19 - Processor Design - Simple Design
- Lecture 20 - Processor Design - Multi Cycle Approach
- Lecture 21 - Processor Design - Control for Multi Cycle
- Lecture 22 - Processor Design - Micro programmed Control
- Lecture 23 - Processor Design - Exception Handling
- Lecture 24 - Pipelined Processor Design Basic Idea
- Lecture 25 - Pipelined Processor Design
- Lecture 26 - Pipelined Processor Design
- Lecture 27 - Pipelined Processor Design
- Lecture 28 - Memory Hierarchy
- Lecture 29 - Memory Hierarchy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Memory Hierarchy
- Lecture 31 - Memory Hierarchy
- Lecture 32 - Memory Hierarchy
- Lecture 33 - Input / Output Subsystem
- Lecture 34 - Input / Output Subsystem
- Lecture 35 - Input / Output Subsystem
- Lecture 36 - Input / Output Subsystem
- Lecture 37 - Input / Output Subsystem
- Lecture 38 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Data Structures And Algorithms

Subject Co-ordinator - Prof. Naveen Garg

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Data Structures and Algorithms

Lecture 2 - Stacks

Lecture 3 - Queues and Linked Lists

Lecture 4 - Dictionaries

Lecture 5 - Hashing

Lecture 6 - Trees

Lecture 7 - Tree Walks / Traversals

Lecture 8 - Ordered Dictionaries

Lecture 9 - Deletion

Lecture 10 - Quick Sort

Lecture 11 - AVL Trees

Lecture 12 - AVL Trees

Lecture 13 - Trees

Lecture 14 - Red Black Trees

Lecture 15 - Insertion in Red Black Trees

Lecture 16 - Disk Based Data Structures

Lecture 17 - Case Study

Lecture 18 - Tries

Lecture 19 - Data Compression

Lecture 20 - Priority Queues

Lecture 21 - Binary Heaps

Lecture 22 - Why Sorting

Lecture 23 - More Sorting

Lecture 24 - Graphs

Lecture 25 - Data Structures for Graphs

Lecture 26 - Two Applications of Breadth First Search

Lecture 27 - Depth First Search

Lecture 28 - Applications of DFS

Lecture 29 - DFS in Directed Graphs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Applications of DFS in Directed Graphs
- Lecture 31 - Minimum Spanning Trees
- Lecture 32 - The Union
- Lecture 33 - Prims Algorithm for Minimum Spanning Trees
- Lecture 34 - Single Source Shortest Paths
- Lecture 35 - Correctness of Dijkstras Algorithm
- Lecture 36 - Single Source Shortest Paths

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Introduction to Computer Graphics

Subject Co-ordinator - Prof. Prem K Kalra

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Raster Graphics  
Lecture 3 - Raster Graphics (Continued...)  
Lecture 4 - Clipping  
Lecture 5 - Polygon Clipping and Polygon Scan Conversion  
Lecture 6 - Transformations  
Lecture 7 - Transformations (Continued...)  
Lecture 8 - 3D Viewing  
Lecture 9 - 3D Viewing (Continued...)  
Lecture 10 - Curves  
Lecture 11 - Assignment - I  
Lecture 12 - Curves (Continued...)  
Lecture 13 - Curves (Continued...)  
Lecture 14 - Curves (Continued...)  
Lecture 15 - Curves (Continued...)  
Lecture 16 - Surfaces  
Lecture 17 - Surfaces (Continued...)  
Lecture 18 - Surfaces (Continued...)  
Lecture 19 - Surfaces (Continued...)  
Lecture 20 - Hierarchical Models  
Lecture 21 - Rendering  
Lecture 22 - Rendering (Continued...)  
Lecture 23 - Rendering (Continued...)  
Lecture 24 - Ray Tracing  
Lecture 25 - Ray Tracing (Continued...)  
Lecture 26 - Ray Tracing (Continued...)  
Lecture 27 - Assignment  
Lecture 28 - Hidden Surface Elimination  
Lecture 29 - Hidden Surface Elimination (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hidden Surface Elimination (Continued...)
- Lecture 31 - Fractals
- Lecture 32 - Fractals (Continued...)
- Lecture 33 - Computer Animation
- Lecture 34 - Animation (Continued...)
- Lecture 35 - Animation (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Principles of Programming Languages

Subject Co-ordinator - Prof. S. Arun Kumar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Syntax  
Lecture 3 - Grammars  
Lecture 4 - Ambiguity  
Lecture 5 - PLO  
Lecture 6 - Semantics  
Lecture 7 - Syntactic Classes  
Lecture 8 - Transition Systems  
Lecture 9 - PLO  
Lecture 10 - Binding  
Lecture 11 - Environments  
Lecture 12 - Declarations  
Lecture 13 - Commands  
Lecture 14 - Stores  
Lecture 15 - Summary  
Lecture 16 - Declarations and Commands  
Lecture 17 - Blocks  
Lecture 18 - Qualification  
Lecture 19 - Pragmatics  
Lecture 20 - Data  
Lecture 21 - Structured Data  
Lecture 22 - Sequences  
Lecture 23 - Control  
Lecture 24 - Non-Determinacy  
Lecture 25 - Programming Languages  
Lecture 26 - Programming Languages  
Lecture 27 - Programming Languages  
Lecture 28 - Data as Functions  
Lecture 29 - Data and Fixpoints

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Normal Forms
- Lecture 31 - Programming Languages
- Lecture 32 - Monomorphism
- Lecture 33 - Polymorphism
- Lecture 34 - Type Checking
- Lecture 35 - Contexts
- Lecture 36 - Abstracts
- Lecture 37 - Procedures
- Lecture 38 - Meanings
- Lecture 39 - Parameters
- Lecture 40 - The Future

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Parallel Computing

Subject Co-ordinator - Dr. Subodh Kumar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Parallel Programming Paradigms
- Lecture 3 - Parallel Architecture
- Lecture 4 - Parallel Architecture (case studies)
- Lecture 5 - Open MP
- Lecture 6 - Open MP (Continued.)
- Lecture 7 - Open MP (Continued..)
- Lecture 8 - Open MP & PRAM Model of Computation
- Lecture 9 - PRAM
- Lecture 10 - Models of Parallel Computation, Complexity
- Lecture 11 - Memory Consistency
- Lecture 12 - Memory Consistency & Performance Issues
- Lecture 13 - Parallel Program Design
- Lecture 14 - Shared Memory & Message Passing
- Lecture 15 - MPI
- Lecture 16 - MPI (Continued.)
- Lecture 17 - MPI (Continued..)
- Lecture 18 - Algorithmic Techniques
- Lecture 19 - Algorithmic Techniques (Continued.)
- Lecture 20 - Algorithmic Techniques (Continued..)
- Lecture 21 - CUDA
- Lecture 22 - CUDA (Continued.)
- Lecture 23 - CUDA (Continued..)
- Lecture 24 - CUDA (Continued...)
- Lecture 25 - CUDA (Continued....)
- Lecture 26 - CUDA (Continued.....)
- Lecture 27 - CUDA (Continued.....)
- Lecture 28 - Algorithms, Merging & Sorting
- Lecture 29 - Algorithms, Merging & Sorting (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Algorithms, Merging & Sorting (Continued..)
- Lecture 31 - Algorithms, Merging & Sorting (Continued...)
- Lecture 32 - Algorithms, Merging & Sorting (Continued....)
- Lecture 33 - Lower Bounds Lock Free Synchronization, Load Stealing
- Lecture 34 - Lock Free Synchronization, Graph Algorithms

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Architecture (2017)

Subject Co-ordinator - Prof. Smruti R.Sarangi

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Computer Architecture  
Lecture 2 - The Language of Bits - Part-I  
Lecture 3 - The Language of Bits - Part-II  
Lecture 4 - The Language of Bits - Part-III  
Lecture 5 - Assembly Language - Part-I  
Lecture 6 - Assembly Language - Part-II  
Lecture 7 - Assembly Language - Part-III  
Lecture 8 - ARM Assembly Language - Part-I  
Lecture 9 - ARM Assembly Language - Part-II  
Lecture 10 - x86 Assembly Language - Part-I  
Lecture 11 - x86 Assembly Language - Part-II  
Lecture 12 - x86 Assembly Language - Part-III  
Lecture 13 - x86 Assembly Language - Part-IV  
Lecture 14 - A Primer on Digital Logic - Part-I  
Lecture 15 - A Primer on Digital Logic - Part-II  
Lecture 16 - A Primer on Digital Logic - Part-III  
Lecture 17 - Computer Arithmetic - Part-I  
Lecture 18 - Computer Arithmetic - Part-II  
Lecture 19 - Computer Arithmetic - Part-III  
Lecture 20 - Computer Arithmetic - Part-IV  
Lecture 21 - Computer Arithmetic - Part-V  
Lecture 22 - Computer Arithmetic - Part-VI  
Lecture 23 - Processor Design - Part-I  
Lecture 24 - Processor Design - Part-II  
Lecture 25 - Processor Design - Part-III  
Lecture 26 - Principles of Pipelining - Part-I  
Lecture 27 - Principles of Pipelining - Part-II  
Lecture 28 - Principles of Pipelining - Part-III  
Lecture 29 - Principles of Pipelining - Part-IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Memory Systems - Part-I
- Lecture 31 - The Memory Systems - Part-II
- Lecture 32 - The Memory Systems - Part-III
- Lecture 33 - The Memory Systems - Part-IV

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Parallel Programming in OpenMP

Subject Co-ordinator - Dr. Yogish Sabharwal

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Parallel Programming
- Lecture 2 - Parallel Architectures and Programming Models
- Lecture 3 - Pipelining
- Lecture 4 - Superpipelining and VLIW
- Lecture 5 - Memory Latency
- Lecture 6 - Cache and Temporal Locality
- Lecture 7 - Cache, Memory bandwidth and Spatial Locality
- Lecture 8 - Intuition for Shared and Distributed Memory architectures
- Lecture 9 - Shared and Distributed Memory architectures
- Lecture 10 - Interconnection networks in Distributed Memory architectures
- Lecture 11 - OpenMP
- Lecture 12 - Program with Single thread
- Lecture 13 - Program Memory with Multiple threads and Multi-tasking
- Lecture 14 - Context Switching
- Lecture 15 - OpenMP
- Lecture 16 - OpenMP
- Lecture 17 - Shared Memory Consistency Models and the Sequential Consistency Model
- Lecture 18 - Race Conditions
- Lecture 19 - OpenMP
- Lecture 20 - OpenMP
- Lecture 21 - Computing sum
- Lecture 22 - Manual distribution of work and critical sections
- Lecture 23 - Distributing for loops and reduction
- Lecture 24 - Vector-Vector operations (Dot product)
- Lecture 25 - Matrix-Vector operations (Matrix-Vector Multiply)
- Lecture 26 - Matrix-Matrix operations (Matrix-Matrix Multiply)
- Lecture 27 - Introduction to tasks
- Lecture 28 - Task queues and task execution
- Lecture 29 - Accessing variables in tasks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Completion of tasks and scoping variables in tasks
- Lecture 31 - Recursive task spawning and pitfalls
- Lecture 32 - Understanding LU Factorization
- Lecture 33 - Parallel LU Factorization
- Lecture 34 - Locks
- Lecture 35 - Advanced Task handling
- Lecture 36 - Matrix Multiplication using tasks
- Lecture 37 - The OpenMP Shared Memory Consistency Model

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Synthesis of Digital Systems

Subject Co-ordinator - Prof. Preeti Ranjan Panda

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Outline - What is Synthesis?
- Lecture 2 - Chip Design Flow and Hardware Modelling
- Lecture 3 - VHDL
- Lecture 4 - VHDL
- Lecture 5 - VHDL
- Lecture 6 - VHDL
- Lecture 7 - Introduction to High-level Synthesis
- Lecture 8 - Language front-end Design Representation
- Lecture 9 - Compiler Transformation in High Level Synthesis
- Lecture 10 - Memory Modelling and Compiler Transformation in High Level Synthesis
- Lecture 11 - Compiler Transformations in High Level Synthesis
- Lecture 12 - Hardware Transformations and ASAP / ALAP Scheduling
- Lecture 13 - Scheduling in High Level Synthesis
- Lecture 14 - Force Directed Scheduling and Register Allocation
- Lecture 15 - High Level Synthesis and Timing Issues
- Lecture 16 - Finite State Machine Synthesis
- Lecture 17 - Finite State Machine Synthesis
- Lecture 18 - The Retiming Problem
- Lecture 19 - Efficient Solution to Retiming and Introduction to Logic Synthesis
- Lecture 20 - Binary Decision Diagrams
- Lecture 21 - Introduction to Logic Synthesis
- Lecture 22 - Two-level Logic Optimisation
- Lecture 23 - Multi-Level Logic Optimisation
- Lecture 24 - Multi-level Logic Synthesis
- Lecture 25 - Introduction to Timing Analysis
- Lecture 26 - Timing Analysis and Critical Paths

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Design Verification and Test of Digital VLSI Circuits

Subject Co-ordinator - Dr. Santosh Biswas, Prof. Jatindra Kumar Deka

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Digital VLSI Design Flow

Lecture 2 - High Level Design Representation

Lecture 3 - Transformations for High Level Synthesis

Lecture 4 - Introduction to HLS

Lecture 5 - Scheduling Algorithms - 1

Lecture 6 - Scheduling Algorithms - 2

Lecture 7 - Binding and Allocation Algorithms

Lecture 8 - Two level Boolean Logic Synthesis - 1

Lecture 9 - Two level Boolean Logic Synthesis - 2

Lecture 10 - Two level Boolean Logic Synthesis - 3

Lecture 11 - Heuristic Minimization of Two-Level Circuits

Lecture 12 - Finite State Machine Synthesis

Lecture 13 - Multilevel Implementation

Lecture 14 - Introduction to formal methods for design verification

Lecture 15 - Temporal Logic

Lecture 16 - Syntax and Semantics of CTL

Lecture 17 - Syntax and Semantics of CTL â Continued

Lecture 18 - Equivalence between CTL Formulas

Lecture 19 - Introduction to Model Checking

Lecture 20 - Model Checking Algorithms - I

Lecture 21 - Model Checking Algorithms - II

Lecture 22 - Model Checking with Fairness

Lecture 23 - Binary Decision Diagram

Lecture 24 - Ordered Binary Decision Diagram

Lecture 25 - Operation on Ordered Binary Decision Diagram

Lecture 26 - Ordered Binary Decision Diagram for State Transition Systems

Lecture 27 - Symbolic Model Checking

Lecture 28 - Introduction to Digital VLSI Testing

Lecture 29 - Functional and Structural Testing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fault Equivalence
- Lecture 31 - Fault Simulation - 1
- Lecture 32 - Fault Simulation - 2
- Lecture 33 - Fault Simulation - 3
- Lecture 34 - Testability Measures (SCOAP)
- Lecture 35 - Introduction to Automatic Test Pattern Generation (ATPG) and ATPG Algebras
- Lecture 36 - D-Algorithm - 1
- Lecture 37 - D-Algorithm - 2
- Lecture 38 - ATPG for Synchronous Sequential Circuits
- Lecture 39 - Scan Chain based Sequential Circuit Testing - 1
- Lecture 40 - Scan Chain based Sequential Circuit Testing - 2
- Lecture 41 - Built in Self Test - 1
- Lecture 42 - Built in Self Test - 2
- Lecture 43 - Memory Testing - 1
- Lecture 44 - Memory Testing - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Organization and Architecture - A Pedagogy

Subject Co-ordinator - Prof.Arnab sarkar, Prof.Jatindra Kumar Deka, Dr. Santosh Biswas

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Model of Computer and Working Principle

Lecture 2 - Digital Logic Building Blocks

Lecture 3 - Information Representation and Number Systems

Lecture 4 - Basic Elements of a Processor

Lecture 5 - Storage and I/O Interface

Lecture 6 - Execution of Program and Programming Languages

Lecture 7 - Components of Central Processing Unit (CPU) and External Interface

Lecture 8 - Main Memory

Lecture 9 - Instruction Execution

Lecture 10 - Instruction Format

Lecture 11 - Instruction Set

Lecture 12 - Addressing Modes

Lecture 13 - Flags and Conditional Instructions

Lecture 14 - Instruction

Lecture 15 - Instruction Cycle and Micro-operations

Lecture 16 - Control Signals and Timing Sequence

Lecture 17 - Control Signals for Complete Instruction Execution

Lecture 18 - Handling Different Addressing Modes

Lecture 19 - Handling Control Transfer Instructions

Lecture 20 - Design of Hardwired controlled Control Unit

Lecture 21 - Microinstructions and Microprograms

Lecture 22 - Organization and Optimization of Microprogrammed controlled Control Unit

Lecture 23 - Different Internal CPU Bus Organization

Lecture 24 - Basics of Memory and Cache - Part 1

Lecture 25 - Basics of Memory and Cache - Part 2

Lecture 26 - Direct-mapped Caches

Lecture 27 - Associative and Multi-level Caches

Lecture 28 - Summary - Caches

Lecture 29 - Basics of Virtual Memory and Address Translation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Paging and Segmentation
- Lecture 31 - TLBs and Page Fault Handling
- Lecture 32 - Cache Indexing and Tagging Variations, Demand Paging
- Lecture 33 - Page Replacement Algorithms
- Lecture 34 - Page Frame Allocation and Thrashing
- Lecture 35 - Summary - Virtual Memory
- Lecture 36 - Input-Output Primitives
- Lecture 37 - Interrupt Driven I/O
- Lecture 38 - DMA Transfer
- Lecture 39 - Storage Devices

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Embedded Systems-Design Verification and Test

Subject Co-ordinator - Prof.Jatindra Kumar Deka, Dr. Santosh Biswas, Prof.Arnab Sarkar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Modeling Techniques - 1

Lecture 3 - Modeling Techniques - 2

Lecture 4 - Hardware/Software Partitioning - 1

Lecture 5 - Hardware/Software Partitioning - 2

Lecture 6 - Introduction to Hardware Design

Lecture 7 - Hardware Architectural Synthesis - 1

Lecture 8 - Hardware Architectural Synthesis - 2

Lecture 9 - Hardware Architectural Synthesis - 3

Lecture 10 - Hardware Architectural Synthesis - 4

Lecture 11 - Hardware Architectural Synthesis - 5

Lecture 12 - Hardware Architectural Synthesis - 6

Lecture 13 - Hardware Architectural Synthesis - 7

Lecture 14 - System Level Analysis

Lecture 15 - Uniprocessor Scheduling - 1

Lecture 16 - Uniprocessor Scheduling - 2

Lecture 17 - Multiprocessor Scheduling - 1

Lecture 18 - Multiprocessor Scheduling - 2

Lecture 19 - Introduction and Basic Operators of Temporal Logic

Lecture 20 - Syntax and Semantics of CTL

Lecture 21 - Equivalence between CTL formulas

Lecture 22 - Model Checking Algorithm

Lecture 23 - Binary Decision Diagram

Lecture 24 - Use of OBDDs for State Transition System

Lecture 25 - Symbolic Model Checking

Lecture 26 - Introduction to Digital VLSI Testing

Lecture 27 - Automatic Test Pattern Generation (ATPG)

Lecture 28 - Scan Chain based Sequential Circuit Testing

Lecture 29 - Software-Hardware Co-validation Fault Models and High Level Testing for Complex Embedded Systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Testing for embedded cores
- Lecture 31 - Bus and Memory Testing
- Lecture 32 - Testing for advanced faults in Real time Embedded Systems
- Lecture 33 - BIST for Embedded Systems
- Lecture 34 - Concurrent Testing for Fault tolerant Embedded Systems - 1
- Lecture 35 - Concurrent Testing for Fault tolerant Embedded Systems - 2
- Lecture 36 - Testing for Re-programmable hardware
- Lecture 37 - Interaction Testing between Hardware and Software

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Multi-Core Computer Architecture-Storage and Interconnectivity

Subject Co-ordinator - Prof. John Jose

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Overview of the Course
- Lecture 2 - Instruction Execution Principles
- Lecture 3 - Introduction to Instruction Pipeline
- Lecture 4 - Introduction to Superscalar Pipelines
- Lecture 5 - Instruction Pipeline and Performance - I
- Lecture 6 - Instruction Pipeline and Performance - II
- Lecture 7 - Introduction to Cache Memory
- Lecture 8 - Block Replacement Techniques and Write Strategy
- Lecture 9 - gem5 Simulator - An Overview
- Lecture 10 - Cache Memory
- Lecture 11 - Basic Cache Optimization Techniques
- Lecture 12 - gem5 Simulator - Cache Optimisation
- Lecture 13 - Advanced Cache Optimization Techniques - I
- Lecture 14 - Advanced Cache Optimization Techniques - II
- Lecture 15 - Cache Memory Optimizations
- Lecture 16 - Introduction to DRAM System
- Lecture 17 - DRAM Controllers and Address Mapping
- Lecture 18 - Address Translation Mechanisms
- Lecture 19 - Main Memory Concepts
- Lecture 20 - Introduction to Tiled Chip Multicore Processors
- Lecture 21 - Routing Techniques in Network On Chip
- Lecture 22 - Network On Chip Router Micro-Architecture
- Lecture 23 - gem5 Simulator - NoC Optimisation
- Lecture 24 - Energy Efficient Bufferless NoC Routers
- Lecture 25 - Sidebuffered Deflection Routers
- Lecture 26 - Concepts in Network on Chip
- Lecture 27 - QoS of NoC and Caches in TCMP Systems
- Lecture 28 - Emerging Trends in Network On Chips
- Lecture 29 - Concepts in TCMP Systems

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computer Algorithms - 2

Subject Co-ordinator - Prof. Shashank K. Mehta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Graph\_Basics  
Lecture 2 - Breadth\_First\_Search  
Lecture 3 - Dijkstra\_Algo  
Lecture 4 - All Pair Shortest Path  
Lecture 5 - Matriods  
Lecture 6 - Minimum Spanning Tree  
Lecture 7 - Edmond's Matching Algo I  
Lecture 8 - Edmond's Matching Algo II  
Lecture 9 - Flow Networks  
Lecture 10 - Ford Fulkerson Method  
Lecture 11 - Edmond Karp Algo  
Lecture 12 - Matrix Inversion  
Lecture 13 - Matrix Decomposition  
Lecture 14 - Knuth Morris Pratt Algo  
Lecture 15 - Rabin Karp Algo  
Lecture 16 - NFA Simulation  
Lecture 17 - Integer-Polynomial Ops-I  
Lecture 18 - Integer-Polynomial Ops-II  
Lecture 19 - Integer-Polynomial Ops-III  
Lecture 20 - Chinese Remainder-I  
Lecture 21 - Chinese Remainder-II  
Lecture 22 - Chinese Remainder-III  
Lecture 23 - Discrete Fourier Transform-I  
Lecture 24 - Discrete Fourier Transform-II  
Lecture 25 - Discrete Fourier Transform-III  
Lecture 26 - Schonhage Strassen Algo  
Lecture 27 - Linear Programming-I  
Lecture 28 - Linear Programming-II  
Lecture 29 - Geometry-I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Geometry-II
- Lecture 31 - Geometry-III
- Lecture 32 - Approximation Algo-I
- Lecture 33 - Approximation Algo-II
- Lecture 34 - Approximation Algo-III
- Lecture 35 - General

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Theory of Computation

Subject Co-ordinator - Prof. Somenath Biswas

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is theory of computation? Set membership problem, basic notions like alphabet, strings, form
- Lecture 2 - Introduction to finite automaton
- Lecture 3 - Finite automata continued, deterministic finite automata (DFAs), language accepted by a DFA
- Lecture 4 - Regular languages, their closure properties
- Lecture 5 - DFAs solve set membership problems in linear time, pumping lemma
- Lecture 6 - More examples of nonregular languages, proof of pumping lemma, pumping lemma as a game, converse
- Lecture 7 - A generalization of pumping lemma, nondeterministic finite automata (NFAs), computation trees for
- Lecture 8 - Formal description of NFA, language accepted by NFA, such languages are also regular
- Lecture 9 - 'Guess and verify' paradigm for nondeterminism
- Lecture 10 - NFA's with epsilon transitions
- Lecture 11 - Regular expressions, they denote regular languages
- Lecture 12 - Construction of a regular expression for a language given a DFA accepting it. Algebraic closure
- Lecture 13 - Closure properties (Continued...)
- Lecture 14 - Closure under reversal, use of closure properties
- Lecture 15 - Decision problems for regular languages
- Lecture 16 - About minimization of states of DFAs. Myhill-Nerode theorem
- Lecture 17 - Continuation of proof of Myhill-Nerode theorem
- Lecture 18 - Application of Myhill-Nerode theorem. DFA minimization
- Lecture 19 - DFA minimization (Continued...)
- Lecture 20 - Introduction to context free languages (cfls) and context free grammars (cfgs). Derivation of st
- Lecture 21 - Languages generated by a cfg, leftmost derivation, more examples of cfgs and cfls
- Lecture 22 - Parse trees, inductive proof that  $L$  is  $L(G)$ . All regular languages are context free
- Lecture 23 - Towards Chomsky normal forms
- Lecture 24 - Simplification of cfgs continued, Removal of epsilon productions
- Lecture 25 - Elimination of unit productions. Converting a cfg into Chomsky normal form. Towards pumping lem
- Lecture 26 - Pumping lemma for cfls. Adversarial paradigm
- Lecture 27 - Completion of pumping lemma proof. Examples of use of pumping lemma. Converse of lemma does not
- Lecture 28 - Closure properties continued. cfls not closed under complementation
- Lecture 29 - Another example of a cfl whose complement is not a cfl. Decision problems for cfls

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - More decision problems. CYK algorithm for membership decision
- Lecture 31 - Introduction to pushdown automata (pda)
- Lecture 32 - pda configurations, acceptance notions for pdas. Transition diagrams for pdas
- Lecture 33 - Equivalence of acceptance by empty stack and acceptance by final state
- Lecture 34 - Turing machines (TM)
- Lecture 35 - Execution trace, another example (unary to binary conversion)
- Lecture 36 - Example continued. Finiteness of TM description, TM configuration, language acceptance, definition
- Lecture 37 - Notion of non-acceptance or rejection of a string by a TM. Multitrack TM, its equivalence to standard TM
- Lecture 38 - Simulation of multitape TMs by basic model. Nondeterministic TM (NDTM). Equivalence of NDTMs with basic TM
- Lecture 39 - Counter machines and their equivalence to basic TM model
- Lecture 40 - TMs can simulate computers, diagonalization proof
- Lecture 41 - Existence of non-r.e. languages, recursive languages, notion of decidability
- Lecture 42 - Separation of recursive and r.e. classes, halting problem and its undecidability

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Introduction to Problem Solving and Programming

Subject Co-ordinator - Prof. D. Gupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
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Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Riemann Hypothesis and its Applications

Subject Co-ordinator - Prof. Manindra Agrawal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture - 1  
Lecture - 2  
Lecture - 3  
Lecture - 4  
Lecture - 5  
Lecture - 6  
Lecture - 7  
Lecture - 8  
Lecture - 9  
Lecture - 10  
Lecture - 11  
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Lecture - 28  
Lecture - 29

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Biometrics

Subject Co-ordinator - Prof. Phalguni Gupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Biometrics  
Lecture 2 - Biometrics  
Lecture 3 - Biometrics  
Lecture 4 - Biometrics  
Lecture 5 - Biometrics  
Lecture 6 - Biometrics  
Lecture 7 - Biometrics  
Lecture 8 - Biometrics  
Lecture 9 - Biometrics  
Lecture 10 - Biometrics  
Lecture 11 - Biometrics  
Lecture 12 - Biometrics  
Lecture 13 - Biometrics  
Lecture 14 - Biometrics  
Lecture 15 - Biometrics  
Lecture 16 - Biometrics  
Lecture 17 - Biometrics  
Lecture 18 - Biometrics  
Lecture 19 - Biometrics  
Lecture 20 - Biometrics  
Lecture 21 - Biometrics  
Lecture 22 - Biometrics  
Lecture 23 - Biometrics  
Lecture 24 - Biometrics  
Lecture 25 - Biometrics  
Lecture 26 - Biometrics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Parallel Algorithm

Subject Co-ordinator - Prof. Phalguni Gupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Parallel Algorithm  
Lecture 2 - Parallel Algorithm  
Lecture 3 - Parallel Algorithm  
Lecture 4 - Parallel Algorithm  
Lecture 5 - Parallel Algorithm  
Lecture 6 - Parallel Algorithm  
Lecture 7 - Parallel Algorithm  
Lecture 8 - Parallel Algorithm  
Lecture 9 - Parallel Algorithm  
Lecture 10 - Parallel Algorithm  
Lecture 11 - Parallel Algorithm  
Lecture 12 - Parallel Algorithm  
Lecture 13 - Parallel Algorithm  
Lecture 14 - Parallel Algorithm  
Lecture 15 - Parallel Algorithm  
Lecture 16 - Parallel Algorithm  
Lecture 17 - Parallel Algorithm  
Lecture 18 - Parallel Algorithm  
Lecture 19 - Parallel Algorithm  
Lecture 20 - Parallel Algorithm  
Lecture 21 - Parallel Algorithm  
Lecture 22 - Parallel Algorithm  
Lecture 23 - Parallel Algorithm  
Lecture 24 - Parallel Algorithm  
Lecture 25 - Parallel Algorithm

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computer Architecture (Dr. Mainak Chaudhuri)

Subject Co-ordinator - Dr. Mainak Chaudhuri

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Amdahl's law, CPI equation
- Lecture 2 - CPI equation, research practices, instruction set architecture
- Lecture 3 - Instruction set architecture
- Lecture 4 - Instruction set architecture
- Lecture 5 - Instruction set architecture, case study with MIPS-I
- Lecture 6 - Case study with MIPS-I
- Lecture 7 - Case study with MIPS-I
- Lecture 8 - Binary instrumentation for architectural studies
- Lecture 9 - Binary instrumentation for architectural studies
- Lecture 10 - Basic pipelining, branch prediction
- Lecture 11 - Basic pipelining, branch prediction
- Lecture 12 - Basic pipelining, branch prediction
- Lecture 13 - Basic pipelining, branch prediction
- Lecture 14 - Basic pipelining, branch prediction
- Lecture 15 - Basic pipelining, branch prediction
- Lecture 16 - Basic pipelining, branch prediction
- Lecture 17 - Basic pipelining, branch prediction
- Lecture 18 - Basic pipelining, branch prediction
- Lecture 19 - Basic pipelining, branch prediction
- Lecture 20 - Dynamic scheduling, speculative execution
- Lecture 21 - Dynamic scheduling, speculative execution
- Lecture 22 - Dynamic scheduling, speculative execution
- Lecture 23 - Dynamic scheduling, speculative execution
- Lecture 24 - Dynamic scheduling, speculative execution
- Lecture 25 - Virtual memory and caches
- Lecture 26 - Virtual memory and caches
- Lecture 27 - Virtual memory and caches
- Lecture 28 - Topics in memory system, DRAM and SRAM technology
- Lecture 29 - Topics in memory system, DRAM and SRAM technology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Topics in memory system, DRAM and SRAM technology
- Lecture 31 - Case study
- Lecture 32 - Case study
- Lecture 33 - Case study
- Lecture 34 - Case study
- Lecture 35 - Input/Output
- Lecture 36 - Simultaneous multithreading, multi-cores

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Compiler Design (Prof. Sanjeev K Aggarwal)

Subject Co-ordinator - Prof. Sanjeev K Aggarwal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Compiler Design  
Lecture 2 - Compiler Design  
Lecture 3 - Compiler Design  
Lecture 4 - Compiler Design  
Lecture 5 - Compiler Design  
Lecture 6 - Compiler Design  
Lecture 7 - Compiler Design  
Lecture 8 - Compiler Design  
Lecture 9 - Compiler Design  
Lecture 10 - Compiler Design  
Lecture 11 - Compiler Design  
Lecture 12 - Compiler Design  
Lecture 13 - Compiler Design  
Lecture 14 - Compiler Design  
Lecture 15 - Compiler Design  
Lecture 16 - Compiler Design  
Lecture 17 - Compiler Design  
Lecture 18 - Compiler Design  
Lecture 19 - Compiler Design  
Lecture 20 - Compiler Design  
Lecture 21 - Compiler Design  
Lecture 22 - Compiler Design  
Lecture 23 - Compiler Design  
Lecture 24 - Compiler Design  
Lecture 25 - Compiler Design  
Lecture 26 - Compiler Design  
Lecture 27 - Compiler Design  
Lecture 28 - Compiler Design  
Lecture 29 - Compiler Design  
Lecture 30 - Compiler Design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to programming in C

Subject Co-ordinator - Prof. Satyadev Nandakumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Intro - Process of programming  
Lecture 2 - Intro - GCD  
Lecture 3 - Intro - Programming cycle  
Lecture 4 - Intro - Tracing a simple program  
Lecture 5 - Intro - Variables  
Lecture 6 - Intro - Operators  
Lecture 7 - Loops - While  
Lecture 8 - Loops - While example  
Lecture 9 - Loops - While GCD example  
Lecture 10 - Loops - Longest 1  
Lecture 11 - Loops - Longest 2  
Lecture 12 - Loops - Longest 3  
Lecture 13 - Loops - Do-while  
Lecture 14 - Loops - Matrix using nested loops  
Lecture 15 - Loops - For  
Lecture 16 - Loops - Matrix using nested for loops  
Lecture 17 - Loops - Break statement  
Lecture 18 - Loops - Continue statement  
Lecture 19 - Loops - Continue statement example  
Lecture 20 - Data types in C  
Lecture 21 - ASCII code  
Lecture 22 - Operators Expressions Associativity  
Lecture 23 - Precedence of operators  
Lecture 24 - Expression evaluation  
Lecture 25 - Functions - Introduction  
Lecture 26 - Functions - How functions are executed  
Lecture 27 - Functions - Examples - 1  
Lecture 28 - Functions - Examples - 2  
Lecture 29 - Arrays in C

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Initializing arrays
- Lecture 31 - Initializing character arrays
- Lecture 32 - Pointers in C
- Lecture 33 - Pointer arithmetic
- Lecture 34 - Function with pointer arguments
- Lecture 35 - Example - copy a subarray
- Lecture 36 - Programming using arrays and pointers
- Lecture 37 - sizeof operator
- Lecture 38 - Returning pointers from functions
- Lecture 39 - Example - return duplicate of a string
- Lecture 40 - Recursion - Linear Recursion
- Lecture 41 - Recursion - Linear Recursion - 2
- Lecture 42 - Recursion - Two-way Recursion
- Lecture 43 - Multidimensional Arrays
- Lecture 44 - Multidimensional Arrays and Pointers
- Lecture 45 - Multidimensional Arrays and Pointers - continued (2)
- Lecture 46 - Multidimensional Arrays and Pointers - continued (3)
- Lecture 47 - File Handling
- Lecture 48 - Some other file-handling functions
- Lecture 49 - Structures in C - 1
- Lecture 50 - Structures in C - 2
- Lecture 51 - Singly Linked Lists
- Lecture 52 - Doubly Linked Lists - introduction
- Lecture 53 - Organizing code into multiple files - 1
- Lecture 54 - Organizing code into multiple files - 2
- Lecture 55 - Pre and post increment

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Fundamentals of Database Systems

Subject Co-ordinator - Dr. Arnab Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Databases  
Lecture 2 - Relational Data Model  
Lecture 3 - Relational Algebra Basic Operators  
Lecture 4 - Relational Algebra Composition of Operators  
Lecture 5 - Relational Algebra Additional Operators  
Lecture 6 - Relational Algebra Extended Relational Algebra  
Lecture 7 - Relational Algebra  
Lecture 8 - SQL  
Lecture 9 - SQL  
Lecture 10 - SQL  
Lecture 11 - SQL  
Lecture 12 - Normalization Theory  
Lecture 13 - Normalization Theory  
Lecture 14 - Normalization Theory  
Lecture 15 - Normalization Theory  
Lecture 16 - Normalization Theory  
Lecture 17 - Physical Design  
Lecture 18 - Database Indexing  
Lecture 19 - Database Indexing  
Lecture 20 - Query Processing  
Lecture 21 - Query Processing  
Lecture 22 - Query Processing  
Lecture 23 - Query Processing  
Lecture 24 - Query Optimization  
Lecture 25 - Query Optimization  
Lecture 26 - Query Optimization  
Lecture 27 - Query Optimization  
Lecture 28 - Database Transactions  
Lecture 29 - Database Transactions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Recovery Systems
- Lecture 31 - Recovery Systems
- Lecture 32 - Recovery Systems
- Lecture 33 - Schedules
- Lecture 34 - Schedules
- Lecture 35 - Schedules
- Lecture 36 - Schedules
- Lecture 37 - Schedules
- Lecture 38 - Concurrency Control
- Lecture 39 - Concurrency Control
- Lecture 40 - Concurrency Control
- Lecture 41 - Concurrency Control
- Lecture 42 - Concurrency Control
- Lecture 43 - Concurrency Control
- Lecture 44 - Concurrency Control
- Lecture 45 - NoSQL
- Lecture 46 - NoSQL
- Lecture 47 - NoSQL
- Lecture 48 - Big Data

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Theory of Computation

Subject Co-ordinator - Prof. Raghunath Tewari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Finite Automata
- Lecture 2 - Basic Notation and Convention, DFA Edit Lesson
- Lecture 3 - Example of DFAs
- Lecture 4 - Computation by DFA and Regular operation
- Lecture 5 - Introduction to Nondeterminism
- Lecture 6 - NFA, definition and examples
- Lecture 7 - Equivalence of NFA and DFA, Closure properties
- Lecture 8 - Regular expressions
- Lecture 9 - Algebraic properties, RE to NFA conversion
- Lecture 10 - GNFA to RE conversion
- Lecture 11 - More closure properties of regular languages
- Lecture 12 - Non-regular languages and pumping lemma
- Lecture 13 - Examples of non-regular languages
- Lecture 14 - DFA minimization
- Lecture 15 - Introduction to CFGs
- Lecture 16 - Examples of CFGs, Reg subset of CFL
- Lecture 17 - Parse tree, derivation, ambiguity
- Lecture 18 - Normal forms, Chomsky normal form
- Lecture 19 - Non-CFLs, pumping lemma
- Lecture 20 - Examples of non- CFLs
- Lecture 21 - Pushdown Automata
- Lecture 22 - Pushdown Automata - Definition and Example
- Lecture 23 - Pushdown Automata - Examples and Relation with CFGs
- Lecture 24 - Closure Properties of CFLs
- Lecture 25 - Deterministic Context Free Languages
- Lecture 26 - Turing Machine
- Lecture 27 - More on Turing Machine
- Lecture 28 - Non deterministic Turing Machine Edit Lesson
- Lecture 29 - Configuration Graphs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Closure Properties of Decidable and Turing recognizable languages
- Lecture 31 - Decidability properties of Regular and Context Free Languages
- Lecture 32 - Undecidability
- Lecture 33 - More on Undecidability
- Lecture 34 - Reduction
- Lecture 35 - Applications of Reduction
- Lecture 36 - Rice's theorem
- Lecture 37 - Introduction to Computational Complexity Theory
- Lecture 38 - More on the class NP
- Lecture 39 - NP-Completeness
- Lecture 40 - More on NP-Completeness

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Modern Algebra

Subject Co-ordinator - Prof. Manindra Agrawal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Groups

Lecture 2 - Groups

Lecture 3 - Groups

Lecture 4 - Groups

Lecture 5 - Groups

Lecture 6 - Groups

Lecture 7 - Rings

Lecture 8 - Rings

Lecture 9 - Rings

Lecture 10 - Rings

Lecture 11 - Rings

Lecture 12 - Rings

Lecture 13 - Rings

Lecture 14 - Fields

Lecture 15 - Cauchy sequences and real numbers

Lecture 16 - Properties of Fields

Lecture 17 - Finite Fields

Lecture 18 - Application of Fields

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Advanced Graph Theory

Subject Co-ordinator - Dr.Rajiv Misra

Co-ordinating Institute - IIT - Patna

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Graph Theory
- Lecture 2 - Paths, Cycles and Trails
- Lecture 3 - Eulerian Circuits, Vertex Degrees and Counting
- Lecture 4 - The Chinese Postman Problem and Graphic Sequences
- Lecture 5 - Trees and Distance
- Lecture 6 - Spanning Trees and Enumeration
- Lecture 7 - Matchings and Covers
- Lecture 8 - Independent Sets, Covers and Maximum Bipartite Matching
- Lecture 9 - Weighted Bipartite Matching
- Lecture 10 - Stable Matchings and Faster Bipartite Matching
- Lecture 11 - Factors and Perfect Matching in General Graphs
- Lecture 12 - Matching in General Graphs
- Lecture 13 - Connectivity and Paths
- Lecture 14 - k-Connected Graphs
- Lecture 15 - Network Flow Problems
- Lecture 16 - Vertex Coloring and Upper Bounds
- Lecture 17 - Brooks's Theorem and Color-Critical Graphs
- Lecture 18 - Counting Proper Colorings
- Lecture 19 - Planar Graphs
- Lecture 20 - Characterization of Planar Graphs
- Lecture 21 - Line Graphs and Edge-coloring
- Lecture 22 - Hamiltonian Graph, Traveling Salesman Problem and NP-Completeness
- Lecture 23 - Connected Dominating Set and Distributed Algorithm

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Cloud Computing and Distributed Systems

Subject Co-ordinator - Dr.Rajiv Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Cloud Computing
- Lecture 2 - Virtualization
- Lecture 3 - Hotspot Mitigation for Virtual Machine Migration
- Lecture 4 - Server Virtualization
- Lecture 5 - Software Defined Network
- Lecture 6 - Geo-distributed Cloud Data Centers
- Lecture 7 - Leader Election in Rings (Classical Distributed Algorithms)
- Lecture 8 - Leader Election (Ring LE and Bully LE Algorithm)
- Lecture 9 - Design of Zookeeper
- Lecture 10 - Time and Clock Synchronization in Cloud Data Centers
- Lecture 11 - Global State and Snapshot Recording Algorithms
- Lecture 12 - Distributed Mutual Exclusion
- Lecture 13 - Consensus in Cloud Computing and Paxos
- Lecture 14 - Byzantine Agreement
- Lecture 15 - Failures and Recovery Approaches in Distributed Systems
- Lecture 16 - Design of Key-Value Stores
- Lecture 17 - Design of HBase
- Lecture 18 - Peer to Peer Systems in Cloud Computing
- Lecture 19 - MapReduce
- Lecture 20 - Introduction to Spark
- Lecture 21 - Introduction to Kafka

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Cryptography and Network Security

Subject Co-ordinator - Dr. Debdeep Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Overview on Modern Cryptography
- Lecture 3 - Introduction to Number Theory
- Lecture 4 - Probability and Information Theory
- Lecture 5 - Classical Cryptosystems
- Lecture 6 - Cryptanalysis of Classical Ciphers
- Lecture 7 - Shannons Theory
- Lecture 8 - Shannons Theory (Continued...1)
- Lecture 9 - Shannons Theory (Continued...2)
- Lecture 10 - Symmetric Key Ciphers
- Lecture 11 - Block Cipher Standards (DES)
- Lecture 12 - Block Cipher Standards (AES)
- Lecture 13 - Block Cipher Standards (AES) (Continued...)
- Lecture 14 - Linear Cryptanalysis
- Lecture 15 - Differential Cryptanalysis
- Lecture 16 - Few other Cryptanalytic Techniques
- Lecture 17 - Overview on S-Box Design Principles
- Lecture 18 - Modes of Operation of Block Ciphers
- Lecture 19 - Stream Ciphers
- Lecture 20 - Stream Ciphers (Continued...1)
- Lecture 21 - Stream Ciphers (Continued...2)
- Lecture 22 - Pseudorandomness
- Lecture 23 - Cryptographic Hash Functions
- Lecture 24 - Cryptographic Hash Functions (Continued...1)
- Lecture 25 - Cryptographic Hash Functions (Continued...2)
- Lecture 26 - Message Authentication Codes
- Lecture 27 - More Number Theoretic Results
- Lecture 28 - The RSA Cryptosystem
- Lecture 29 - Primality Testing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Factoring Algorithms
- Lecture 31 - Some Comments on the Security of RSA
- Lecture 32 - Discrete Logarithm Problem (DLP)
- Lecture 33 - The Diffie-Hellman Problem and Security of ElGamal Systems
- Lecture 34 - An Introduction to Elliptic Curve Cryptography
- Lecture 35 - Application of Elliptic Curves to Cryptography
- Lecture 36 - Implementation of Elliptic Curve Cryptography
- Lecture 37 - Secret Sharing Schemes
- Lecture 38 - A Tutorial on Network Protocols
- Lecture 39 - System Security
- Lecture 40 - Firewalls and Intrusion Detection Systems
- Lecture 41 - Side Channel Analysis of Cryptographic Implementations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - High Performance Computer Architecture

Subject Co-ordinator - Prof. Ajit Pal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction & Course Outline  
Lecture 2 - Performance  
Lecture 3 - Instruction Set Architecture  
Lecture 4 - MIPS ISA and Processor  
Lecture 5 - MIPS ISA and Processor (Continued...)  
Lecture 6 - Pipelining - Introduction  
Lecture 7 - Instruction Pipelining  
Lecture 8 - Pipeline Hazards  
Lecture 9 - Data Hazards  
Lecture 10 - Software Pipelining  
Lecture 11 - In Quest of Higher ILP  
Lecture 12 - In Quest of Higher ILP (Continued...)  
Lecture 13 - Dynamic Instruction Scheduling  
Lecture 14 - Dynamic Instruction Scheduling (Continued...)  
Lecture 15 - Control Hazards  
Lecture 16 - Branch Prediction  
Lecture 17 - Branch Prediction (Continued...)  
Lecture 18 - Dynamic Instruction Scheduling with Branch Prediction  
Lecture 19 - Hardware-based Speculation  
Lecture 20 - Tutorial - I  
Lecture 21 - Hierarchical Memory Organization  
Lecture 22 - Hierarchical Memory Organization (Continued...1)  
Lecture 23 - Hierarchical Memory Organization (Continued...2)  
Lecture 24 - Hierarchical Memory Organization (Continued...3)  
Lecture 25 - Cache Optimization Techniques (Continued...1)  
Lecture 26 - Cache Optimization Techniques (Continued...2)  
Lecture 27 - Main Memory Organization  
Lecture 28 - Main Memory Optimizations  
Lecture 29 - Virtual Memory

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Virtual Memory (Continued...)
- Lecture 31 - Virtual Machines
- Lecture 32 - Storage Technology
- Lecture 33 - Storage Technology (Continued...)
- Lecture 34 - Case Studies
- Lecture 35 - Case Studies (Continued...1)
- Lecture 36 - Case Studies (Continued...2)
- Lecture 37 - Multithreading & Multiprocessing
- Lecture 38 - Simultaneous Multithreading
- Lecture 39 - Symmetric Multiprocessors
- Lecture 40 - Distributed Memory Multiprocessors
- Lecture 41 - Cluster, Grid and Cloud Computing



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Low Power VLSI Circuits and Systems

Subject Co-ordinator - Prof. Ajit Pal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction & Course Outline
- Lecture 2 - MOS Transistors - I
- Lecture 3 - MOS Transistors - II
- Lecture 4 - MOS Transistors - III
- Lecture 5 - MOS Transistors - IV
- Lecture 6 - MOS Inverters - I
- Lecture 7 - MOS Inverters - II
- Lecture 8 - MOS Inverters - III
- Lecture 9 - MOS Inverters - IV
- Lecture 10 - Static CMOS Circuits - I
- Lecture 11 - Static CMOS Circuits - II
- Lecture 12 - MOS Dynamic Circuits - I
- Lecture 13 - MOS Dynamic Circuits - II
- Lecture 14 - Pass Transistor Logic Circuits - I
- Lecture 15 - Pass Transistor Logic Circuits - II
- Lecture 16 - MOS Memories
- Lecture 17 - Finite State Machines
- Lecture 18 - Switching Power Dissipation
- Lecture 19 - Tutorial - I
- Lecture 20 - Dynamic Power Dissipation
- Lecture 21 - Leakage Power Dissipation
- Lecture 22 - Supply Voltage Scaling - I
- Lecture 23 - Supply Voltage Scaling - II
- Lecture 24 - Supply Voltage Scaling - III
- Lecture 25 - Supply Voltage Scaling - IV
- Lecture 26 - Tutorial - II
- Lecture 27 - Minimizing Switched Capacitance - I
- Lecture 28 - Minimizing Switched Capacitance - II
- Lecture 29 - Minimizing Switched Capacitance - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Minimizing Switched Capacitance - IV
- Lecture 31 - Minimizing Switched Capacitance - V
- Lecture 32 - Minimizing Leakage Power - I
- Lecture 33 - Minimizing Leakage Power - II
- Lecture 34 - Minimizing Leakage Power - III
- Lecture 35 - Variation Tolerant Design
- Lecture 36 - Adiabatic Logic Circuits
- Lecture 37 - Battery-Driven System Design
- Lecture 38 - CAD Tools for Low Power
- Lecture 39 - Tutorial - III
- Lecture 40 - Course Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Real Time Systems

Subject Co-ordinator - Prof. Rajib Mall

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Real - Time System Characteristics
- Lecture 3 - Few Basic Issues
- Lecture 4 - Modelling Timing Constraints
- Lecture 5 - Modelling Timing Constraints (Continued.)
- Lecture 6 - Basics of Real - Time Task Scheduling
- Lecture 7 - Cyclic Scheduler
- Lecture 8 - Event - Driven Scheduling
- Lecture 9 - Rate Monotonic Scheduler
- Lecture 10 - RMA Scheduling
- Lecture 11 - Deadline Monotonic Scheduling and Other Issues
- Lecture 12 - Few Issues in Use of RMA
- Lecture 13 - Resource Sharing Among Real-Time Tasks
- Lecture 14 - Highest Locker and Priority Ceiling Protocols
- Lecture 15 - An Analysis of Priority Ceiling Protocol
- Lecture 16 - Handling Task Dependencies
- Lecture 17 - Real-Time Task Scheduling on Multiprocessors and Distributed Systems
- Lecture 18 - Real-Time Task Scheduling on Multiprocessors and Distributed Systems (Continued.)
- Lecture 19 - Clock Synchronization in Distributed Real-Time Systems
- Lecture 20 - Internal Clock Synchronization in Presence of Byzantine Clocks
- Lecture 21 - A Few Basic Issues in Real-Time Operating Systems
- Lecture 22 - Tutorial - I
- Lecture 23 - A Few Basic Issues in Real-Time Operating Systems (Continued.)
- Lecture 24 - Unix and Windows as RTOS
- Lecture 25 - Real - Time POSIX
- Lecture 26 - Real - Time POSIX (Continued.)
- Lecture 27 - Open Source and Commercial RTOS
- Lecture 28 - Open Source and Commercial RTOS (Continued.)
- Lecture 29 - Benchmarking Real - Time Computer & Operating Systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Benchmarking Real - Time Computer & Operating Systems (Continued.)
- Lecture 31 - Real - Time Communications
- Lecture 32 - Few Basic Issues in Real - Time Communications
- Lecture 33 - Review of Computer Networking
- Lecture 34 - Real - Time Communication in a LAN
- Lecture 35 - Real - Time Communication in a LAN (Continued.)
- Lecture 36 - Performance of Two Real -Time Communication Protocols
- Lecture 37 - Real - Time Communication over Packet Switched Networks
- Lecture 38 - Real - Time Communication over Packet Switched Networks (Continued.)
- Lecture 39 - Real - Time Communication over Packet Switched Networks (Continued.)
- Lecture 40 - Real - Time Databases

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Artificial Intelligence (Prof. Anupam Basu)

Subject Co-ordinator - Prof. Sudeshna Sarkar, Prof. Anupam Basu

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Artificial Intelligence  
Lecture 2 - Intelligent Agents  
Lecture 3 - State Space Search  
Lecture 4 - Uninformed Search  
Lecture 5 - Informed Search  
Lecture 6 - Informed Search - 2  
Lecture 7 - Two Players Games - I  
Lecture 8 - Two Players Games - II  
Lecture 9 - Constraint Satisfaction Problems - 1  
Lecture 10 - Constraint Satisfaction Problems - 2  
Lecture 11 - Knowledge Representation and Logic  
Lecture 12 - Interface in Propositional Logic  
Lecture 13 - First Order Logic  
Lecture 14 - Reasoning Using First Order Logic  
Lecture 15 - Resolution in FOPL  
Lecture 16 - Rule Based System  
Lecture 17 - Rule Based Systems II  
Lecture 18 - Semantic Net  
Lecture 19 - Reasoning in Semantic Net  
Lecture 20 - Frames  
Lecture 21 - Planning - 1  
Lecture 22 - Planning - 2  
Lecture 23 - Planning - 3  
Lecture 24 - Planning - 4  
Lecture 25 - Rule Based Expert System  
Lecture 26 - Reasoning with Uncertainty - I  
Lecture 27 - Reasoning with Uncertainty - II  
Lecture 28 - Reasoning with Uncertainty - III  
Lecture 29 - Reasoning with Uncertainty - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fuzzy Reasoning - I
- Lecture 31 - Fuzzy Reasoning - II
- Lecture 32 - Introduction to Learning - I
- Lecture 33 - Introduction to Learning - II
- Lecture 34 - Rule Induction and Decision Trees - I
- Lecture 35 - Rule Induction and Decision Trees - II
- Lecture 36 - Learning Using neural Networks - I
- Lecture 37 - Learning Using Neural Networks - II
- Lecture 38 - Probabilistic Learning
- Lecture 39 - Natural Language Processing - I
- Lecture 40 - Natural Language Processing - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Artificial Intelligence (Prof. P. Dasgupta)

Subject Co-ordinator - Prof. P. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Artificial Intelligence

Lecture 2 - Problem Solving by Search

Lecture 3 - Searching with Costs

Lecture 4 - Informed State Space Search

Lecture 5 - Heuristic Search

Lecture 6 - Problem Reduction Search

Lecture 7 - Searching Game Trees

Lecture 8 - Knowledge Based Systems

Lecture 9 - First Order Logic

Lecture 10 - Inference in First Order Logic

Lecture 11 - Resolution - Refutation Proofs

Lecture 12 - Resolution Refutation Proofs

Lecture 13 - Logic Programming

Lecture 14 - Prolog Programming

Lecture 15 - Prolog

Lecture 16 - Additional Topics

Lecture 17 - Introduction to Planning

Lecture 18 - Partial Order Planning

Lecture 19 - GraphPLAN and SATPlan

Lecture 20 - SATPlan

Lecture 21 - Reasoning under uncertainty

Lecture 22 - Bayesian Networks

Lecture 23 - Reasoning with Bayes Networks

Lecture 24 - Reasoning with Bayes networks (Contd.)

Lecture 25 - Reasoning under uncertainty

Lecture 26 - Learning

Lecture 27 - Learning

Lecture 28 - Back Propagation Learning

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computer Networks

Subject Co-ordinator - Prof. Sujoy Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Emergence of Networks & Reference Models  
Lecture 2 - Network Topology  
Lecture 3 - Physical Medium - I  
Lecture 4 - Physical Medium - II  
Lecture 5 - Multiplexing (Sharing a Medium)  
Lecture 6 - Telecom Networks  
Lecture 7 - Switches - I  
Lecture 8 - Pocket Switches  
Lecture 9 - SONET/SDH  
Lecture 10 - Fiber Optic Components  
Lecture 11 - Routing and Wavelength Assignment  
Lecture 12 - Protection and Restoration  
Lecture 13 - Multiple Access  
Lecture 14 - Token Based Mac  
Lecture 15 - Data Link Protocols  
Lecture 16 - Error Control  
Lecture 17 - Stop & Wait Protocol  
Lecture 18 - Satellite Communication  
Lecture 19 - Ethernet - CSMA/CD  
Lecture 20 - Modern Ethernet  
Lecture 21 - Local Internetworking  
Lecture 22 - Cellular Networks  
Lecture 23 - Wireless Network  
Lecture 24 - ATM  
Lecture 25 - ATM Signaling, Routing and LAN Emulation  
Lecture 26 - Introduction to Routing  
Lecture 27 - RIP - Distance Vector Routing  
Lecture 28 - IP version 4  
Lecture 29 - IP Version 6 & Mobile IP

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - UDP & Client Server
- Lecture 31 - TCP
- Lecture 32 - IP Multicasting
- Lecture 33 - DHCP and ICMP
- Lecture 34 - DNS & Directory
- Lecture 35 - Congestion Control
- Lecture 36 - QOS & Multimedia
- Lecture 37 - Network Management
- Lecture 38 - Security
- Lecture 39 - FTP - SMTP
- Lecture 40 - HTTP

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Data Communication

Subject Co-ordinator - Prof. Ajit Pal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Course Outline - Data Communication

Lecture 2 - Layered Architecture

Lecture 3 - Data and Signal

Lecture 4 - Transmission Impairments and Channel Capacity

Lecture 5 - Guided Transmission Media

Lecture 6 - Unguided Media

Lecture 7 - Transmission of Digital Signal - I

Lecture 8 - Transmission of Digital Signal - II

Lecture 9 - Transmission of Analog Signal - I

Lecture 10 - Transmission of Analog Signal - II

Lecture 11 - Multiplexing

Lecture 12 - Multiplexing

Lecture 13 - Multiplexing Applications - I

Lecture 14 - Multiplexing Applications - II

Lecture 15 - Interfacing to the Media

Lecture 16 - Error Detection and Correction

Lecture 17 - Flow and Error Control

Lecture 18 - Data Link Control

Lecture 19 - Switching Techniques Circuit Switching

Lecture 20 - Switching Techniques Packet Switching

Lecture 21 - Routing - I

Lecture 22 - Routing - II

Lecture 23 - Congestion Control

Lecture 24 - X.25 and Frame Relay

Lecture 25 - ATM

Lecture 26 - Medium Access Control - I

Lecture 27 - Medium Access Control - II

Lecture 28 - Medium Access Control - III

Lecture 29 - IEEE 802 LANs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

---

- Lecture 30 - High Speed LANs
- Lecture 31 - Wireless LANs
- Lecture 32 - Cellular Telephone Systems
- Lecture 33 - Satellite Communications
- Lecture 34 - Internet and Internetworking
- Lecture 35 - TCP/IP - I
- Lecture 36 - TCP/IP - II
- Lecture 37 - Multimedia Networks
- Lecture 38 - Audio and Video Compression
- Lecture 39 - Multimedia Services
- Lecture 40 - Secured Communication - I
- Lecture 41 - Secured Communication - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Electronic Design Automation

Subject Co-ordinator - Prof. Indranil Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Verilog  
Lecture 3 - Verilog  
Lecture 4 - Verilog  
Lecture 5 - Verilog  
Lecture 6 - Verilog  
Lecture 7 - Verilog  
Lecture 8 - Synthesis  
Lecture 9 - Synthesis  
Lecture 10 - Synthesis  
Lecture 11 - Synthesis  
Lecture 12 - Synthesis  
Lecture 13 - Synthesis  
Lecture 14 - Synthesis  
Lecture 15 - Backend Design  
Lecture 16 - Backend Design  
Lecture 17 - Backend Design  
Lecture 18 - Backend Design  
Lecture 19 - Backend Design  
Lecture 20 - Backend Design  
Lecture 21 - Backend Design  
Lecture 22 - Backend Design  
Lecture 23 - Backend Design  
Lecture 24 - Backend Design  
Lecture 25 - Backend Design  
Lecture 26 - Backend Design  
Lecture 27 - Backend Design  
Lecture 28 - Backend Design  
Lecture 29 - Backend Design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Testing Part - I
- Lecture 31 - Testing Part - II
- Lecture 32 - Testing Part - III
- Lecture 33 - Testing Part - IV
- Lecture 34 - Testing Part - V
- Lecture 35 - Testing Part - VI

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Internet Technology

Subject Co-ordinator - Prof. Indranil Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction To Internet
- Lecture 2 - Review Of Network Technologies
- Lecture 3 - TCP/IP - Part-I
- Lecture 4 - TCP/IP - Part-II
- Lecture 5 - TCP/IP - Part-III
- Lecture 6 - IP Subnetting and Addressing
- Lecture 7 - Internet Routing Protocol - Part-I
- Lecture 8 - Internet Routing Protocol - Part-II
- Lecture 9 - Client Server Concepts DNS, Telnet, FTP
- Lecture 10 - Electronic Mail
- Lecture 11 - World Wide Web - Part-I
- Lecture 12 - World Wide Web - Part-II
- Lecture 13 - HTML
- Lecture 14 - HTML
- Lecture 15 - HTML
- Lecture 16 - Extensible Markup Language (XML)
- Lecture 17 - HTML Forms
- Lecture 18 - Image Maps
- Lecture 19 - CGI Scripts
- Lecture 20 - Other Technologies
- Lecture 21 - PERL - Part-I
- Lecture 22 - PERL - Part II
- Lecture 23 - PERL - Part III
- Lecture 24 - PERL - Part IV
- Lecture 25 - Javascript
- Lecture 26 - Javascript Examples (Continued)
- Lecture 27 - Using Cookies
- Lecture 28 - Java Applets
- Lecture 29 - Java Applets

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Client-Server Programming In Java
- Lecture 31 - Intranet, Extranet, Firewall
- Lecture 32 - Basic Cryptographic Concepts Part - I
- Lecture 33 - Basic Cryptographic Concepts Part - II
- Lecture 34 - Basic Cryptographic Concepts Part - III
- Lecture 35 - Electronic Commerce
- Lecture 36 - Streaming Multimedia Applications
- Lecture 37 - Internet Telephony
- Lecture 38 - Search Engine And Web Crawlers
- Lecture 39 - Search Engine And Web Crawlers
- Lecture 40 - Course Summary And Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Programming and Data Structure

Subject Co-ordinator - Dr. P.P. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - C Programming - I  
Lecture 3 - C Programming - II  
Lecture 4 - C Programming - III  
Lecture 5 - Data Structuring  
Lecture 6 - Data Structuring  
Lecture 7 - Data Structuring  
Lecture 8 - Problem Decomposition By Recursion - I  
Lecture 9 - Problem Decomposition By Recursion - II  
Lecture 10 - Problem Decomposition By Recursion - III  
Lecture 11 - Merge sort And Quick sort  
Lecture 12 - Characters And Strings  
Lecture 13 - Arrays  
Lecture 14 - Structures - I  
Lecture 15 - Structures - II  
Lecture 16 - Dynamic Allocation Part - I  
Lecture 17 - Linked Lists - I  
Lecture 18 - Complexity (Efficiency) of Algorithms  
Lecture 19 - Asymptotic Growth Functions  
Lecture 20 - Asymptotic Analysis of Algorithms  
Lecture 21 - Data Structuring  
Lecture 22 - Search Trees  
Lecture 23 - Search Trees - II  
Lecture 24 - Search Trees - III  
Lecture 25 - 2-3 Trees  
Lecture 26 - Algorithm Design - I  
Lecture 27 - Algorithm Design - II  
Lecture 28 - Algorithm Design - III  
Lecture 29 - Graphs - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Graphs - II  
Lecture 31 - Graphs - III  
Lecture 32 - Conclusions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Software Testing

Subject Co-ordinator - Prof. Rajib Mall

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Levels of Testing
- Lecture 3 - Basic Concepts in Testing
- Lecture 4 - Basic Concepts in Testing (Continued...)
- Lecture 5 - Unit Testing
- Lecture 6 - Equivalence and BV Testing
- Lecture 7 - Special Value Testing
- Lecture 8 - Combinatorial Testing
- Lecture 9 - Pairwise Testing
- Lecture 10 - White Box Testing
- Lecture 11 - MC/DC Testing
- Lecture 12 - MC/DC Testing (Continued...)
- Lecture 13 - Path Testing
- Lecture 14 - Dataflow and Mutation Testing
- Lecture 15 - Mutation Testing
- Lecture 16 - Integration Testing
- Lecture 17 - System Testing
- Lecture 18 - Regression Testing
- Lecture 19 - Testing Object-Oriented Program - Part 1
- Lecture 20 - Testing Object-Oriented Program - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Programming in C++

Subject Co-ordinator - Prof. Partha Pratim Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1  
Lecture 2 - Module 1  
Lecture 3 - Module 1  
Lecture 4 - Module 2  
Lecture 5 - Module 3  
Lecture 6 - Module 4  
Lecture 7 - Module 5  
Lecture 8 - Module 6  
Lecture 9 - Module 6  
Lecture 10 - Module 7  
Lecture 11 - Module 7  
Lecture 12 - Module 8  
Lecture 13 - Module 8  
Lecture 14 - Module 8  
Lecture 15 - Module 9  
Lecture 16 - Module 9  
Lecture 17 - Module 10  
Lecture 18 - Module 10  
Lecture 19 - Module 11  
Lecture 20 - Module 11  
Lecture 21 - Module 12  
Lecture 22 - Module 12  
Lecture 23 - Module 13  
Lecture 24 - Module 13  
Lecture 25 - Module 13  
Lecture 26 - Module 14  
Lecture 27 - Module 14  
Lecture 28 - Module 14  
Lecture 29 - Module 15

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Module 15  
Lecture 31 - Module 16  
Lecture 32 - Module 17  
Lecture 33 - Module 18  
Lecture 34 - Module 19  
Lecture 35 - Module 20  
Lecture 36 - Module 21  
Lecture 37 - Module 22  
Lecture 38 - Module 23  
Lecture 39 - Module 24  
Lecture 40 - Module 25  
Lecture 41 - Module 26  
Lecture 42 - Module 27  
Lecture 43 - Module 28  
Lecture 44 - Module 29  
Lecture 45 - Module 30  
Lecture 46 - Module 31  
Lecture 47 - Module 32  
Lecture 48 - Module 33  
Lecture 49 - Module 34  
Lecture 50 - Module 35  
Lecture 51 - Module 35  
Lecture 52 - Module 36  
Lecture 53 - Module 37  
Lecture 54 - Module 38  
Lecture 55 - Module 39  
Lecture 56 - Module 40

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Machine Learning

Subject Co-ordinator - Prof. S. Sarkar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Different Types of Learning  
Lecture 3 - Hypothesis Space and Inductive Bias  
Lecture 4 - Evaluation and Cross-Validation  
Lecture 5 - Tutorial - I  
Lecture 6 - Linear Regression  
Lecture 7 - Introduction to Decision Trees  
Lecture 8 - Learning Decision Tree  
Lecture 9 - Overfitting  
Lecture 10 - Python Exercise on Decision Tree and Linear Regression  
Lecture 11 - Tutorial - II  
Lecture 12 - k-Nearest Neighbour  
Lecture 13 - Feature Selection  
Lecture 14 - Feature Extraction  
Lecture 15 - Collaborative Filtering  
Lecture 16 - Python Exercise on kNN and PCA  
Lecture 17 - Tutorial - III  
Lecture 18 - Bayesian Learning  
Lecture 19 - Naive Bayes  
Lecture 20 - Bayesian Network  
Lecture 21 - Python Exercise on Naive Bayes  
Lecture 22 - Tutorial - IV  
Lecture 23 - Logistic Regression  
Lecture 24 - Introduction Support Vector Machine  
Lecture 25 - SVM  
Lecture 26 - SVM  
Lecture 27 - Nonlinear SVM and Kernel Function  
Lecture 28 - SVM  
Lecture 29 - Python Exercise on SVM

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction
- Lecture 31 - Multilayer Neural Network
- Lecture 32 - Neural Network and Backpropagation Algorithm
- Lecture 33 - Deep Neural Network
- Lecture 34 - Python Exercise on Neural Network
- Lecture 35 - Tutorial - VI
- Lecture 36 - Introduction to Computational Learning Theory
- Lecture 37 - Sample Complexity
- Lecture 38 - VC Dimension
- Lecture 39 - Introduction to Ensembles
- Lecture 40 - Bagging and Boosting
- Lecture 41 - Introduction to Clustering
- Lecture 42 - Kmeans Clustering
- Lecture 43 - Agglomerative Hierarchical Clustering
- Lecture 44 - Python Exercise on kmeans clustering

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Object-Oriented Analysis and Design

Subject Co-ordinator - Prof. Partha Pratim Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Challenges in Software Engineering
- Lecture 2 - Complexity of Software
- Lecture 3 - Complexity of Software (Continued...)
- Lecture 4 - Structure and Attributes of a Complex System
- Lecture 5 - Structure and Attributes of a Complex System (Continued...)
- Lecture 6 - Object-Oriented Analysis and Design
- Lecture 7 - Bringing Order to Chaos
- Lecture 8 - Bringing Order to Chaos (Continued...)
- Lecture 9 - Evolution of Object Models - Programming Languages and Paradigms
- Lecture 10 - Foundations of the Object Model - OOA, OOD and OOP
- Lecture 11 - Foundations of the Object Model - OOA, OOD and OOP (Continued...)
- Lecture 12 - Elements of Object Model (Major)
- Lecture 13 - Elements of Object Model (Major)
- Lecture 14 - Elements of the Object Model (Major)
- Lecture 15 - Elements of the Object Model (Major)
- Lecture 16 - Elements of the Object Model (Minor)
- Lecture 17 - Elements of the Object Model (Minor)
- Lecture 18 - Nature of an object
- Lecture 19 - Nature of an object
- Lecture 20 - Relationships among objects
- Lecture 21 - Relationships among objects (Continued...)
- Lecture 22 - Nature of a class
- Lecture 23 - Nature of a class
- Lecture 24 - Relationships among classes
- Lecture 25 - Relationships among classes (Continued...)
- Lecture 26 - How to Build Quality Classes and Objects
- Lecture 27 - Tutorial
- Lecture 28 - How to Identify Classes and Objects ?
- Lecture 29 - Identification of Classes, Objects and Relationship in LMS

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Identification of Classes, Objects and Relationship in LMS (Continued...)
- Lecture 31 - Identification of Classes, Objects and Relationship in LMS (Continued...)
- Lecture 32 - Identification of Classes, Objects and Relationship in LMS (Continued...)
- Lecture 33 - Overview of UML
- Lecture 34 - SDLC Phases and UML Diagrams
- Lecture 35 - Use-Case Diagrams - Part I
- Lecture 36 - Use-Case Diagrams - Part II
- Lecture 37 - Use-Case Diagrams - Part III
- Lecture 38 - Class Diagrams - Part 1 (Class, Property and Operation)
- Lecture 39 - Class Diagrams - Part 2 (Association, Weak and Strong Aggregation)
- Lecture 40 - Class Diagrams - Part 3 (Generalization, Dependency and Constraints)
- Lecture 41 - Sequence Diagrams - Part 1
- Lecture 42 - Sequence Diagrams - Part 2
- Lecture 43 - Communication Diagram
- Lecture 44 - Activity Diagrams - Part II
- Lecture 45 - Activity Diagrams - Part II
- Lecture 46 - Activity Diagrams - Part III
- Lecture 47 - Interaction Overview Diagram
- Lecture 48 - State Machine Diagrams - Part I
- Lecture 49 - State Machine Diagrams - Part II
- Lecture 50 - State Machine Diagrams - Part III
- Lecture 51 - Various UML Diagrams
- Lecture 52 - Closing Comments



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Complex Network : Theory and Application

Subject Co-ordinator - Prof. Animesh Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Network Analysis - I  
Lecture 3 - Network Analysis - II  
Lecture 4 - Network Analysis - III  
Lecture 5 - Network Analysis - IV  
Lecture 6 - Network Analysis - V  
Lecture 7 - Network Analysis - VI  
Lecture 8 - Social Network Principles - I  
Lecture 9 - Social Network Principles - II  
Lecture 10 - Social Network Principles - III  
Lecture 11 - Social Network Principles - IV  
Lecture 12 - Community Analysis - I  
Lecture 13 - Community Analysis - II  
Lecture 14 - Community Analysis - III  
Lecture 15 - Community Analysis - IV  
Lecture 16 - Community Analysis - V  
Lecture 17 - Community Analysis - VI  
Lecture 18 - Citation Analysis - I  
Lecture 19 - Citation Analysis - II  
Lecture 20 - Citation Analysis - III  
Lecture 21 - Citation Analysis - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Fundamental Algorithms: Design and Analysis

Subject Co-ordinator - Prof.Sourav Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Insertion Sort and Asymptotic Analysis

Lecture 2 - Solving Recurrences

Lecture 3 - Divide and Conquer Paradigm

Lecture 4 - Quick Sort

Lecture 5 - Heap Sort

Lecture 6 - Decision Tree

Lecture 7 - Linear Time Sorting

Lecture 8 - Order Statistics

Lecture 9 - Hashing

Lecture 10 - Universal Hashing, BST Sort

Lecture 11 - Red-Black Tree

Lecture 12 - Augmenting Data Structure

Lecture 13 - Computational Geometry

Lecture 14 - Van Emde Boas Data Structure

Lecture 15 - Dynamic Programming

Lecture 16 - Graph Algorithm

Lecture 17 - BFS and DFS

Lecture 18 - Dijkstra

Lecture 19 - Bellman Ford

Lecture 20 - Floyd Marshall

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Natural Language Processing

Subject Co-ordinator - Prof. Pawan Goyal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course
- Lecture 2 - What Do We Do in NLP
- Lecture 3 - Why is NLP hard
- Lecture 4 - Empirical Laws
- Lecture 5 - Text Processing
- Lecture 6 - Spelling Correction
- Lecture 7 - Weighted Edit Distance, Other Variations
- Lecture 8 - Noisy Channel Model for Spelling Correction
- Lecture 9 - N-Gram Language Models
- Lecture 10 - Evaluation of Language Models, Basic Smoothing
- Lecture 11 - Tutorial I
- Lecture 12 - Language Modeling
- Lecture 13 - Computational Morphology
- Lecture 14 - Finite - State Methods for Morphology
- Lecture 15 - Introduction to POS Tagging
- Lecture 16 - Hidden Markov Models for POS Tagging
- Lecture 17 - Viterbi Decoding for HMM, Parameter Learning
- Lecture 18 - Baum Welch Algorithm
- Lecture 19 - Maximum Entropy Models - I
- Lecture 20 - Maximum Entropy Models - II
- Lecture 21 - Conditional Random Fields
- Lecture 22 - Syntax - Introduction
- Lecture 23 - Syntax - Parsing I
- Lecture 24 - Syntax - CKY, PCFGs
- Lecture 25 - PCFGs - Inside-Outside Probabilities
- Lecture 26 - Inside-Outside Probabilities
- Lecture 27 - Dependency Grammars and Parsing - Introduction
- Lecture 28 - Transition Based Parsing
- Lecture 29 - Transition Based Parsing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - MST-Based Dependency Parsing
- Lecture 31 - MST-Based Dependency Parsing
- Lecture 32 - Distributional Semantics - Introduction
- Lecture 33 - Distributional Models of Semantics
- Lecture 34 - Distributional Semantics
- Lecture 35 - Word Embeddings - Part I
- Lecture 36 - Word Embeddings - Part II
- Lecture 37 - Lexical Semantics
- Lecture 38 - Lexical Semantics - Wordnet
- Lecture 39 - Word Sense Disambiguation - I
- Lecture 40 - Word Sense Disambiguation - II
- Lecture 41 - Novel Word Sense detection
- Lecture 42 - Topic Models
- Lecture 43 - Latent Dirichlet Allocation
- Lecture 44 - Gibbs Sampling for LDA, Applications
- Lecture 45 - LDA Variants and Applications - I
- Lecture 46 - LDA Variants and Applications - II
- Lecture 47 - Entity Linking - I
- Lecture 48 - Entity Linking - II
- Lecture 49 - Information Extraction - Introduction
- Lecture 50 - Relation Extraction
- Lecture 51 - Distant Supervision
- Lecture 52 - Text Summarization - LEXRANK
- Lecture 53 - Optimization based Approaches for Summarization
- Lecture 54 - Summarization Evaluation
- Lecture 55 - Text Classification - I
- Lecture 56 - Text Classification - II
- Lecture 57 - Tutorial II
- Lecture 58 - Tutorial III
- Lecture 59 - Tutorial IV
- Lecture 60 - Tutorial V
- Lecture 61 - Sentiment Analysis - Introduction
- Lecture 62 - Sentiment Analysis - Affective Lexicons
- Lecture 63 - Learning Affective Lexicons
- Lecture 64 - Computing with Affective Lexicons
- Lecture 65 - Aspect - Based Sentiment Analysis

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Embedded Systems Design

Subject Co-ordinator - Prof. Anupam Basu

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Processors  
Lecture 3 - General Purpose and ASIPs Processor  
Lecture 4 - Designing a Single Purpose Processor  
Lecture 5 - Optimization Issues  
Lecture 6 - Introduction to FPPFA  
Lecture 7 - FPGA (Continued...)  
Lecture 8 - Behaviour Synthesis on FPGA using VHDL  
Lecture 9 - Tutorial - I  
Lecture 10 - Tutorial - II  
Lecture 11 - Tutorial - III  
Lecture 12 - Tutorial - IV  
Lecture 13 - Sensors and Signals  
Lecture 14 - Discretization of Signals and A/D Converter  
Lecture 15 - Quantization Noise, SNR and D/A Converter  
Lecture 16 - Arduino Uno  
Lecture 17 - Arduino Uno (Continued...), Serial Communication and Timer  
Lecture 18 - Controller Design using Arduino  
Lecture 19 - Tutorial - V  
Lecture 20 - Power Aware Embedded System - I  
Lecture 21 - Power Aware Embedded System - II  
Lecture 22 - SD and DD Algorithm  
Lecture 23 - Parallel Operations and VLIW  
Lecture 24 - Code Efficiency  
Lecture 25 - DSP Application and Address Generation Unit  
Lecture 26 - Real Time O.S - I  
Lecture 27 - Real Time O.S - II  
Lecture 28 - RMS Algorithm  
Lecture 29 - EDF Algorithm and Resource Constraint Issue

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Priority Inversion and Priority Inheritance Protocol
- Lecture 31 - Modeling and Specification - I
- Lecture 32 - Modeling and Specification - II
- Lecture 33 - FSM and Statechart
- Lecture 34 - Statechart and State Machine Semantics
- Lecture 35 - Statecharts (Continued...)
- Lecture 36 - Program State Machines
- Lecture 37 - SDL
- Lecture 38 - Data Flow Model - I
- Lecture 39 - Data Flow Model - II
- Lecture 40 - Hardware Synthesis - I
- Lecture 41 - Hardware Synthesis - II
- Lecture 42 - Scheduling
- Lecture 43 - Digital Camera Design
- Lecture 44 - Digital Camera - Iterative Design
- Lecture 45 - HW-SW Partitioning
- Lecture 46 - Optimization - I
- Lecture 47 - Optimization - II
- Lecture 48 - Simulation
- Lecture 49 - Formal Verification

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Wireless Ad Hoc and Sensor Networks

Subject Co-ordinator - Prof. Sudip Misra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction  
Lecture 3 - Self-organizing Behaviour of Wireless Ad Hoc Networks  
Lecture 4 - Cooperation in Mobile Ad Hoc Networks - Part-I  
Lecture 5 - Cooperation in Mobile Ad Hoc Networks - Part-II  
Lecture 6 - MAC Protocols in MANETs - Part-I  
Lecture 7 - MAC Protocols in MANETs - Part-II  
Lecture 8 - Routing in MANETs - Part-I  
Lecture 9 - Routing in MANETs - Part-II  
Lecture 10 - Routing in MANETs - Part-III  
Lecture 11 - Multicasting in MANETs  
Lecture 12 - Mobility Models for MANETs  
Lecture 13 - Transport Protocols for MANETs - Part-I  
Lecture 14 - Transport Protocols for MANETs - Part-II  
Lecture 15 - Opportunistic Mobile Networks - Part-I  
Lecture 16 - Opportunistic Mobile Networks - Part-II  
Lecture 17 - Opportunistic Mobile Networks - Part-III  
Lecture 18 - UAV Networks - Part-I  
Lecture 19 - UAV Networks - Part-II  
Lecture 20 - UAV Networks - Part-III  
Lecture 21 - Introduction  
Lecture 22 - Introduction  
Lecture 23 - WSN Coverage and Placement - Part-I  
Lecture 24 - Topology Mangement in Wireless Sensor Network  
Lecture 25 - Mobile Wireless Sensor Networks  
Lecture 26 - Mobile Wireless Sensor Networks  
Lecture 27 - Medium Access Control in Wireless Networks - Part-I  
Lecture 28 - Medium Access Control in Wireless Networks - Part-II  
Lecture 29 - Routing in Wireless Sensor Networks - Part-I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Routing in Wireless Sensor Networks - Part-II
- Lecture 31 - Congestion and Flow Control - Part-I
- Lecture 32 - Congestion and Flow Control - Part-II
- Lecture 33 - Underwater Sensor Networks - Part-I
- Lecture 34 - Underwater Sensor Networks - Part-II
- Lecture 35 - Underwater Sensor Networks - Part-III
- Lecture 36 - Underwater Sensor Networks - Part-IV
- Lecture 37 - Security of Wireless Sensor Networks - Part-I
- Lecture 38 - Security of Wireless Sensor Networks - Part-II
- Lecture 39 - Hardware Design of Sensor Node
- Lecture 40 - Real Life Deployment of WSN



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:VLSI Physical Design

Subject Co-ordinator - Prof. Indranil Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Design Representation  
Lecture 3 - VLSI Design Styles - Part 1  
Lecture 4 - VLSI Design Styles - Part 2  
Lecture 5 - VLSI Physical Design Automation - Part 1  
Lecture 6 - VLSI Physical Design Automation - Part 2  
Lecture 7 - Partitioning  
Lecture 8 - Floor planning  
Lecture 9 - Floor planning Algorithms  
Lecture 10 - Pin Assignment  
Lecture 11 - Placement - Part 1  
Lecture 12 - Placement - Part 2  
Lecture 13 - Placement - Part 3  
Lecture 14 - Placement - Part 4  
Lecture 15 - Grid Routing - Part 1  
Lecture 16 - Grid Routing - Part 2  
Lecture 17 - Grid Routing - Part 3  
Lecture 18 - Global Routing - Part 1  
Lecture 19 - Global Routing - Part 2  
Lecture 20 - Detailed Routing - Part 1  
Lecture 21 - Detailed Routing - Part 2  
Lecture 22 - Detailed Routing - Part 3  
Lecture 23 - Detailed Routing - Part 4  
Lecture 24 - Clock Design - Part 1  
Lecture 25 - Clock Design - Part 2  
Lecture 26 - Clock Design - Part 3  
Lecture 27 - Clock Network Synthesis - Part 1  
Lecture 28 - Clock Network Synthesis - Part 2  
Lecture 29 - Clock Network Synthesis - Part 3

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Clock Network Synthesis - Part 4
- Lecture 31 - Power and Ground Routing
- Lecture 32 - Time Closure - Part 1
- Lecture 33 - Time Closure - Part 2
- Lecture 34 - Time Closure - Part 3
- Lecture 35 - Time Closure - Part 4
- Lecture 36 - Time Closure - Part 5
- Lecture 37 - Timing Driven Placement
- Lecture 38 - Timing Driven Routing
- Lecture 39 - Physical Synthesis - Part 1
- Lecture 40 - Physical Synthesis - Part 2
- Lecture 41 - Performance-Driven Design Flow
- Lecture 42 - Miscellaneous Approaches to Timing Optimization
- Lecture 43 - Interconnect Modeling - Part 1
- Lecture 44 - Interconnect Modeling - Part 2
- Lecture 45 - Design Rule Check
- Lecture 46 - Layout Compaction - Part 1
- Lecture 47 - Layout Compaction - Part 2
- Lecture 48
- Lecture 49
- Lecture 50
- Lecture 51
- Lecture 52
- Lecture 53 - Test Pattern Generation
- Lecture 54 - Design for Testability
- Lecture 55 - Boundary Scan Standard
- Lecture 56 - Built-in Self-Test - Part 1
- Lecture 57 - Built-in Self-Test - Part 2
- Lecture 58 - Low Power VLSI Design
- Lecture 59 - Techniques to Reduce Power
- Lecture 60 - Gate Level Design for Low Power - Part 1
- Lecture 61 - Gate Level Design for Low Power - Part 2
- Lecture 62 - Other Low Power Design Techniques
- Lecture 63 - Algorithmic Level Techniques for Low Power Design
- Lecture 64 - Summarization of the Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Internetwork Security

Subject Co-ordinator - Prof. Sourav Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Cryptography
- Lecture 2 - Classical Cryptosystem
- Lecture 3 - Cryptanalysis on Substitution Cipher (Frequency Analysis)
- Lecture 4 - Play Fair Cipher
- Lecture 5 - Block Cipher
- Lecture 6 - Data Encryption Standard (DES)
- Lecture 7 - DES (Continued...)
- Lecture 8 - Triple DES and Modes of Operation
- Lecture 9 - Stream Cipher
- Lecture 10 - Pseudorandom Sequence
- Lecture 11 - LFSR based Stream Cipher
- Lecture 12 - Mathematical background
- Lecture 13 - Abstract algebra (Continued...)
- Lecture 14 - Number Theory
- Lecture 15 - Modular Inverse
- Lecture 16 - Modular Inverse
- Lecture 17 - Extended Euclid Algorithm
- Lecture 18 - Fermat's Little Theorem, Euler PhiFunction
- Lecture 19 - Euler's theorem, Quadratic Residue
- Lecture 20 - Polynomial Arithmetic
- Lecture 21 - Advanced Encryption Standard (AES)
- Lecture 22 - Advanced Encryption Standard (AES) (Continued...)
- Lecture 23 - Introduction to Public Key Cryptosystem, Diffie-Hellman Key Exchange
- Lecture 24 - Knapsack Cryptosystem
- Lecture 25 - RSA Cryptosystem
- Lecture 26 - More on RSA
- Lecture 27 - Primarily Testing
- Lecture 28 - ElGamal Cryptosystem
- Lecture 29 - Elliptic Curve over the Reals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Elliptic curve Modulo a Prime
- Lecture 31 - Generalised ElGamal Public Key Cryptosystem
- Lecture 32 - Chinese Remainder Theorem
- Lecture 33 - Rabin Cryptosystem
- Lecture 34 - Legendre and Jacobi Symbol
- Lecture 35 - Jacobi Symbol (Continued...)
- Lecture 36 - Message Authentication
- Lecture 37 - Digital Signature
- Lecture 38 - Key Management
- Lecture 39 - Key Exchange
- Lecture 40 - Hash Function
- Lecture 41 - Universal Hashing
- Lecture 42 - Cryptographic Hash Function
- Lecture 43 - Secure Hash Algorithm (SHA)
- Lecture 44 - Digital Signature Standard (DSS)
- Lecture 45 - More on Key Exchange Protocol
- Lecture 46 - Cryptanalysis
- Lecture 47 - Time-Memory Trade-off Attack
- Lecture 48 - Time-Memory Trade-off Attack
- Lecture 49 - More on Differential Cryptanalysis
- Lecture 50 - Linear Cryptanalysis
- Lecture 51 - Cryptanalysis on Stream Cipher
- Lecture 52 - Modern Stream Ciphers
- Lecture 53 - Shamir's secret sharing and BE
- Lecture 54 - Identity based Encryption (IBE)
- Lecture 55 - Attribute based Encryption (ABE)
- Lecture 56 - Functional Encryption
- Lecture 57 - Solving discrete log problem
- Lecture 58 - Implementation Attacks
- Lecture 59 - The Secure Sockets Layer
- Lecture 60 - Pretty Good Privacy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Architecture and Organization

Subject Co-ordinator - Prof. Indranil Sengupta, Prof. Kamalika Datta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Evolution of Computer Systems
- Lecture 2 - Basic Operation of a Computer
- Lecture 3 - Memory Addressing and Languages
- Lecture 4 - Software and Architecture Types
- Lecture 5 - Instruction Set Architecture
- Lecture 6 - Number Representation
- Lecture 7 - Instruction Format and Addressing Modes
- Lecture 8 - CISC and RISC Architecture
- Lecture 9 - MIPS32 Instruction Set
- Lecture 10 - MIPS Programming Examples
- Lecture 11 - Spim - A Mips32 Simulator
- Lecture 12 - Measuring Cpu Performance
- Lecture 13 - Choice Of Benchmarks
- Lecture 14 - Summarizing Performance Results
- Lecture 15 - Amadahl's Law - Part 1
- Lecture 16 - Amadahl's Law - Part 2
- Lecture 17 - Design Of Control Unit - Part 1
- Lecture 18 - Design Of Control Unit - Part 2
- Lecture 19 - Design Of Control Unit - Part 3
- Lecture 20 - Design Of Control Unit - Part 4
- Lecture 21 - Mips Implementation - Part 1
- Lecture 22 - Mips Implementation - Part 2
- Lecture 23 - Processor Memory Interaction
- Lecture 24 - Static And Dynamic Ram
- Lecture 25 - Asynchronous Dram
- Lecture 26 - Synchronous Dram
- Lecture 27 - Memory Interfacing And Addressing
- Lecture 28 - Memory Hierarchy Design - Part 1
- Lecture 29 - Memory Hierarchy Design - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cache Memory - Part 1
- Lecture 31 - Cache Memory - Part 2
- Lecture 32 - Improving Cache Performance
- Lecture 33 - Design Of Adders - Part 1
- Lecture 34 - Design Of Adders - Part 2
- Lecture 35 - Design Of Multipliers - Part 1
- Lecture 36 - Design Of Multipliers - Part 2
- Lecture 37 - Design Of Dividers
- Lecture 38 - Floating-Point Numbers
- Lecture 39 - Floating-Point Arithmetic
- Lecture 40 - Basic Pipelining Concepts
- Lecture 41 - Pipeline Scheduling
- Lecture 42 - Arithmetic Pipeline
- Lecture 43 - Secondary Storage Devices
- Lecture 44 - Input-Output Organization
- Lecture 45 - Data Transfer Techniques
- Lecture 46 - Interrupt Handling - Part 1
- Lecture 47 - Interrupt Handling - Part 2
- Lecture 48 - Direct Memory Access
- Lecture 49 - Some Example Device Interfacing
- Lecture 50 - Exercises On I/O Transfer
- Lecture 51 - Bus Standards
- Lecture 52 - Bus Standards
- Lecture 53 - Pipelining The Mips32 Data Path
- Lecture 54 - Mips Pipeline (Continued...)
- Lecture 55 - Pipeline Hazards - Part 1
- Lecture 56 - Pipeline Hazards - Part 2
- Lecture 57 - Pipeline Hazards - Part 3
- Lecture 58 - Pipeline Hazards - Part 4
- Lecture 59 - Multicycle Operations In Mips32
- Lecture 60 - Exploiting Instruction Level Parallelism
- Lecture 61 - Vector Processors
- Lecture 62 - Multi-Core Processors
- Lecture 63 - Some Case Studies
- Lecture 64 - Summarization Of The Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Algorithms and Analysis

Subject Co-ordinator - Prof. Sourav Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Insertion sort  
Lecture 2 - Analysis of Insertion Sort  
Lecture 3 - Asymptotic Analysis  
Lecture 4 - Recurrence of Merge Sort  
Lecture 5 - Substitution Method  
Lecture 6 - The Master Method  
Lecture 7 - Divide-and-Conquer  
Lecture 8 - Divide-and-Conquer (Continued...)  
Lecture 9 - Straseen's Algorithms  
Lecture 10 - QuickSort  
Lecture 11 - Analysis of Quicksort  
Lecture 12 - Randomized Quicksort  
Lecture 13 - Heap  
Lecture 14 - Heap Sort  
Lecture 15 - Decision Tree  
Lecture 16 - Linear time Sorting  
Lecture 17 - Radix Sort and Bucket Sort  
Lecture 18 - Order Statistics  
Lecture 19 - Randomised Order Statistics  
Lecture 20 - Worst case linear time order statistics  
Lecture 21 - Hash Function  
Lecture 22 - Open Addressing  
Lecture 23 - Universal Hashing  
Lecture 24 - Perfect Hashing  
Lecture 25 - Binary Search Tree (BST) Sort  
Lecture 26 - Randomly build BST  
Lecture 27 - Red Black Tree  
Lecture 28 - Red Black Tree (Continued...)  
Lecture 29 - Augmentation of data structure

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- Lecture 30 - Interval trees
- Lecture 31 - Fixed universe successor
- Lecture 32 - Van Emde Boas data structure
- Lecture 33 - Amortized analysis
- Lecture 34 - Computational Geometry
- Lecture 35 - Computational Geometry (Continued...)
- Lecture 36 - Dynamic Programming
- Lecture 37 - Longest common subsequence
- Lecture 38 - Graphs
- Lecture 39 - Prim's Algorithms
- Lecture 40 - Graph Search
- Lecture 41
- Lecture 42
- Lecture 43
- Lecture 44
- Lecture 45
- Lecture 46
- Lecture 47
- Lecture 48
- Lecture 49
- Lecture 50
- Lecture 51
- Lecture 52 - Union-Find
- Lecture 53 - Augmented disjoint set data structure
- Lecture 54 - Network flow
- Lecture 55 - Network Flow (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Hardware Modeling using Verilog

Subject Co-ordinator - Prof. Indranil Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6 - Verilog Language Features - Part 1  
Lecture 7 - Verilog Language Features - Part 2  
Lecture 8 - Verilog Language Features - Part 3  
Lecture 9 - Verilog Operators  
Lecture 10 - Verilog Modeling Examples  
Lecture 11 - Verilog Modeling Examples (Continued...)  
Lecture 12 - Verilog Description Styles  
Lecture 13 - Procedural Assignment  
Lecture 14 - Procedural Assignment (Continued...)  
Lecture 15 - Procedural Assignment (Examples)  
Lecture 16 - Blocking / Non-Blocking Assignments - Part 1  
Lecture 17 - Blocking / Non-Blocking Assignments - Part 2  
Lecture 18 - Blocking / Non-Blocking Assignments - Part 3  
Lecture 19 - Blocking / Non-Blocking Assignments - Part 4  
Lecture 20 - User Defined Primitives  
Lecture 21 - Verilog Test Bench  
Lecture 22 - Writing Verilog Test Benches  
Lecture 23 - Modeling Finite State Machines  
Lecture 24 - Modeling Finite State Machines (Continued...)  
Lecture 25 - Datapath And Controller Design - Part 1  
Lecture 26 - Datapath And Controller Design - Part 2  
Lecture 27 - Datapath And Controller Design - Part 3  
Lecture 28 - Synthesizable Verilog  
Lecture 29 - Some Recommended Practices

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- Lecture 30 - Modeling Memory
- Lecture 31 - Modeling Register Banks
- Lecture 32 - Basic Pipelining Concepts
- Lecture 33 - Pipeline Modeling - Part 1
- Lecture 34 - Pipeline Modeling - Part 2
- Lecture 35 - Switch Level Modeling - Part 1
- Lecture 36 - Switch Level Modeling - Part 2
- Lecture 37 - Pipeline Implementation Of A Processor - Part 1
- Lecture 38 - Pipeline Implementation Of A Processor - Part 2
- Lecture 39 - Pipeline Implementation Of A Processor - Part 3
- Lecture 40 - Verilog Modeling Of The Processor - Part 1
- Lecture 41 - Verilog Modeling Of The Processor - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Internet of Things

Subject Co-ordinator - Prof. Sudip Misra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to IoT- Part I

Lecture 2 - Introduction to IoT- Part II

Lecture 3 - Sensing

Lecture 4 - Actuation

Lecture 5 - Basics of IoT Networking - Part I

Lecture 6 - Basics of IoT Networking - Part II

Lecture 7 - Basics of IoT Networking - Part III

Lecture 8 - Basics of IoT Networking - Part IV

Lecture 9 - Connectivity Technologies - Part I

Lecture 10 - Connectivity Technologies - Part II

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25

Lecture 26 - Introduction to Python Programming - I

Lecture 27 - Introduction to Python Programming - II

Lecture 28 - Introduction to Raspberry Pi - I

Lecture 29 - Introduction to Raspberry Pi - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Implementation of IoT with Raspberry Pi - I
- Lecture 31
- Lecture 32
- Lecture 33
- Lecture 34
- Lecture 35
- Lecture 36 - Software Defined IoT Networking - II
- Lecture 37 - Cloud Computing-Fundamental
- Lecture 38 - Cloud Computing-Service Model
- Lecture 39 - Cloud Computing-Service Management and Security
- Lecture 40 - Cloud Computing - Case Studies
- Lecture 41 - Cloud Computing - Practical
- Lecture 42 - Sensor-Cloud - I
- Lecture 43 - Sensor-Cloud - II
- Lecture 44 - Fog Computing - I
- Lecture 45 - Fog Computing - II
- Lecture 46 - Smart Cities and Smart Homes - I
- Lecture 47 - Smart Cities and Smart Homes - II
- Lecture 48 - Smart Cities and Smart Homes - III
- Lecture 49 - Connected Vehicles - I
- Lecture 50 - Connected Vehicles - II
- Lecture 51 - Smart Grid - I
- Lecture 52 - Smart Grid - II
- Lecture 53 - Industrial Internet of Things - I
- Lecture 54 - Industrial Internet of Things - II
- Lecture 55 - Data Handling and Analytics - I
- Lecture 56 - Data Handling and Analytics - II
- Lecture 57 - Case Study
- Lecture 58 - Case Study
- Lecture 59 - Case Study
- Lecture 60 - Case Study

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Cloud Computing

Subject Co-ordinator - Prof. Soumya Kanti Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21 - SLA-Tutorial

Lecture 22 - Clouconomics-Tutorial

Lecture 23 - MapReduce-Tutorial

Lecture 24 - ResourceMgmt - I

Lecture 25 - ResourceMgmt - II

Lecture 26 - Cloud Computing

Lecture 27 - Cloud Computing

Lecture 28 - Cloud Computing

Lecture 29 - Cloud Computing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cloud Computing
- Lecture 31 - Mobile Cloud Computing - I
- Lecture 32 - Mobile Cloud Computing - II
- Lecture 33 - Fog Computing - I
- Lecture 34 - Fog Computing - II
- Lecture 35 - Use Case-Geo-spatial Cloud
- Lecture 36 - Introduction to DOCKER Container
- Lecture 37 - Green Cloud
- Lecture 38 - Sensor Cloud Computing
- Lecture 39 - IoT Cloud
- Lecture 40 - Course Summary and Research Areas

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Problem Solving through Programming in C

Subject Co-ordinator - Prof.Arnab sarkar, Prof.Jatindra Kumar Deka, Dr. Santosh Biswas

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Idea of Algorithms
- Lecture 3 - Flow Chart and Pseudocode
- Lecture 4 - Introduction to Programming Language Concepts
- Lecture 5 - Variables and Memory
- Lecture 6 - Types of Software and Compilers
- Lecture 7 - Introduction to C Programming Language
- Lecture 8 - Variables and Variable Types in C
- Lecture 9 - Introducing Functions
- Lecture 10 - Address and Content of Variables and Types
- Lecture 11 - Assignment Statement and Operators in C
- Lecture 12 - Arithmetic Expressions and Relational Expressions
- Lecture 13 - Logical Operators and Change in Control Flow
- Lecture 14 - Use of Logical Operatoers in Branching
- Lecture 15 - Branching
- Lecture 16 - IF-ELSE Statement (Continued...)
- Lecture 17 - Switch statement
- Lecture 18 - Switch Statement (Continued...) and Introduction to Loops
- Lecture 19 - Implementing Repetitions (Loops)
- Lecture 20 - Implementation of Loops with for Statement (Continued...)
- Lecture 21 - For Statement (Continued...)
- Lecture 22 - Example of If-Else
- Lecture 23 - Example of Loops
- Lecture 24 - Example of Loops (Continued...)
- Lecture 25 - Example of Loops (Continued...), Use of FOR Loops
- Lecture 26 - Introduction to Arrays
- Lecture 27 - Arrays (Continued...)
- Lecture 28 - Arrays (Continued...)
- Lecture 29 - Program using Arrays

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- Lecture 30 - Array Problem
- Lecture 31 - Linear Search
- Lecture 32 - Character Array and Strings
- Lecture 33 - String Operations
- Lecture 34 - 2-D Array Operation
- Lecture 35 - Introducing Functions
- Lecture 36 - More on Functions
- Lecture 37 - Function (Continued...)
- Lecture 38 - Scanf and Printf Functions; Function Prototype
- Lecture 39 - Parameter Passing in Function Revision
- Lecture 40 - Parameter Passing in Function Revision (Continued...)
- Lecture 41 - Substitution of # include and Macro
- Lecture 42 - search as a function
- Lecture 43 - Binary Search
- Lecture 44 - Binary Search (Continued...)
- Lecture 45 - Sorting Methods
- Lecture 46 - Bubble Sort (Continued...)
- Lecture 47 - Use of Pointer in Function
- Lecture 48 - Arrays at Strings
- Lecture 49 - Data Representation
- Lecture 50 - Bisection Method
- Lecture 51 - Interpolation
- Lecture 52 - Trapezoidal Rule and Runge-Kutta Method
- Lecture 53 - Recursion
- Lecture 54 - Recursion (Continued...)
- Lecture 55 - Structure
- Lecture 56 - Structure (Continued...)
- Lecture 57 - Structure with typedef
- Lecture 58 - Pointer
- Lecture 59 - Pointer (Continued...)
- Lecture 60 - Pointer in Structures
- Lecture 61 - Dynamic Allocation and File



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Real Time Operating System

Subject Co-ordinator - Prof. Rajib Mall

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Basics of Task scheduling
- Lecture 3 - Cyclic executives
- Lecture 4 - Cyclic Scheduler
- Lecture 5 - Cyclic Scheduler
- Lecture 6 - Exercises on Frame size Selection
- Lecture 7 - Event-driven schedulers
- Lecture 8 - Rate Monotonic Algorithm
- Lecture 9 - RMA Task Schedulability
- Lecture 10 - Rate Monotonic Analysis
- Lecture 11 - RMA Generalizations
- Lecture 12 - Further RMA Generalizations
- Lecture 13 - Resource Sharing among Real-Time Tasks
- Lecture 14 - Solution to Priority Inversion Problem
- Lecture 15 - Highest Locker Protocol
- Lecture 16 - Priority Ceiling Protocol
- Lecture 17 - PCP Priority Inversions
- Lecture 18 - Analysis of PCP priority inversions
- Lecture 19 - Some basic issues in Real-Time Operating Systems
- Lecture 20 - Unix as a Real-Time operating System

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Soft Computing

Subject Co-ordinator - Prof. Debasis Samanta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to soft computing
- Lecture 2 - Introduction to Fuzzy Logic
- Lecture 3 - Fuzzy membership functions (Continued...) and Defining Membership functions
- Lecture 4 - Fuzzy operations
- Lecture 5 - Fuzzy relations
- Lecture 6 - Fuzzy Relations (Continued...) and Fuzzy propositions
- Lecture 7 - Fuzzy implications
- Lecture 8 - Fuzzy Inferences
- Lecture 9 - Defuzzification techniques (Part-I)
- Lecture 10 - Defuzzification Techniques (Part-I) (Continued...)
- Lecture 11 - Fuzzy logic controller
- Lecture 12 - Fuzzy Logic Controller (Continued...)
- Lecture 13 - Fuzzy logic controller (Continued...)
- Lecture 14 - Concept of Genetic Algorithm
- Lecture 15 - Concept of Genetic Algorithm (Continued...) and GA Strategies
- Lecture 16 - GA Operator
- Lecture 17 - GA operator
- Lecture 18 - GA Operator
- Lecture 19 - GA Operator
- Lecture 20 - GA Operator
- Lecture 21 - GA Operator
- Lecture 22 - GA Operator
- Lecture 23 - GA Operator
- Lecture 24 - Multi-objective optimization problem solving
- Lecture 25 - Multi-objective optimization problem solving (Continued...)
- Lecture 26 - Concept of domination
- Lecture 27 - Non-Pareto based approaches to solve MOOPs
- Lecture 28 - Non-Pareto based approaches to solve MOOPs (Continued...)
- Lecture 29 - Pareto-Based approaches to solve MOOPs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pareto-based approaches to solve MOOPs (Continued....)
- Lecture 31 - Pareto-based approach to solve MOOPs
- Lecture 32 - Pareto-based approach to solve MOOPs (Continued...)
- Lecture 33 - Pareto-based approach to solve MOOPs (Continued...)
- Lecture 34 - Introduction to Artificial Neural Network
- Lecture 35 - ANN Architectures
- Lecture 36 - Training ANNs
- Lecture 37 - Training ANNs (Continued....)
- Lecture 38 - Training ANNs (Continued....)
- Lecture 39 - Training ANNs (Continued....)
- Lecture 40 - Soft computing tools

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Data Mining

Subject Co-ordinator - Prof. Pabitra Mitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction, Knowledge Discovery Process

Lecture 2 - Data Preprocessing - I

Lecture 3 - Data Preprocessing - II

Lecture 4 - Association Rules

Lecture 5 - Apriori algorithm

Lecture 6 - Rule generation

Lecture 7 - Classification

Lecture 8 - Decision Tree - I

Lecture 9 - Decision Tree - II

Lecture 10 - Decision Tree - III

Lecture 11 - Decision Tree - IV

Lecture 12 - Bayes Classifier - I

Lecture 13 - Bayes Classifier - II

Lecture 14 - Bayes Classifier - III

Lecture 15 - Bayes Classifier - IV

Lecture 16 - Bayes Classifier - V

Lecture 17 - K Nearest Neighbor - I

Lecture 18 - K Nearest Neighbor - II

Lecture 19

Lecture 20

Lecture 21

Lecture 22 - Support Vector Machine - I

Lecture 23 - Support Vector Machine - II

Lecture 24 - Support Vector Machine - III

Lecture 25 - Support Vector Machine - IV

Lecture 26 - Support Vector Machine - V

Lecture 27 - Kernel Machines

Lecture 28 - Artificial Neural Networks - I

Lecture 29 - Artificial Neural Networks - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Artificial Neural Networks - III
- Lecture 31 - Artificial Neural Networks - IV
- Lecture 32 - Clustering - I
- Lecture 33 - Clustering - II
- Lecture 34 - Clustering - III
- Lecture 35 - Clustering - IV
- Lecture 36 - Clustering - V
- Lecture 37 - Regression - I
- Lecture 38 - Regression - II
- Lecture 39 - Regression - III
- Lecture 40 - Regression - IV
- Lecture 41 - Dimensionality Reduction - I
- Lecture 42 - Dimensionality Reduction - II
- Lecture 43 - Tutorial
- Lecture 44 - Live Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Data Base Management System

Subject Co-ordinator - Prof. Partha Pratim Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview  
Lecture 2 - Introduction to DBMS/1  
Lecture 3 - Introduction to DBMS/2  
Lecture 4 - Introduction to Relational Model/1  
Lecture 5 - Introduction to Relational Model/2  
Lecture 6 - Introduction to SQL/1  
Lecture 7 - Introduction to SQL/2  
Lecture 8 - Introduction to SQL/3  
Lecture 9 - Intermediate SQL/1  
Lecture 10 - Intermediate SQL/2  
Lecture 11 - Advanced SQL  
Lecture 12 - Formal Relational Query Languages  
Lecture 13 - Entity-Relationship Model/1  
Lecture 14 - Entity-Relationship Model/2  
Lecture 15 - Entity-Relationship Model/3  
Lecture 16 - Relational Database Design  
Lecture 17 - Relational Database Design (Continued...)  
Lecture 18 - Relational Database Design/3  
Lecture 19 - Relational Database Design (Continued...)  
Lecture 20 - Relational Database Design/5  
Lecture 21 - Application Design and Development/1  
Lecture 22 - Application Design and Development/2  
Lecture 23 - Application Design and Development/3  
Lecture 24 - Storage and File Structure/1  
Lecture 25 - Storage and File Structure/2  
Lecture 26 - Indexing and Hashing/1  
Lecture 27 - Indexing and Hashing/2  
Lecture 28 - Indexing and Hashing/3  
Lecture 29 - Indexing and Hashing/4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Indexing and Hashing/5
- Lecture 31 - Transactions/1
- Lecture 32 - Transactions/2
- Lecture 33 - Transactions/3
- Lecture 34 - Concurrency Control/1
- Lecture 35 - Concurrency Control/2
- Lecture 36 - Recovery/1
- Lecture 37 - Recovery/2
- Lecture 38 - Query Processing and Optimization/1
- Lecture 39 - Query Processing and Optimization/2
- Lecture 40 - Course Summarization
- Lecture 41 - Live Session
- Lecture 42 - Live Session - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Software Engineering

Subject Co-ordinator - Prof. Rajib Mall

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - I  
Lecture 2 - Introduction - II  
Lecture 3 - Introduction - III  
Lecture 4 - Introduction - IV  
Lecture 5 - Introduction - V  
Lecture 6 - Life Cycle Model  
Lecture 7 - Life Cycle Model  
Lecture 8 - Waterfall Model  
Lecture 9 - Waterfall Derivatives  
Lecture 10 - Incremental Model  
Lecture 11 - Evolutionary Model  
Lecture 12 - Agile Model  
Lecture 13 - Extreme Programming and Scrum  
Lecture 14 - Scrum  
Lecture 15 - Introduction to requirement specification  
Lecture 16 - Requirement gathering and analysis  
Lecture 17 - Functional requirements  
Lecture 18 - Representation of complex programming logic  
Lecture 19 - Design Fundamentals  
Lecture 20 - Modular Design  
Lecture 21 - Classification of Cohesion  
Lecture 22 - Classification of Coupling  
Lecture 23 - Introduction to structured analysis and structured design  
Lecture 24 - Basics of Data Flow Diagrams (DFD)  
Lecture 25 - Developing DFD Model  
Lecture 26 - Examples of DFD Model development  
Lecture 27 - DFD Model - More Examples  
Lecture 28 - Essentials of Structure Chart  
Lecture 29 - Transform Analysis, Transaction Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structured Design Examples
- Lecture 31 - Use Case Modelling
- Lecture 32 - Factoring Use Cases
- Lecture 33 - Overview of Class diagram
- Lecture 34 - Inheritance relationship
- Lecture 35 - Association relationship
- Lecture 36 - Aggregation/ Composition and dependency relations
- Lecture 37 - Interation Modelling
- Lecture 38 - Development of Sequence diagrams
- Lecture 39 - State-Machram diagram
- Lecture 40 - An Object-Oriented design process
- Lecture 41 - Domain Analysis
- Lecture 42 - Examples of object-oriented design
- Lecture 43 - Basic concepts in Testing - I
- Lecture 44 - Basic concepts in Testing - II
- Lecture 45 - Basic concepts in Testing - III
- Lecture 46 - Unit testing strategies - I
- Lecture 47 - Unit testing strategies - II
- Lecture 48 - Equivalence Class Testing - I
- Lecture 49 - Equivalence Class Testing - II
- Lecture 50 - Special Value Testing
- Lecture 51 - Combinatorial Testing
- Lecture 52 - Decision Table Testing
- Lecture 53 - Cause effect graphing
- Lecture 54 - Pairwise Testing
- Lecture 55 - White box Testing
- Lecture 56 - Condition Testing
- Lecture 57 - MC/DC Coverage
- Lecture 58 - MC/DC Testing
- Lecture 59 - Path Testing
- Lecture 60 - Dataflow and Mutation Testing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Networks and Internet Protocol

Subject Co-ordinator - Prof. Sandip Chakraborty, Prof. Soumya Kanti Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Computer Networks - A brief history
- Lecture 2 - Data Networks - from Circuit Switching Network to Packet Switching Network
- Lecture 3 - Network Protocol Stack
- Lecture 4 - Services at the Different Layers of the Protocol Stack
- Lecture 5 - Application Layer I - Different Protocols at the Application Layer
- Lecture 6 - Application Layer II - Domain Name Systems
- Lecture 7 - Application Layer III - The Web
- Lecture 8 - Application Layer III - Hypertext Transfer Protocol
- Lecture 9 - Application Layer III - Internet Mail Transfer
- Lecture 10 - Application Layer IV - File Transfer (FTP)
- Lecture 11 - Transport Layer I - Services
- Lecture 12 - Transport Layer II - Connection
- Lecture 13 - Transport Layer II - Connection (Continued...)
- Lecture 14 - Transport Layer IV - Reliability
- Lecture 15 - Transport Layer V - Sliding Window Protocols
- Lecture 16 - Transport Layer Performance
- Lecture 17 - Buffer Management and Congestion Control
- Lecture 18 - Transport Layer Primitives
- Lecture 19 - Transmission Control Protocol I - Basics
- Lecture 20 - Transmission Control Protocol II - Connections
- Lecture 21 - Transmission Control Protocol III - Flow Control
- Lecture 22 - Transmission Control Protocol IV - Congestion Control
- Lecture 23 - User Datagram Protocol
- Lecture 24 - Socket Programming - I
- Lecture 25 - Socket Programming - II
- Lecture 26 - Network Layer I - Introduction
- Lecture 27 - IP Addressing (IPv4) I - Classful addressing
- Lecture 28 - IP Addressing (IPv4) II - CIDR
- Lecture 29 - IP Addressing (IPv4) III - Network Address Translation (NAT)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - IPv6 Addressing
- Lecture 31 - Internet QoS - I (What is QoS)
- Lecture 32 - Internet QoS - II (Basic QoS Architecture)
- Lecture 33 - Internet QoS - III (Traffic Policing and Traffic Shaping)
- Lecture 34 - Internet QoS - IV (Traffic Scheduling)
- Lecture 35 - Internet QoS - V (Integrated and Differentiated Service Architecture)
- Lecture 36 - IP Routing Table
- Lecture 37 - Routing in the Internet I - Intra-domain routing
- Lecture 38 - Routing in the Internet II - Routing protocols
- Lecture 39 - Routing in the Internet III - Inter-domain Routing
- Lecture 40 - Routing in the Internet IV - Border Gateway Protocol
- Lecture 41 - IP Routers
- Lecture 42 - IP Routers Demo
- Lecture 43 - Software Defined Networking - I (Basics)
- Lecture 44 - Software Defined Networking - II (Open Flow)
- Lecture 45 - Software Defined Networking - III (Demo)
- Lecture 46 - Data Link Layer - Overview
- Lecture 47 - Data Link Layer - Basic Concepts
- Lecture 48 - Data Link Layer - Ethernet
- Lecture 49 - Data Link Layer - Ethernet (Continued...)
- Lecture 50 - Data Link Layer - Flow and Error Control
- Lecture 51 - ARP-RAPP-BOOTP-DHCP
- Lecture 52 - ARP-RAPP-BOOTP-DHCP (Continued...)
- Lecture 53
- Lecture 54 - Wireless LANs
- Lecture 55 - Layer 1
- Lecture 56 - Layer 1
- Lecture 57 - Layer 1
- Lecture 58 - Network Security - Overview
- Lecture 59 - Network Security - II
- Lecture 60 - Network Security - III [TCP/IP Security]

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Blockchain Architecture Design and Use Cases

Subject Co-ordinator - Praveen Jayachandran, Prof. Sandip Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Blockchain - I (Basics)
- Lecture 2 - Introduction to Blockchain - II (History)
- Lecture 3 - Introduction to Blockchain - III (Architecture)
- Lecture 4 - Introduction to Blockchain - IV (Conceptualization)
- Lecture 5 - Basic Crypto Primitives - I
- Lecture 6 - Basic Crypto Primitives - II
- Lecture 7 - Bitcoin Basics - I
- Lecture 8 - Bitcoin Basics - II
- Lecture 9 - Bitcoin Basics - III
- Lecture 10 - Distributed Consensus
- Lecture 11 - Consensus in Bitcoin - I (The Basics)
- Lecture 12 - Consensus in Bitcoin - II (PoW and Beyond)
- Lecture 13 - Consensus in Bitcoin - III (The Miners)
- Lecture 14 - Permissioned Blockchain - I (Basics)
- Lecture 15 - Permissioned Blockchain - II (Consensus)
- Lecture 16 - Permissioned Blockchain - III (RAFT Consensus)
- Lecture 17 - Permissioned Blockchain - IV (Byzantine General Problem)
- Lecture 18 - Permissioned Blockchain - V (Practical Byzantine Fault Tolerance)
- Lecture 19 - Blockchain for Enterprise - Overview
- Lecture 20 - Blockchain Components and Concepts
- Lecture 21 - Hyperledger Fabric - Transaction Flow
- Lecture 22 - Hyperledger Fabric Details
- Lecture 23 - Fabric - Membership and Identity Management
- Lecture 24 - Hyperledger Fabric Network Setup
- Lecture 25 - Fabric Demo on IBM Blockchain Cloud - I
- Lecture 26 - Fabric Demo on IBM Blockchain Cloud - II
- Lecture 27 - Fabric Demo, deploy from scratch - III
- Lecture 28 - Hyperledger Composer - Application Development
- Lecture 29 - Hyperledger Composer - Network Administration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Blockchain Use Cases
- Lecture 31 - Blockchain in Financial Service - I (Payments and Secure Trading)
- Lecture 32 - Blockchain in Financial Service - II (Compliance and Mortgage)
- Lecture 33 - Blockchain in Financial Service - III (Financial Trade)
- Lecture 34 - Revolutionizing Global Trade
- Lecture 35 - Blockchain in Supply Chain - I
- Lecture 36 - Blockchain in Supply Chain - II
- Lecture 37 - Blockchain in Other Industries
- Lecture 38 - Blockchain in Government - I (Advantages)
- Lecture 39 - Blockchain in Government - II (Use Cases)
- Lecture 40 - Blockchain in Government - III (Digital Identity)
- Lecture 41 - Blockchain in Government - IV (Hyperledger Indy)
- Lecture 42 - Blockchain in Government - V (Tax Payments and Land Registry Records)
- Lecture 43 - Blockchain Security - I (Overview)
- Lecture 44 - Blockchain Security - II (Membership and Access control in Fabric)
- Lecture 45 - Blockchain Security - III (Privacy in Fabric)
- Lecture 46 - Blockchain Security - III (Fabric SideDB)
- Lecture 47 - Research Aspects - I (Consensus Scalability)
- Lecture 48 - Research Aspects - II (Bitcoin-NG)
- Lecture 49 - Research Aspects - III (Collective Signing)
- Lecture 50 - Research Aspects - IV (Byzcoin)
- Lecture 51 - Research Aspects - V (Algorand)
- Lecture 52 - Research Aspects - VI (Cross Fault Tolerance)
- Lecture 53 - Research Aspects - VII (Secured Multi-Party Computation)
- Lecture 54 - Blockchain for Science - I (Blockchain for Big Data)
- Lecture 55 - Blockchain for Science - II (Blockchain and AI)
- Lecture 56 - Comparing Ecosystems - Ethereum
- Lecture 57 - Comparing Ecosystems - Ethereum development tools and Quorum
- Lecture 58 - Comparing Ecosystems - Corda Part 1
- Lecture 59 - Comparing Ecosystems - Corda Part 2
- Lecture 60 - Concluding the course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Switching Circuits and Logic Design

Subject Co-ordinator - Prof. Indranil Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Octal and Hexadecimal Number Systems
- Lecture 3 - Signed and Unsigned Binary Number Representation
- Lecture 4 - Binary Addition and Subtraction
- Lecture 5 - BCD and Gray Code Representations
- Lecture 6 - Error Detection and Correction
- Lecture 7 - Logic Gates
- Lecture 8 - Logic Families to Implement Gates
- Lecture 9 - Emerging Technologies - Part I
- Lecture 10 - Emerging Technologies - Part II
- Lecture 11 - Switching Algebra
- Lecture 12 - Algebraic Manipulation
- Lecture 13 - Properties of Switching Functions
- Lecture 14 - Obtaining Canonical Representations of Functions
- Lecture 15 - Functional Completeness
- Lecture 16 - Minimization Using Karnaugh Maps - Part I
- Lecture 17 - Minimization Using Karnaugh Maps - Part II
- Lecture 18 - Minimization Using Karnaugh Maps - Part III
- Lecture 19 - Minimization using Tabular Method - Part I
- Lecture 20 - Minimization using Tabular Method - Part II
- Lecture 21 - Design of Adders - Part I
- Lecture 22 - Design of Adders - Part II
- Lecture 23 - Design of Adders - Part III
- Lecture 24 - Logic Design - Part I
- Lecture 25 - Logic Design - Part II
- Lecture 26 - Logic Design - Part III
- Lecture 27 - Binary Decision Diagrams - Part I
- Lecture 28 - Binary Decision Diagrams - Part II
- Lecture 29 - Logic Design using AND-EXOR Network

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Threshold Logic and Threshold Gates
- Lecture 31 - Latches and Flip-Flops - Part I
- Lecture 32 - Latches and Flip-Flops - Part II
- Lecture 33 - Latches and Flip-Flops - Part III
- Lecture 34 - Clocking and Timing - Part I
- Lecture 35 - Clocking and Timing - Part II
- Lecture 36 - Synthesis of Synchronous Sequential Circuits - Part I
- Lecture 37 - Synthesis of Synchronous Sequential Circuits - Part II
- Lecture 38 - Synthesis of Synchronous Sequential Circuits - Part III
- Lecture 39 - Synthesis of Synchronous Sequential Circuits - Part IV
- Lecture 40 - Minimization of Finite State Machines - Part I
- Lecture 41 - Minimization of Finite State Machines - Part II
- Lecture 42 - Design of Registers - Part I
- Lecture 43 - Design of Registers - Part II
- Lecture 44 - Design of Registers - Part III
- Lecture 45 - Design of Counters - Part I
- Lecture 46 - Design of Counters - Part II
- Lecture 47 - Digital-to-Analog Converter - Part I
- Lecture 48 - Digital-to-Analog Converter - Part II
- Lecture 49 - Analog-to-Digital Converter - Part I
- Lecture 50 - Analog-to-Digital Converter - Part II
- Lecture 51 - Analog-to-Digital Converter - Part III
- Lecture 52 - Asynchronous Sequential Circuits - Part I
- Lecture 53 - Asynchronous Sequential Circuits - Part II
- Lecture 54 - Algorithmic State Machine (ASM Chart
- Lecture 55 - Testing of Digital Circuits
- Lecture 56 - Fault Modeling
- Lecture 57 - Test Pattern Generation
- Lecture 58 - Design for Testability
- Lecture 59 - Built-in Self-Test - Part I
- Lecture 60 - Built-in Self-Test - Part II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Scalable Data Science

Subject Co-ordinator - Prof. Sourangshu Bhattacharya, Prof. Anirban Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Background
- Lecture 2 - Probability
- Lecture 3 - Linear algebra
- Lecture 4 - Optimization
- Lecture 5 - Machine Learning
- Lecture 6 - Memory-efficient data structures
- Lecture 7 - Bloom filters
- Lecture 8 - Sketches for distinct count
- Lecture 9 - Sketches for distinct count (Continued...)
- Lecture 10 - Misra-Gries sketch
- Lecture 11 - Frequent Element
- Lecture 12 - Frequent Element
- Lecture 13 - Near Neighbors
- Lecture 14 - Locality Sensitive Hashing
- Lecture 15 - Building LSH Tables
- Lecture 16 - Approximate near neighbors search
- Lecture 17 - Approximate near neighbors search
- Lecture 18 - Approximate near neighbors search
- Lecture 19 - Randomized Numerical Linear Algebra
- Lecture 20 - Randomized Numerical Linear Algebra
- Lecture 21 - Randomized Numerical Linear Algebra
- Lecture 22 - Randomized Numerical Linear Algebra
- Lecture 23 - Randomized Numerical Linear Algebra
- Lecture 24 - Randomized Numerical Linear Algebra
- Lecture 25 - Randomized Numerical Linear Algebra
- Lecture 26 - Map-reduce and Hadoop
- Lecture 27 - Hadoop System
- Lecture 28 - Hadoop System (Continued...)
- Lecture 29 - Hadoop System (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Spark
- Lecture 31 - Spark (Continued...)
- Lecture 32 - Spark (Continued...)
- Lecture 33 - Distributed Machine Learning and Optimization
- Lecture 34 - SGD+Proof
- Lecture 35 - SGD+Proof (Continued...)
- Lecture 36 - Distributed Machine Learning and Optimization
- Lecture 37 - Distributed Machine Learning and Optimization
- Lecture 38 - Clustering
- Lecture 39 - Clustering (Continued...)
- Lecture 40 - Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Pattern Recognition

Subject Co-ordinator - Prof. Sukhendu Das, Prof. C.A. Murthy

Co-ordinating Institute - IIT - Madras | Indian Statistical Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Principles of Pattern Recognition I (Introduction and Uses)
- Lecture 2 - Principles of Pattern Recognition II (Mathematics)
- Lecture 3 - Principles of Pattern Recognition III (Classification and Bayes Decision Rule)
- Lecture 4 - Clustering vs. Classification
- Lecture 5 - Relevant Basics of Linear Algebra, Vector Spaces
- Lecture 6 - Eigen Value and Eigen Vectors
- Lecture 7 - Vector Spaces
- Lecture 8 - Rank of Matrix and SVD
- Lecture 9 - Types of Errors
- Lecture 10 - Examples of Bayes Decision Rule
- Lecture 11 - Normal Distribution and Parameter Estimation
- Lecture 12 - Training Set, Test Set
- Lecture 13 - Standardization, Normalization, Clustering and Metric Space
- Lecture 14 - Normal Distribution and Decision Boundaries I
- Lecture 15 - Normal Distribution and Decision Boundaries II
- Lecture 16 - Bayes Theorem
- Lecture 17 - Linear Discriminant Function and Perceptron
- Lecture 18 - Perceptron Learning and Decision Boundaries
- Lecture 19 - Linear and Non-Linear Decision Boundaries
- Lecture 20 - K-NN Classifier
- Lecture 21 - Principal Component Analysis (PCA)
- Lecture 22 - Fisher's LDA
- Lecture 23 - Gaussian Mixture Model (GMM)
- Lecture 24 - Assignments
- Lecture 25 - Basics of Clustering, Similarity/Dissimilarity Measures, Clustering Criteria.
- Lecture 26 - K-Means Algorithm and Hierarchical Clustering
- Lecture 27 - K-Medoids and DBSCAN
- Lecture 28 - Feature Selection
- Lecture 29 - Feature Selection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Feature Selection
- Lecture 31 - Cauchy Schwartz Inequality
- Lecture 32 - Feature Selection Criteria Function
- Lecture 33 - Feature Selection Criteria Function
- Lecture 34 - Principal Components
- Lecture 35 - Comparison Between Performance of Classifiers
- Lecture 36 - Basics of Statistics, Covariance, and their Properties
- Lecture 37 - Data Condensation, Feature Clustering, Data Visualization
- Lecture 38 - Probability Density Estimation
- Lecture 39 - Visualization and Aggregation
- Lecture 40 - Support Vector Machine (SVM)
- Lecture 41 - FCM and Soft-Computing Techniques
- Lecture 42 - Examples of Uses or Application of Pattern Recognition; And When to do clustering
- Lecture 43 - Examples of Real-Life Dataset

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Performance Evaluation of Computer Systems

Subject Co-ordinator - Prof. Krishna Moorthy Sivalingam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to performance evaluation of computer systems
- Lecture 2 - How to avoid common mistakes
- Lecture 3 - Selection of techniques and metrics
- Lecture 4 - Case study
- Lecture 5 - Random Variables and probability distributions
- Lecture 6 - Probability distributions - I
- Lecture 7 - Probability distributions - II
- Lecture 8 - Probability distributions - III
- Lecture 9 - Stochastic process
- Lecture 10 - Markov Chain
- Lecture 11 - Slotted Aloha protocol model and discrete-time birth death process
- Lecture 12 - Continuous time Markov chain and queuing theory - I
- Lecture 13 - Queuing theory - I (Continued)
- Lecture 14 - Queuing theory - II
- Lecture 15 - Queuing theory - III
- Lecture 16 - Queuing theory - IV
- Lecture 17 - Queuing theory - V
- Lecture 18 - Queuing theory - VI
- Lecture 19 - Queuing networks - I
- Lecture 20 - Queuing networks - II
- Lecture 21 - Slotted Aloha Markov model
- Lecture 22 - Simulations - I
- Lecture 23 - Simulations - II
- Lecture 24 - Simulations - III
- Lecture 25 - Operational laws - I
- Lecture 26 - Operational laws - II
- Lecture 27 - Open and closed queuing networks
- Lecture 28 - Approximate MVA
- Lecture 29 - Convolution algorithm - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Convolution algorithm - II
- Lecture 31 - Load-dependent service centers
- Lecture 32 - Hierarchical decomposition
- Lecture 33 - Balanced Job Bounds
- Lecture 34 - Confidence interval for proportions and introduction to experimental design
- Lecture 35 - 2k factorial design
- Lecture 36 - 2k r factorial design and 2k-p fractional factorial design
- Lecture 37 - Programming aspects of discrete-event simulations - I
- Lecture 38 - Programming aspects of discrete-event simulations - II
- Lecture 39 - Discrete-event simulations - III
- Lecture 40 - PetriNets - I
- Lecture 41 - PetriNets - II
- Lecture 42 - PetriNets - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Theory of Automata, Formal Languages and Computation

Subject Co-ordinator - Prof. Kamala Krithivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Grammars and Natural Language Processing
- Lecture 2 - Grammars and Languages Generated
- Lecture 3 - Grammars and Languages Generated (Continued.)
- Lecture 4 - Ambiguity in CFG
- Lecture 5 - Simplification of CFG
- Lecture 6 - Removal of Unit Productions, Chomsky Normal Form for CFG
- Lecture 7 - Greibach Normal Form for CFG
- Lecture 8 - Final State Automata
- Lecture 9 - Non Deterministic FSA
- Lecture 10 - Non Deterministic FSA (Continued.)
- Lecture 11 - Non Deterministic FSA with E(Epsilon)- Moves
- Lecture 12 - Equivalence Between FSA and Type 3 Grammars
- Lecture 13 - Regular Expressions, Regular Expressions to NFSA
- Lecture 14 - DFSA to Regular Expressions
- Lecture 15 - Problems and Solutions - I
- Lecture 16 - Pumping Lemmas for Regular Sets and CFL
- Lecture 17 - MYHILL - Nerode Theorem
- Lecture 18 - Minimization of DFSA
- Lecture 19 - FSA with output Moore and Mealy Machines
- Lecture 20 - Pushdown Automata
- Lecture 21 - Pushdown Automata, Equivalence Between Acceptance by Empty Store and Acceptance by Final State
- Lecture 22 - Pushdown Automata CFG to PDA
- Lecture 23 - Pushdown Automata PDA to CFG
- Lecture 24 - Problems and Solutions - II
- Lecture 25 - Problems and Solutions - III
- Lecture 26 - Turing Machines
- Lecture 27 - Turing Machines (Continued.)
- Lecture 28 - Turing Machine as Acceptor, Techniques for TM Construction
- Lecture 29 - Generalized Versions of Turing Machines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Turing Machine as a Generating Device
- Lecture 31 - Recursive Sets, Recursively Innumerable Sets, Encoding of TM, Halting Problem
- Lecture 32 - Problems and Instances, Universal TM, Decidability
- Lecture 33 - RICE'S Theorem, Linear Bounded Automata, Properties of TM
- Lecture 34 - POST'S Correspondence Problems
- Lecture 35 - POST'S Correspondence Problems (Continued.), Time and Tape Complexity of TM
- Lecture 36 - NP - Complete Problems, Cook's Theorem
- Lecture 37 - NP - Complete Problems (Continued.)
- Lecture 38 - Regulated Rewriting
- Lecture 39 - L-Systems
- Lecture 40 - Grammar Systems
- Lecture 41 - DNA Computing
- Lecture 42 - Membrane Computing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computer Graphics

Subject Co-ordinator - Prof. Sukhendu Das

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - CRT Display Devices
- Lecture 3 - CRT Display Devices (Continued...)
- Lecture 4 - CRT Display Devices (Continued...)
- Lecture 5 - CRT Display Devices (Continued...)
- Lecture 6 - Transformations in 2D
- Lecture 7 - Transformations in 2D (Continued...)
- Lecture 8 - Three Dimensional Graphics
- Lecture 9 - Three Dimensional Graphics (Continued...)
- Lecture 10 - Three Dimensional Graphics (Continued...)
- Lecture 11 - Projection Transformations And Viewing Pipeline
- Lecture 12 - 3D Viewing - Projection Transformations And Viewing Pipeline
- Lecture 13 - Scan Converting Lines, Circles And Ellipses
- Lecture 14 - Scan Converting Lines, Circles And Ellipses (Continued...)
- Lecture 15 - Scan Converting Lines, Circles And Ellipses (Continued...)
- Lecture 16 - Scan Converting Lines, Circles And Ellipses (Continued...)
- Lecture 17 - Scan Converting Lines, Circles And Ellipses (Continued...)
- Lecture 18 - Polyfill- Scan Conversion Of A Polygon
- Lecture 19 - Scan Conversion Of A Polygon (Continued...)
- Lecture 20 - Clipping - Lines And Polygons
- Lecture 21 - Clipping Lines And Polygons
- Lecture 22 - Clipping Lines
- Lecture 23 - Solid Modelling
- Lecture 24 - Solid Modelling
- Lecture 25 - Solid Modelling (Continued...)
- Lecture 26 - Visible Surface Detection
- Lecture 27 - Visible Surface Detection (Continued...)
- Lecture 28 - Visible Surface Detection (Continued...)
- Lecture 29 - Visible Surface Detection (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Visible Surface Detection (Continued...)
- Lecture 31 - Visible Surface Detection (Continued...)
- Lecture 32 - Visible Surface Detection (Continued...)
- Lecture 33 - Illumination And Shading
- Lecture 34 - Illumination And Shading (Continued...)
- Lecture 35 - Illumination And Shading (Continued...)
- Lecture 36 - Curve Representation
- Lecture 37 - Curve Representation (Continued...)
- Lecture 38 - Curves And Surface Representation
- Lecture 39 - Graphics Programming Using Open GL
- Lecture 40 - Graphics Programming Using Open GL (Continued...)
- Lecture 41 - Advanced Topics
- Lecture 42 - Digital Image Processing Image Compression-Jpeg-Enhancements
- Lecture 43 - Digital Image Processing (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computer Organization

Subject Co-ordinator - Prof. S. Raman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction To Computing  
Lecture 2 - Introduction To System  
Lecture 3 - Introduction To System  
Lecture 4 - Processor Activities  
Lecture 5 - Processor As a State Machine  
Lecture 6 - Data Path Architecture  
Lecture 7 - Data Path Controller  
Lecture 8 - State Machine Design  
Lecture 9 - Controller Design  
Lecture 10 - Controller Design (Contd)  
Lecture 11 - Typical Micro Instructions  
Lecture 12 - Addressing Modes  
Lecture 13 - Problem Exercise  
Lecture 14 - Problem Exercise  
Lecture 15 - Introduction to memory system  
Lecture 16 - CPU - Memory Interaction  
Lecture 17 - Cache Organization  
Lecture 18 - Cache Organization  
Lecture 19 - Virtual Memory  
Lecture 20 - Virtual Memory  
Lecture 21 - Performance Calculation  
Lecture 22 - Segmentation  
Lecture 23 - Address Translation and Protection  
Lecture 24 - Programmed I/O  
Lecture 25 - Interrupt Driven I/O  
Lecture 26 - DMA  
Lecture 27 - Device Service Routines  
Lecture 28 - Evolution Of I/O  
Lecture 29 - I/O Devices

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - I/O Devices - Contd
- Lecture 31 - Buses
- Lecture 32 - Buses Contd
- Lecture 33 - Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Database Design

Subject Co-ordinator - Dr. S. Srikanth, Prof. D. Janaki Ram

Co-ordinating Institute - IIT - Madras | IIIT - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Database Management System  
Lecture 2 - Conceptual Designs  
Lecture 3 - Conceptual Designs  
Lecture 4 - Relational Model  
Lecture 5 - Relational Model  
Lecture 6 - Structured Query Language - I  
Lecture 7 - Structured Query Language - II  
Lecture 8 - ER Model to Relational Mapping  
Lecture 9 - Functional Dependencies and Normal Form  
Lecture 10 - ER Model to Relational Model Mapping  
Lecture 11 - Storage Structures  
Lecture 12 - Indexing Techniques Single Level  
Lecture 13 - Indexing Techniques Multi Level  
Lecture 14 - Constraints and Triggers  
Lecture 15 - Query Processing and Optimization  
Lecture 16 - Query Processing and Optimization - II  
Lecture 17 - Query Processing and Optimization - III  
Lecture 18 - Transaction Processing Concepts  
Lecture 19 - Transaction Processing and Database Manager  
Lecture 20 - Foundation for Concurrency Control  
Lecture 21 - Concurrency Control Part - 1  
Lecture 22 - Concurrency Control Part - 2  
Lecture 23 - Concurrency Control Part - 3  
Lecture 24 - Concurrency Control Part - 4  
Lecture 25 - Distributed Transaction Models  
Lecture 26 - Basic 2-Phase and 3-phase commit protocol  
Lecture 27 - Concurrency Control for Distributed Transaction  
Lecture 28 - Introduction to Transaction Recovery  
Lecture 29 - Recovery Mechanisms - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Recovery Mechanisms - III
- Lecture 31 - Introduction to Data Warehousing and OLAP
- Lecture 32 - Introduction to Data Warehousing and OLAP
- Lecture 33 - Case Study
- Lecture 34 - Case Study ORACLE and Microsoft Access
- Lecture 35 - Data Mining and Knowledge Discovery
- Lecture 36 - Data Mining and Knowledge Discovery Part - II
- Lecture 37 - Object Oriented Databases
- Lecture 38 - Object Oriented Databases - II
- Lecture 39 - XML - Introductory Concepts
- Lecture 40 - XML - Advanced Concepts
- Lecture 41 - XML - Databases
- Lecture 42 - Case Study - Part One - Database Design
- Lecture 43 - Case Study - Part Two - Database Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Discrete Mathematical Structures

Subject Co-ordinator - Prof. Kamala Krithivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Propositional Logic
- Lecture 2 - Propositional Logic (Continued)
- Lecture 3 - Predicates & Quantifiers
- Lecture 4 - Predicates & Quantifiers (Continued)
- Lecture 5 - Logical Inference
- Lecture 6 - Resolution Principles & Application to PROLOG
- Lecture 7 - Methods of Proof
- Lecture 8 - Normal Forms
- Lecture 9 - Proving Programs Correct (Continued)
- Lecture 10 - Sets
- Lecture 11 - Induction
- Lecture 12 - Set Operations On Strings
- Lecture 13 - Relations
- Lecture 14 - Graphs
- Lecture 15 - Graphs (Continued)
- Lecture 16 - Trees
- Lecture 17 - Trees And Graphs
- Lecture 18 - Special Properties Of Relations
- Lecture 19 - Closure Of Relations
- Lecture 20 - Closure Properties Of Relations
- Lecture 21 - Order Relations
- Lecture 22 - Order Relations And Equivalence Relations
- Lecture 23 - Equivalence Relations And Partitions
- Lecture 24 - Functions
- Lecture 25 - Functions (Continued)
- Lecture 26 - Functions (Continued)
- Lecture 27 - Pigeonhole Principle
- Lecture 28 - Permutations And Combinations
- Lecture 29 - Permutations And Combinations (Continued)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Generating Functions
- Lecture 31 - Generating Functions (Continued)
- Lecture 32 - Recurrence Relations
- Lecture 33 - Recurrence Relations (Continued)
- Lecture 34 - Recurrence Relations (Continued)
- Lecture 35 - Algebras
- Lecture 36 - Algebras (Continued)
- Lecture 37 - Algebras (Continued)
- Lecture 38 - Finite State Automaton
- Lecture 39 - Finite State Automaton (Continued)
- Lecture 40 - Lattices

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Artificial Intelligence (Prof. Deepak Khemani)

Subject Co-ordinator - Prof. Deepak Khemani

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Artificial Intelligence  
Lecture 2 - Introduction to AI  
Lecture 3 - AI Introduction  
Lecture 4 - AI Introduction  
Lecture 5 - Introduction  
Lecture 6 - State Space Search - Introduction  
Lecture 7 - Search - DFS and BFS  
Lecture 8 - Search DFID  
Lecture 9 - Heuristic Search  
Lecture 10 - Hill Climbing  
Lecture 11 - Solution Space Search, Beam Search  
Lecture 12 - TSP Greedy Methods  
Lecture 13 - Tabu Search  
Lecture 14 - Optimization - I (Simulated Annealing)  
Lecture 15 - Optimization - II (Genetic Algorithms)  
Lecture 16 - Population based methods for Optimization  
Lecture 17 - Population Based Methods II  
Lecture 18 - Branch and Bound, Dijkstra's Algorithm  
Lecture 19 - A\* Algorithm  
Lecture 20 - Admissibility of A\*  
Lecture 21 - A\* Monotone Property, Iterative Deeping A\*  
Lecture 22 - Recursive Best First Search, Sequence Allignment  
Lecture 23 - Pruning the Open and Closed lists  
Lecture 24 - Problem Decomposition with Goal Trees  
Lecture 25 - AO\* Algorithm  
Lecture 26 - Game Playing  
Lecture 27 - Game Playing - Minimax Search  
Lecture 28 - Game Playing - AlphaBeta  
Lecture 29 - Game Playing - SSS \*

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rule Based Systems
- Lecture 31 - Inference Engines
- Lecture 32 - Rete Algorithm
- Lecture 33 - Planning
- Lecture 34 - Planning FSSP, BSSP
- Lecture 35 - Goal Stack Planning. Sussman's Anomaly
- Lecture 36 - Non-linear planning
- Lecture 37 - Plan Space Planning
- Lecture 38 - GraphPlan
- Lecture 39 - Constraint Satisfaction Problems
- Lecture 40 - CSP continued
- Lecture 41 - Knowledge-based systems
- Lecture 42 - Knowledge-based Systems, PL
- Lecture 43 - Propositional Logic
- Lecture 44 - Resolution Refutation for PL
- Lecture 45 - First-order Logic (FOL)
- Lecture 46 - Reasoning in FOL
- Lecture 47 - Backward chaining
- Lecture 48 - Resolution for FOL

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Programming, Data Structures and Algorithms

Subject Co-ordinator - Prof. Hema A Murthy, Prof. Shankar Balachandran, Dr. N.S. Narayanaswamy

Co-ordinating Institute - IIT - Madras

- Lecture 1 - Introduction to Computers and Programming
- Lecture 2 - Writing your first program
- Lecture 3 - Variables, Operators and Expressions
- Lecture 4 - Variable declarations, more operators and precedence
- Lecture 5 - Input and Output Statements
- Lecture 6 - Conditionals
- Lecture 7 - Loops
- Lecture 8 - Video Solution to Digital Root Programming Assignment
- Lecture 9 - Introduction to arrays
- Lecture 10 - Working with 1D arrays
- Lecture 11 - Find prime numbers
- Lecture 12 - Debugging demo
- Lecture 13 - Multi-dimensional arrays
- Lecture 14 - Pointers
- Lecture 15 - More on pointers
- Lecture 16 - Arrays and pointer arithmetic
- Lecture 17 - Introduction to Strings
- Lecture 18 - More on Strings
- Lecture 19 - Video Solution to Print Elements of a Matrix in Spiral Order Programming Assignment
- Lecture 20 - Introduction to functions
- Lecture 21 - More details on functions
- Lecture 22 - Arguments, variables and parameters
- Lecture 23 - Pass parameters by reference
- Lecture 24 - Recursive functions
- Lecture 25 - Running time of a program
- Lecture 26 - Computing time complexity
- Lecture 27 - Video Solution to Palindrome Checker Programming Assignment
- Lecture 28 - Algorithms and Powering
- Lecture 29 - Polynomial evaluation and multiplication
- Lecture 30 - Linear and Binary Search Analysis
- Lecture 31 - Analysis of minimum and maximum in an array
- Lecture 32 - Sorting I
- Lecture 33 - Sorting II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 34 - Finding i-th smallest number
- Lecture 35 - Video Solution to Sorting words Programming Assignment
- Lecture 36 - Structures
- Lecture 37 - More on structures
- Lecture 38 - Using structures and pointers to structures
- Lecture 39 - Dynamic memory allocation
- Lecture 40 - Linked Lists
- Lecture 41 - Brief introduction to C++
- Lecture 42 - Data Structures
- Lecture 43 - Lists
- Lecture 44 - Supplementary Lesson
- Lecture 45 - Video Solution to Implementing a Hash Table ADT Programming Assignment
- Lecture 46 - Stacks
- Lecture 47 - Queues
- Lecture 48 - Trees
- Lecture 49 - Tree traversal
- Lecture 50 - Binary Search Trees
- Lecture 51 - Heaps
- Lecture 52 - Graphs and Representation
- Lecture 53 - Supplementary Lesson
- Lecture 54 - Video Solution to the Queue in a Hospital Programming Assignment
- Lecture 55 - Greedy Algorithms
- Lecture 56 - Dynamic Programming
- Lecture 57 - Matrix Chain Multiplication
- Lecture 58 - Dijkstra's Algorithm
- Lecture 59 - Boyer-Moore String Matching Algorithm
- Lecture 60 - File I/O
- Lecture 61 - Modular Programming

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Information Security I

Subject Co-ordinator - Prof. V. Kamakoti

Co-ordinating Institute - IIT - Madras

Lecture 1 - Module 1 - Part 0 - Introduction to the Course  
Lecture 2 - Module 1 - Part 1 - Definition of Information Security  
Lecture 3 - Module 1 - Part 2 - Information Security Terminologies  
Lecture 4 - Module 1 - Part 3 - Goals of Information Security  
Lecture 5 - Module 1 - Part 4 - Implementation Issues of the Goals of Information Security - I  
Lecture 6 - Module 1 - Part 5 - Implementation Issues of the Goals of Information Security - II  
Lecture 7 - Module 1 - Part 6 - Control Mechanisms for Information Security - I  
Lecture 8 - Module 1 - Part 7 - Access Control - Administrative and Technical  
Lecture 9 - Module 1 - Part 8 - Passwords - Are they secure? - I  
Lecture 10 - Module 1 - Part 9 - Access Control - Administrative and Technical  
Lecture 11 - Module 1 - Part 10 - Passwords - Are they secure? - III  
Lecture 12 - Module 1 - Part 11 - Multifactor Authentication - Challenges  
Lecture 13 - Module 1 - Part 12 - Application Level Control and Information Security Planning  
Lecture 14 - Module 1 - Part 13 - Information Security - Policy, Standard and Practice  
Lecture 15 - Module 1 - Part 14 - Policies governing Issues, Roles and Responsibilities  
Lecture 16 - Module 1 - Part 15 - Managing changes in Information Security Policies  
Lecture 17 - Module 1 - Part 16 - Spheres of Information Security  
Lecture 18 - Module 2 - Part 1 - Protecting your Personal Computer - I  
Lecture 19 - Module 2 - part 2 - Protecting your Personal Computer - II  
Lecture 20 - Module 2 - Part 3 - Protecting your Personal Computer - III  
Lecture 21 - Module 2 - Part 4 - Cloud Computing (Basic Definitions) - I  
Lecture 22 - Module 2 - Part 5 - Cloud Computing (Deployment) - II  
Lecture 23 - Module 2 - Part 6 - Cloud Computing (Security Issues) - III  
Lecture 24 - Module 2 - Part 7 - Cloud Computing (Trust and Risk) - IV  
Lecture 25 - Module 2 - Part 8 - Cloud Computing (Security and Privacy Issues) - V  
Lecture 26 - Module 2 - Part 9 - Cloud Computing (Security and Privacy Issues) - VI  
Lecture 27 - Module 2 - Part 10 - Cloud Computing (Application and Data level security) - VII  
Lecture 28 - Module 2 - Part 11 - Cloud Computing (Summary) - VIII  
Lecture 29 - Module 2 - Part 12 - Standard I  
Lecture 30 - Module 2 - Part 13 - Standard II  
Lecture 31 - Module 2 - Part 14 - Standard III  
Lecture 32 - Module 3 - Part 1  
Lecture 33 - Module 3 - Part 2

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Lecture 34 - Module 3 - Part 3  
Lecture 35 - Module 3 - Part 4  
Lecture 36 - Module 3 - Part 5  
Lecture 37 - Module 3 - Part 6  
Lecture 38 - Module 3 - Part 7  
Lecture 39 - Module 3 - Part 8  
Lecture 40 - Module 3 - Part 9  
Lecture 41 - Module 4 - Part 1  
Lecture 42 - module 4 - Part 2  
Lecture 43 - Module 4 - Part 3  
Lecture 44 - Module 4 - Part 4  
Lecture 45 - Module 4 - Part 5  
Lecture 46 - Module 4 - Part 6  
Lecture 47 - Module 4 - Part 7  
Lecture 48 - Module 4 - Part 8  
Lecture 49 - Module 4 - Part 9  
Lecture 50 - Module 4 - Part 10  
Lecture 51 - Module 5 - Part 1  
Lecture 52 - Module 5 - Part 2  
Lecture 53 - Module 5 - Part 3  
Lecture 54 - Module 5 - Part 4  
Lecture 55 - Module 5 - Part 5  
Lecture 56 - Module 5 - Part 6  
Lecture 57 - Module 5 - Part 7  
Lecture 58 - Module 6 - Part 1  
Lecture 59 - Module 6 - Part 2  
Lecture 60 - Module 6 - Part 3  
Lecture 61 - Module 6 - Part 4  
Lecture 62 - Module 6 - Part 5  
Lecture 63 - Module 6 - Part 6  
Lecture 64 - Module 6 - Part 7  
Lecture 65 - Module 6 - Part 8

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Programming and Data structures (PDS)

Subject Co-ordinator - Dr. N S. Narayanaswamy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A Simple C Program for Sorting
- Lecture 2 - Review of Structures, Pointers, and Functions
- Lecture 3 - Recursion
- Lecture 4 - Abstract Data Types-Data + Methods
- Lecture 5 - List Data Type
- Lecture 6 - Access and update methods
- Lecture 7 - Doubly Linked List Data Type
- Lecture 8 - Doubly Linked Lists and Arrays
- Lecture 9 - ADT Stacks
- Lecture 10 - Checking of Balanced Parenthesis
- Lecture 11 - Infix and Postfix expressions and Expression evaluation
- Lecture 12 - Queue ADT Definition and Implementation
- Lecture 13 - Merging using Queue ADT and Queue types
- Lecture 14 - Tree ADT and Traversals
- Lecture 15 - Binary Tree ADT and traversals
- Lecture 16 - Tree Applications
- Lecture 17 - Binary Search Trees
- Lecture 18 - Heaps

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Design and Analysis of Algorithms

Subject Co-ordinator - Prof. Madhavan Mukund

Co-ordinating Institute - Chennai Mathematical Institute

- Lecture 1 - Course Outline
- Lecture 2 - Example
- Lecture 3 - Example
- Lecture 4 - Example
- Lecture 5 - Introduction and motivation
- Lecture 6 - Input size, worst case, average case
- Lecture 7 - Quantifying efficiency
- Lecture 8 - Examples
- Lecture 9 - Arrays and lists
- Lecture 10 - Searching in an array
- Lecture 11 - Selection Sort
- Lecture 12 - Insertion sort
- Lecture 13 - Merge sort
- Lecture 14 - Merge sort - analysis
- Lecture 15 - Quicksort
- Lecture 16 - Quicksort - analysis
- Lecture 17 - Sorting - Concluding remarks
- Lecture 18 - Introduction to graphs
- Lecture 19 - Representing graphs
- Lecture 20 - Breadth first search (BFS)
- Lecture 21 - Depth first search (DFS)
- Lecture 22 - Applications of BFS and DFS
- Lecture 23 - Directed acyclic graphs
- Lecture 24 - Directed acyclic graphs
- Lecture 25 - Single source shortest paths
- Lecture 26 - Dijkstras algorithm
- Lecture 27 - Negative edge weights
- Lecture 28 - All pairs shortest paths
- Lecture 29 - Minimum Cost Spanning Trees
- Lecture 30 - Prims Algorithm
- Lecture 31 - Kruskals algorithm
- Lecture 32 - Union-Find using arrays
- Lecture 33 - Union-Find using pointers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 34 - Priority queues
- Lecture 35 - Heaps
- Lecture 36 - Heaps
- Lecture 37 - Counting inversions
- Lecture 38 - Closest pair of points
- Lecture 39 - Binary Search Trees
- Lecture 40 - Balanced search trees
- Lecture 41 - Interval scheduling
- Lecture 42 - Scheduling with deadlines
- Lecture 43 - Huffman codes
- Lecture 44 - Introduction to dynamic programming
- Lecture 45 - Memoization
- Lecture 46 - Grid Paths
- Lecture 47 - Common subwords and subsequences
- Lecture 48 - Edit distance
- Lecture 49 - Matrix multiplication
- Lecture 50 - Linear Programming
- Lecture 51 - LP modelling
- Lecture 52 - LP modelling
- Lecture 53 - Network Flows
- Lecture 54 - Reductions
- Lecture 55 - Checking Algorithms
- Lecture 56 - P and NP



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Programming, Data Structures and Algorithms (Arithmetic)

Subject Co-ordinator - Dr. N S. Narayanaswamy, Prof. Shankar Balachandran, Prof. Hema A Murthy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Computers and Programming
- Lecture 2 - Writing your first program
- Lecture 3 - Variables, Operators and Expressions
- Lecture 4 - Variable declarations, more operators and precedence
- Lecture 5 - Input and Output Statements
- Lecture 6 - Conditionals
- Lecture 7 - Loops
- Lecture 8 - Introduction to Arrays
- Lecture 9 - Working with 1D Arrays
- Lecture 10 - Find prime numbers
- Lecture 11 - Debugging demo
- Lecture 12 - Multi-dimensional arrays
- Lecture 13 - Pointers
- Lecture 14 - More on pointers
- Lecture 15 - Arrays and pointer arithmetic
- Lecture 16 - Introduction to Strings
- Lecture 17 - More on String
- Lecture 18 - Introduction to functions
- Lecture 19 - More details on functions
- Lecture 20 - Arguments, variables and parameters
- Lecture 21 - Pass parameters by reference
- Lecture 22 - Recursive Functions
- Lecture 23 - C control structures, functional specification of programs
- Lecture 24 - Complexity Analysis using Sum and Product Rule
- Lecture 25 - Complexity Analysis of Recursive Functions
- Lecture 26 - Algorithms and Powering
- Lecture 27 - Polynomial evaluation and multiplication
- Lecture 28 - Linear and Binary Search Analysis
- Lecture 29 - Analysis of minimum and maximum in an array

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sorting I
- Lecture 31 - Sorting II
- Lecture 32 - Finding i-th smallest number
- Lecture 33 - Structures
- Lecture 34 - More on Structures
- Lecture 35 - Using structures and pointers to structures
- Lecture 36 - Dynamic memory allocation
- Lecture 37 - Linked List
- Lecture 38 - Brief introduction to C++
- Lecture 39 - Abstract Data Types
- Lecture 40 - More on ADT
- Lecture 41 - Stacks
- Lecture 42 - Queues
- Lecture 43 - Trees
- Lecture 44 - Tree Traversal
- Lecture 45 - Binary Search
- Lecture 46 - Heaps
- Lecture 47 - Graphs and Representations
- Lecture 48 - Greedy Algorithms
- Lecture 49 - Dynamic Programming
- Lecture 50 - Matrix Chain Multiplication
- Lecture 51 - Hash Tables
- Lecture 52 - Graph Algorithms
- Lecture 53 - Graph Traversals
- Lecture 54 - File I/O
- Lecture 55 - Modular Programming

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Architecture

Subject Co-ordinator - Prof.Madhu Mutyam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Computer Architecture
- Lecture 2 - Quantitative Principles of Computer Design
- Lecture 3 - Instruction Set Principles-Part 1
- Lecture 4 - Instruction Set Principles-Part 2
- Lecture 5 - Instruction Set Principles-Part 3
- Lecture 6 - Cache Memory Hierarchy - Part 1
- Lecture 7 - Cache Memory Hierarchy - Part 2
- Lecture 8 - Cache Memory Hierarchy - Part 3
- Lecture 9 - Cache Memory Hierarchy - Part 4
- Lecture 10 - Main Memory Design - Part 1
- Lecture 11 - Main Memory Design - Part 2
- Lecture 12 - Main Memory Design - Part 3
- Lecture 13 - Fundamentals of Pipelining - Part 1
- Lecture 14 - Fundamentals of Pipelining - Part 2
- Lecture 15 - Fundamentals of Pipelining - Part 3
- Lecture 16 - Fundamentals of Pipelining - Part 4
- Lecture 17 - Fundamentals of Pipelining - Part 5
- Lecture 18 - Scalar to Superscalar pipeline
- Lecture 19 - Instruction Dependencies
- Lecture 20 - Compiler optimizations for Exposing ILP
- Lecture 21 - Advanced Branch Prediction Techniques - Part 1
- Lecture 22 - Advanced Branch Prediction Techniques - Part 2
- Lecture 23 - Superscalar Organization
- Lecture 24 - Register Renaming
- Lecture 25 - Tomasulo Algorithm
- Lecture 26 - Dynamic Execution Core
- Lecture 27 - Multi threading
- Lecture 28 - Multicore Processor Architecture
- Lecture 29 - Cache Coherence

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cache Coherence Protocol Design
- Lecture 31 - Synchronization
- Lecture 32 - Memory Consistency - Part 1
- Lecture 33 - Memory Consistency - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Model Checking

Subject Co-ordinator - Prof. B. Srivathsan

Co-ordinating Institute - Chennai Mathematical Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview  
Lecture 2 - Module 1 - Modeling code behaviour  
Lecture 3 - Module 2 - Modeling hardware circuits  
Lecture 4 - Module 3 - Modeling data-dependent programs  
Lecture 5 - Module 4 - Modeling concurrent systems  
Lecture 6 - Summary  
Lecture 7 - Module 1 - Model checking tools  
Lecture 8 - Module 2 - Simple models in NuSMV  
Lecture 9 - Module 3 - Hardware verification using NuSMV  
Lecture 10 - Module 4 - Modeling concurrent systems in NuSMV  
Lecture 11 - Summary.  
Lecture 12 - Module 1 - A problem in concurrency  
Lecture 13 - Module 2 - What is a property?  
Lecture 14 - Module 3 - Invariants  
Lecture 15 - Module 4 - Safety properties  
Lecture 16 - Module 5 - Liveness properties  
Lecture 17 - Summary..  
Lecture 18 - Module 1 - Road map  
Lecture 19 - Module 2 - A gentle introduction to automata  
Lecture 20 - Module 3 - Simple properties of finite automata  
Lecture 21 - Module 4 - Safety properties described by automata  
Lecture 22 - Summary...  
Lecture 23 - Module 1 - Specifying properties  
Lecture 24 - Module 2 - Omega-regular expressions  
Lecture 25 - Module 3 - Bchi automata  
Lecture 26 - Module 4 - Simple properties of Bchi automata  
Lecture 27 - Summary....  
Lecture 28 - Module 1 - Overview  
Lecture 29 - Module 2 - Omega-regular expressions to NBA

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Module 3 - Checking emptiness of NBA
- Lecture 31 - Module 4 - Generalized NBA
- Lecture 32 - Summary.....
- Lecture 33 - Module 1 - Introduction to LTL
- Lecture 34 - Module 2 - Semantics of LTL
- Lecture 35 - Module 3 - A puzzle
- Lecture 36 - Summary.
- Lecture 37 - Module 1 - Automata based LTL model-checking
- Lecture 38 - Module 2 - LTL to NBA
- Lecture 39 - Module 3 - Automaton construction
- Lecture 40 - Summary..
- Lecture 41 - Module 1 - Tree view of a transition system
- Lecture 42 - Module 2 - CTL\*
- Lecture 43 - Module 3 - CTL
- Lecture 44 - summary...
- Lecture 45 - Module 1 - Adequate CTL formulae
- Lecture 46 - Module 2 - EX, EU, EG
- Lecture 47 - Module 3 - Final algorithm
- Lecture 48 - Module 4 - State-space explosion
- Lecture 49 - Summary....
- Lecture 50 - Module 1 - Introduction to BDDs
- Lecture 51 - Module 2 - Ordered BDDs
- Lecture 52 - Module 3 - Representing transition systems as OBDDs
- Lecture 53 - Summary.....
- Lecture 54 - Timed transition systems
- Lecture 55 - Concluding remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Functional Programming in Haskell

Subject Co-ordinator - Prof. Madhavan Mukund, Prof. S P Suresh

Co-ordinating Institute - Chennai Mathematical Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Functions  
Lecture 2 - Types  
Lecture 3 - Haskell  
Lecture 4 - Running Haskell programs  
Lecture 5 - Currying  
Lecture 6 - Examples  
Lecture 7 - Lists  
Lecture 8 - Functions on lists  
Lecture 9 - Characters and strings  
Lecture 10 - Tuples  
Lecture 11 - Computation as rewriting  
Lecture 12 - Polymorphism and higher-order functions  
Lecture 13 - Map and filter  
Lecture 14 - List comprehension  
Lecture 15 - Folding through a list  
Lecture 16 - Measuring efficiency  
Lecture 17 - Sorting  
Lecture 18 - Using infinite lists  
Lecture 19 - Conditional polymorphism  
Lecture 20 - Defining functions in ghci  
Lecture 21 - User-defined datatypes  
Lecture 22 - Abstract datatypes  
Lecture 23 - Modules  
Lecture 24 - Recursive data types  
Lecture 25 - Binary search trees  
Lecture 26 - Balanced search trees  
Lecture 27 - Arrays  
Lecture 28 - Input/Output

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Virtual Reality

Subject Co-ordinator - Prof. Steven LaVall

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course mechanics
- Lecture 2 - Goals and VR definitions
- Lecture 3 - Historical perspective
- Lecture 4 - Birds-eye view (general)
- Lecture 5 - Birds-eye view (general) (Continued...)
- Lecture 6 - Birds-eye view (hardware)
- Lecture 7 - Birds-eye view (software)
- Lecture 8 - Birds-eye view (sensation and perception)
- Lecture 9 - Geometric modeling
- Lecture 10 - Transforming models
- Lecture 11 - Matrix algebra and 2D rotations
- Lecture 12 - 3D rotations and yaw, pitch, and roll
- Lecture 13 - 3D rotations and yaw, pitch, and roll (Continued...)
- Lecture 14 - Axis-angle representations
- Lecture 15 - Quaternions
- Lecture 16 - Converting and multiplying rotations
- Lecture 17 - Converting and multiplying rotations (Continued...)
- Lecture 18 - Homogeneous transforms
- Lecture 19 - The chain of viewing transforms
- Lecture 20 - Eye transforms
- Lecture 21 - Eye transforms (Continued...)
- Lecture 22 - Canonical view transform
- Lecture 23 - Viewport transform
- Lecture 24 - Viewport transform (Continued...)
- Lecture 25 - Three interpretations of light
- Lecture 26 - Refraction
- Lecture 27 - Simple lenses
- Lecture 28 - Diopters
- Lecture 29 - Imaging properties of lenses

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lens aberrations
- Lecture 31 - Optical system of eyes
- Lecture 32 - Photoreceptors
- Lecture 33 - Sufficient resolution for VR
- Lecture 34 - Light intensity
- Lecture 35 - Eye movements
- Lecture 36 - Eye movements (Continued...)
- Lecture 37 - Eye movement issues for VR
- Lecture 38 - Neuroscience of vision
- Lecture 39 - Depth perception
- Lecture 40 - Depth perception (Continued...)
- Lecture 41 - Motion perception
- Lecture 42 - Frame rates and displays
- Lecture 43 - Frame rates and displays (Continued...)
- Lecture 44 - Overview
- Lecture 45 - Orientation tracking
- Lecture 46 - Tilt drift correction
- Lecture 47 - Yaw drift correction
- Lecture 48 - Tracking with a camera
- Lecture 49 - Perspective n-point problem
- Lecture 50 - Filtering
- Lecture 51 - Lighthouse approach
- Lecture 52 - Visual Rendering-Overview
- Lecture 53 - Visual Rendering-overview (Continued...)
- Lecture 54 - Shading models
- Lecture 55 - Rasterization
- Lecture 56 - Pixel shading
- Lecture 57 - VR-specific problems
- Lecture 58 - Distortion shading
- Lecture 59 - Post-rendering image warp
- Lecture 60 - Physics and physiology
- Lecture 61 - Auditory perception
- Lecture 62 - Auditory localization
- Lecture 63 - Rendering
- Lecture 64 - Spatialization and display
- Lecture 65 - Combining other senses
- Lecture 66 - Interfaces -overview
- Lecture 67 - Locomotion
- Lecture 68 - Manipulation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - System control
- Lecture 70 - Social interaction
- Lecture 71 - Evaluation of VR Systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Machine Learning (Sponsored by ANI)

Subject Co-ordinator - Dr. Balaraman Ravindran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - A brief introduction to machine learning  
Lecture 2 - Supervised Learning  
Lecture 3 - Unsupervised Learning  
Lecture 4 - Reinforcement Learning  
Lecture 5 - Probability Basics - 1  
Lecture 6 - Probability Basics - 2  
Lecture 7 - Linear Algebra - 1  
Lecture 8 - Linear Algebra - 2  
Lecture 9 - Statistical Decision Theory - Regression  
Lecture 10 - Statistical Decision Theory - Classification  
Lecture 11 - Bias-Variance  
Lecture 12 - Linear Regression  
Lecture 13 - Multivariate Regression  
Lecture 14 - Subset Selection 1  
Lecture 15 - Subset Selection 2  
Lecture 16 - Shrinkage Methods  
Lecture 17 - Principal Components Regression  
Lecture 18 - Partial Least Squares  
Lecture 19 - Linear Classification  
Lecture 20 - Logistic Regression  
Lecture 21 - Linear Discriminant Analysis 1  
Lecture 22 - Linear Discriminant Analysis 2  
Lecture 23 - Linear Discriminant Analysis 3  
Lecture 24 - Optimization  
Lecture 25 - Perceptron Learning  
Lecture 26 - SVM - Formulation  
Lecture 27 - SVM - Interpretation & Analysis  
Lecture 28 - SVMs for Linearly Non Separable Data  
Lecture 29 - SVM Kernels

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - SVM - Hinge Loss Formulation
- Lecture 31 - Weka Tutorial
- Lecture 32 - Early Models
- Lecture 33 - Backpropogation - I
- Lecture 34 - Backpropogation - II
- Lecture 35 - Initialization, Training and Validation
- Lecture 36 - Maximum Likelihood Estimate
- Lecture 37 - Priors and MAP Estimate
- Lecture 38 - Bayesian Parameter Estimation
- Lecture 39 - Introduction
- Lecture 40 - Regression Trees
- Lecture 41 - Stopping Criteria and Pruning
- Lecture 42 - Loss Functions for Classification
- Lecture 43 - Categorical Attributes
- Lecture 44 - Multiway Splits
- Lecture 45 - Missing Values, Imputation and Surrogate Splits
- Lecture 46 - Instability, Smoothness and Repeated Subtrees
- Lecture 47 - Tutorial
- Lecture 48 - Evaluation Measures I
- Lecture 49 - Bootstrapping and Cross Validation
- Lecture 50 - 2 Class Evaluation Measures
- Lecture 51 - The ROC Curve
- Lecture 52 - Minimum Description Length and Exploratory Analysis
- Lecture 53 - Introduction to Hypothesis Testing
- Lecture 54 - Basic Concepts
- Lecture 55 - Sampling Distributions and the Z Test
- Lecture 56 - Student's t-test
- Lecture 57 - The Two Sample and Paired Sample t-tests
- Lecture 58 - Confidence Intervals
- Lecture 59 - Bagging, Committee Machines and Stacking
- Lecture 60 - Boosting
- Lecture 61 - Gradient Boosting
- Lecture 62 - Random Forest
- Lecture 63 - Naive Bayes
- Lecture 64 - Bayesian Networks
- Lecture 65 - Undirected Graphical Models - Introduction
- Lecture 66 - Undirected Graphical Models - Potential Functions
- Lecture 67 - Hidden Markov Models
- Lecture 68 - Variable Elimination

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Belief Propagation
- Lecture 70 - Partitional Clustering
- Lecture 71 - Hierarchical Clustering
- Lecture 72 - Threshold Graphs
- Lecture 73 - The BIRCH Algorithm
- Lecture 74 - The CURE Algorithm
- Lecture 75 - Density Based Clustering
- Lecture 76 - Gaussian Mixture Models
- Lecture 77 - Expectation Maximization
- Lecture 78 - Expectation Maximization (Continued...)
- Lecture 79 - Spectral Clustering
- Lecture 80 - Learning Theory
- Lecture 81 - Frequent Itemset Mining
- Lecture 82 - The Apriori Property
- Lecture 83 - Introduction to Reinforcement Learning
- Lecture 84 - RL Framework and TD Learning
- Lecture 85 - Solution Methods and Applications
- Lecture 86 - Multi-class Classification

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Artificial Intelligence: Knowledge Representation

Subject Co-ordinator - Prof. Deepak Khemani

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction to Knowledge Representation and Reasoning
- Lecture 3 - An Introduction to Formal Logics
- Lecture 4 - Propositional Logic
- Lecture 5 - Propositional Logic
- Lecture 6 - Propositional Logic
- Lecture 7 - Propositional Logic
- Lecture 8 - Propositional Logic
- Lecture 9 - Propositional Logic
- Lecture 10 - Propositional Logic
- Lecture 11 - Syntax
- Lecture 12 - Semantics
- Lecture 13 - Entailment and Models
- Lecture 14 - Proof Systems
- Lecture 15 - Forward Chaining
- Lecture 16 - Unification
- Lecture 17 - Forward Chaining Rule Based Systems
- Lecture 18 - The Rete Algorithm
- Lecture 19 - Rete Algorithm - Example
- Lecture 20 - Programming in a Rule Based Language
- Lecture 21 - The OPS5 Expert System Shell
- Lecture 22 - Skolemization
- Lecture 23 - Terminological Facts
- Lecture 24 - Properties and Categories
- Lecture 25 - Reification and Abstract Entities
- Lecture 26 - Resource Description Framework (RDF)
- Lecture 27 - The Event Calculus
- Lecture 28 - Natural Language Semantics
- Lecture 29 - CD Theory

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - CD Theory (Continued...)
- Lecture 31 - English to CD Theory
- Lecture 32 - Backward Chaining
- Lecture 33 - Logic Programming
- Lecture 34 - Prolog
- Lecture 35 - Search in Prolog
- Lecture 36 - Controlling Search
- Lecture 37 - The Cut Operator in Prolog
- Lecture 38 - Incompleteness
- Lecture 39 - The Resolution Method for FOL
- Lecture 40 - Clause Form
- Lecture 41 - FOL with Equality
- Lecture 42 - Complexity of Resolution Refutation
- Lecture 43 - Semantic Nets and Frames
- Lecture 44 - Scripts
- Lecture 45 - Applying Scripts
- Lecture 46 - Goals, Plans and Actions
- Lecture 47 - Plan Applier Mechanism
- Lecture 48 - Top Down and Bottom Up Reasoning
- Lecture 49 - Introduction
- Lecture 50 - Normalisation
- Lecture 51 - Structure Matching
- Lecture 52 - Structure Matching - Example
- Lecture 53 - Classification
- Lecture 54 - A-box reasoning
- Lecture 55 - DL
- Lecture 56 - DL
- Lecture 57 - ALC examples
- Lecture 58 - Taxonomies and Inheritance
- Lecture 59 - Beliefs
- Lecture 60 - Inheritance Hierarchies
- Lecture 61 - Introduction
- Lecture 62 - Circumscription
- Lecture 63 - Circumscription (Continued...)
- Lecture 64 - Minimal Models
- Lecture 65 - Event Calculus Revisited
- Lecture 66 - Circumscription in EC
- Lecture 67 - Default Logic
- Lecture 68 - Autoepistemic Logic

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Epistemic Logic

Lecture 70 - The Muddy Children Puzzle



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Information Security - II

Subject Co-ordinator - Prof. V. Kamakoti

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Experimental Setup  
Lecture 2 - Need for Secure Systems  
Lecture 3 - Ignorance of A is Sin of B  
Lecture 4 - Function calls and Stacks  
Lecture 5 - Stack Smashing  
Lecture 6 - Virtual Machine Based Rootkits  
Lecture 7 - Security and Architecture  
Lecture 8 - Structured Computer Organization Completed  
Lecture 9 - X86 ISA - Part1  
Lecture 10 - X86 ISA - Part 2  
Lecture 11 - X86 Protected Mode  
Lecture 12 - X86 Memory Segmentation  
Lecture 13 - Process Isolation using Segmentation  
Lecture 14 - Paging and Virtual Memory  
Lecture 15 - Task Switching and Interrupt Service  
Lecture 16 - Memory Segmentation Deep dive - Part 1  
Lecture 17 - Memory Segmentation Deep dive - Part 2  
Lecture 18 - Memory Segmentation Deep dive - Part 3  
Lecture 19 - Memory Segmentation Deep dive - Part 4  
Lecture 20 - Segmentation Recap  
Lecture 21 - Lab 1 - Part 1  
Lecture 22 - Lab 1 - Part 2  
Lecture 23 - Lab 1 - Part 3  
Lecture 24 - ISR Recap  
Lecture 25 - Lab 2 - Part 1  
Lecture 26 - Lab 2 - Part 2  
Lecture 27 - Memory Management Recap  
Lecture 28 - Lab 3 - Part 1  
Lecture 29 - Lab 3 - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Task Switch recap
- Lecture 31 - Lab 4 - Part 1
- Lecture 32 - Lab 4 - Part 2
- Lecture 33 - Lab 4 - Part 3
- Lecture 34 - Lab 4 - Part 4
- Lecture 35 - Introduction to Basic Cryptography
- Lecture 36 - Public Key Cryptography
- Lecture 37 - Freescale ARM iMX6 Processor
- Lecture 38 - High Assurance Boot in iMX6
- Lecture 39 - Case Study
- Lecture 40 - Basics of Networking
- Lecture 41 - Network Processor Vs General Purpose Processor
- Lecture 42 - Network Processor Architecture

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Algorithms for Big Data

Subject Co-ordinator - Prof. John Augustine

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lesson 1 - Basic definitions  
Lecture 2 - Lesson 2 - Conditional probability  
Lecture 3 - Lesson 3 - Example problems  
Lecture 4 - Lesson 4 - Karger's mincut algorithm  
Lecture 5 - Lesson 5 - Analysis of Karger's mincut algorithm  
Lecture 6 - Lesson 6 - Random variables  
Lecture 7 - Lesson 7 - Randomized quicksort  
Lecture 8 - Problem solving video - The rich get richer  
Lecture 9 - Problem solving video - Monty Hall problem  
Lecture 10 - Lesson 1 - Bernoulli, Binomial, and Geometric distributions  
Lecture 11 - Lesson 2 - Tail Bounds  
Lecture 12 - Lesson 3 - Application of Chernoff bound  
Lecture 13 - Lesson 4 - Application of Chebyshev's inequality  
Lecture 14 - Lesson 1 - Intro to Big Data Algorithms  
Lecture 15 - Lesson 2 - SAT Problem  
Lecture 16 - Lesson 3 - Classification of States  
Lecture 17 - Lesson 4 - Stationary Distribution of a Markov Chain  
Lecture 18 - Lesson 5 - Celebrities Case Study  
Lecture 19 - Lesson 6 - Random Walks on Undirected Graphs  
Lecture 20 - Lesson 7 - Intro to Streaming, Morris Algorithm  
Lecture 21 - Lesson 8 - Reservoir Sampling  
Lecture 22 - Lesson 9 - Approximate Median  
Lecture 23 - Lesson 1 - Overview  
Lecture 24 - Lesson 2 - Balls, bins, hashing  
Lecture 25 - Lesson 3 - Chain hashing, SUHA, Power of Two choices  
Lecture 26 - Lesson 4 - Bloom filter  
Lecture 27 - Lesson 5 - Pairwise independence  
Lecture 28 - Lesson 6 - Estimating expectation of continuous function  
Lecture 29 - Lesson 1 - Universal hash functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lesson 2 - Perfect hashing
- Lecture 31 - Lesson 3 - Count-min filter for heavy hitters in data streams
- Lecture 32 - Problem solving video - Doubly Stochastic Transition Matrix
- Lecture 33 - Problem solving video - Random Walks on Linear Structures
- Lecture 34 - Problem solving video - Lollipop Graph
- Lecture 35 - Problem solving video - Cat And Mouse
- Lecture 36 - Lesson 1 - Estimating frequency moments
- Lecture 37 - Lesson 2 - Property testing framework
- Lecture 38 - Lesson 3 - Testing Connectivity
- Lecture 39 - Lesson 4 - Enforce & Test Introduction
- Lecture 40 - Lesson 5 - Testing if a graph is a biclique
- Lecture 41 - Lesson 6 - Testing bipartiteness
- Lecture 42 - Lesson 1 - Property testing and random walk algorithms
- Lecture 43 - Lesson 2 - Testing if a graph is bipartite (using random walks)
- Lecture 44 - Lesson 3 - Graph streaming algorithms
- Lecture 45 - Lesson 4 - Graph streaming algorithms
- Lecture 46 - Lesson 5 - Graph streaming algorithms
- Lecture 47 - Lesson 1 - MapReduce
- Lecture 48 - Lesson 2 - K-Machine Model (aka Pregel Model)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Reinforcement Learning

Subject Co-ordinator - Dr. B. Ravindran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Tutorial 1 - Probability Basics 1  
Lecture 2 - Tutorial 1 - Probability Basics 2  
Lecture 3 - Tutorial 2 - Linear algebra - 1  
Lecture 4 - Tutorial 2 - Linear algebra - 2  
Lecture 5 - Introduction to RL  
Lecture 6 - RL Framework and applications  
Lecture 7 - Introduction to Immediate RL  
Lecture 8 - Bandit Optimalities  
Lecture 9 - Value function based methods  
Lecture 10 - UCB 1  
Lecture 11 - Concentration Bounds  
Lecture 12 - UCB 1 Theorem  
Lecture 13 - PAC Bounds  
Lecture 14 - Median Elimination  
Lecture 15 - Thompson Sampling  
Lecture 16 - Policy Search  
Lecture 17 - REINFORCE  
Lecture 18 - Contextual Bandits  
Lecture 19 - Full RL Introduction  
Lecture 20 - Returns, Value Functions and MDPs  
Lecture 21 - MDP Modelling  
Lecture 22 - Bellman Equation  
Lecture 23 - Bellman Optimality Equation  
Lecture 24 - Cauchy Sequence and Green's Equation  
Lecture 25 - Banach Fixed Point Theorem  
Lecture 26 - Convergence Proof  
Lecture 27 - L<sub>p</sub> Convergence  
Lecture 28 - Value Iteration  
Lecture 29 - Policy Iteration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dynamic Programming
- Lecture 31 - Monte Carlo
- Lecture 32 - Control in Monte Carlo
- Lecture 33 - Off Policy MC
- Lecture 34 - UCT
- Lecture 35 - TD(0)
- Lecture 36 - TD(0) Control
- Lecture 37 - Q-Learning
- Lecture 38 - Afterstate
- Lecture 39 - Eligibility Traces
- Lecture 40 - Backward View of Eligibility Traces
- Lecture 41 - Eligibility Trace Control
- Lecture 42 - Thompson Sampling Recap
- Lecture 43 - Function Approximation
- Lecture 44 - Linear Parameterization
- Lecture 45 - State Aggregation Methods
- Lecture 46 - Function Approximation and Eligibility Traces
- Lecture 47 - LSTD and LSTDQ
- Lecture 48 - LSPI and Fitted Q
- Lecture 49 - DQN and Fitted Q-Iteration
- Lecture 50 - Policy Gradient Approach
- Lecture 51 - Actor Critic and REINFORCE
- Lecture 52 - REINFORCE (cont'd)
- Lecture 53 - Policy Gradient with Function Approximation
- Lecture 54 - Hierarchical Reinforcement Learning
- Lecture 55 - Types of Optimality
- Lecture 56 - Semi Markov Decision Processes
- Lecture 57 - Options
- Lecture 58 - Learning with Options
- Lecture 59 - Hierarchical Abstract Machines
- Lecture 60 - MAXQ
- Lecture 61 - MAXQ Value Function Decomposition
- Lecture 62 - Option Discovery
- Lecture 63 - POMDP Introduction
- Lecture 64 - Solving POMDP

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Operating Systems

Subject Co-ordinator - Prof. Chester Rebeiro

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Intro to the Course  
Lecture 2 - Introduction to OS  
Lecture 3 - PC Hardware  
Lecture 4 - From Programs to Processes  
Lecture 5 - Sharing the CPU  
Lecture 6 - Introduction  
Lecture 7 - Virtual Memory  
Lecture 8 - MMU Mapping  
Lecture 9 - Segmentation  
Lecture 10 - Memory Management in xv6  
Lecture 11 - PC Booting  
Lecture 12 - Week 3 Introduction  
Lecture 13 - Create Execute and Exit from Processes  
Lecture 14 - System Calls for Process Management  
Lecture 15 - Interrupts  
Lecture 16 - Interrupt Handling  
Lecture 17 - Software Interrupts and System calls  
Lecture 18 - CPU Context switching  
Lecture 19 - CPU Scheduling  
Lecture 20 - Priority Based Scheduling Algorithms  
Lecture 21 - Multi-Processor Scheduling  
Lecture 22 - Scheduling in Linux  
Lecture 23 - Completely Fair Scheduling  
Lecture 24 - Inter Process Communication  
Lecture 25 - Synchronization  
Lecture 26 - Software solutions for critical sections  
Lecture 27 - Bakery Algorithm  
Lecture 28 - Hardware Locks  
Lecture 29 - Mutexes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Semaphores
- Lecture 31 - Dining Philosophers Problem
- Lecture 32 - Deadlocks
- Lecture 33 - Dealing with Deadlocks
- Lecture 34 - Threads - Part 1
- Lecture 35 - Threads - Part 2
- Lecture 36 - Operating system security
- Lecture 37 - Information Flow policies
- Lecture 38 - Buffer Overflows
- Lecture 39 - Preventing Buffer Overflow Attacks



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Programming, Data Structures and Algorithms in Python

Subject Co-ordinator - Prof. Madhavan Mukund

Co-ordinating Institute - Chennai Mathematical Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1 - Algorithms and programming  
Lecture 2 - Lecture 2 - Improving naive gcd  
Lecture 3 - Lecture 3 - Euclid's algorithm for gcd  
Lecture 4 - Lecture 4 - Downloading and installing Python  
Lecture 5 - Lecture 1 - Assignment statement, basic types - int, float, bool  
Lecture 6 - Lecture 2 - Strings  
Lecture 7 - Lecture 3 - Lists  
Lecture 8 - Lecture 4 - Control Flow  
Lecture 9 - Lecture 5 - Functions  
Lecture 10 - Lecture 6 - Examples  
Lecture 11 - Lecture 1 - More about range()  
Lecture 12 - Lecture 2 - Manipulating lists  
Lecture 13 - Lecture 3 - Breaking out of a loop  
Lecture 14 - Lecture 4 - Arrays vs lists, binary search  
Lecture 15 - Lecture 5 - Efficiency  
Lecture 16 - Lecture 6 - Selection Sort  
Lecture 17 - Lecture 7 - Insertion Sort  
Lecture 18 - Lecture 8 - Recursion  
Lecture 19 - Lecture 1 - Mergesort  
Lecture 20 - Lecture 2 - Mergesort, analysis  
Lecture 21 - Lecture 3 - Quicksort  
Lecture 22 - Lecture 4 - Quicksort analysis  
Lecture 23 - Lecture 5 - Tuples and dictionaries  
Lecture 24 - Lecture 6 - Function definitions  
Lecture 25 - Lecture 7 - List Comprehension  
Lecture 26 - Lecture 1 - Exception Handling  
Lecture 27 - Lecture 2 - Standard input and output  
Lecture 28 - Lecture 3 - Handling files  
Lecture 29 - Lecture 4 - String functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Lecture 5 - Formatting printed output  
Lecture 31 - Lecture 6 - pass, del() and None  
Lecture 32 - Lecture 1 - Backtracking, N queens  
Lecture 33 - Lecture 2 - Global scope, nested functions  
Lecture 34 - Lecture 3 - Generating permutations  
Lecture 35 - Lecture 4 - Sets, stacks, queues  
Lecture 36 - Lecture 5 - Priority queues and heaps  
Lecture 37 - Lecture 1 - Abstract datatypes, classes and objects  
Lecture 38 - Lecture 2 - Classes and objects in Python  
Lecture 39 - Lecture 3 - User defined lists  
Lecture 40 - Lecture 4 - Search trees  
Lecture 41 - Lecture 1 - Memoization and dynamic programming  
Lecture 42 - Lecture 2 - Grid paths  
Lecture 43 - Lecture 3 - Longest common subsequence  
Lecture 44 - Lecture 4 - Matrix multiplication  
Lecture 45 - Lecture 5 - Wrap-up, Python vs other languages

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Privacy and Security in Online Social Networks

Subject Co-ordinator - Prof. Ponnurangam Kumaraguru

Co-ordinating Institute - IIITD

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Intro to Course  
Lecture 2 - Intro to Course  
Lecture 3 - Incidents  
Lecture 4 - Tutorial 1 - Part 1 Ubuntu  
Lecture 5 - Tutorial 1 - Part 2 Python  
Lecture 6 - OSM APIs and tools for data collection  
Lecture 7 - Tutorial 2 - Part 1 Facebook API  
Lecture 8 - Tutorial 2 - Part 2 Facebook API  
Lecture 9 - Trust and Credibility on OSM  
Lecture 10 - Misinformation on Social Media  
Lecture 11 - Privacy and Social Media  
Lecture 12 - Tutorial 3 - Part 1 Twitter API  
Lecture 13 - Tutorial 3 - Part 2 MySQL  
Lecture 14 - Tutorial 3 - Part 3 MongoDB  
Lecture 15 - Privacy and Pictures on Online Social Media  
Lecture 16 - Policing and Online Social Media  
Lecture 17 - Policing and Online Social Media  
Lecture 18 - Policing and Online Social Media  
Lecture 19 - eCrime on Online Social Media  
Lecture 20 - eCrime on Online Social Media  
Lecture 21 - Tutorial 4 - Social Network Analysis  
Lecture 22 - Link Farming in Online Social Media  
Lecture 23 - Nudges  
Lecture 24 - Semantic attacks  
Lecture 25 - Tutorial 5 - Analyzing text using Python NLTK  
Lecture 26 - Profile Linking on Online Social Media  
Lecture 27 - Anonymous Networks  
Lecture 28 - Tutorial 6 - Gephi Network Visualization  
Lecture 29 - Privacy in Location Based Social Networks - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Privacy in Location Based Social Networks - Part 2
- Lecture 31 - Tutorial 7 - Visualization - Highcharts
- Lecture 32 - Beware of What You Share Inferring Home Location in Social Networks
- Lecture 33 - On the dynamics of username change behavior on Twitter
- Lecture 34 - Boston Marathon Analyzing Fake Content on Twitter

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Mobile Computing

Subject Co-ordinator - Prof. Pushpendra Singh

Co-ordinating Institute - IIITD

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Java Basics  
Lecture 2 - Java  
Lecture 3 - Java  
Lecture 4 - Java  
Lecture 5 - Java  
Lecture 6 - Introduction to Android Studio  
Lecture 7 - Your First App  
Lecture 8 - Deploying your App to a Phone  
Lecture 9 - Extending app - Buttons, Toast  
Lecture 10 - Android Development Environment  
Lecture 11 - User Interface  
Lecture 12 - Application Fundamentals  
Lecture 13 - Extending the application  
Lecture 14 - Activity Lifecycle - I  
Lecture 15 - Activity Lifecycle - II  
Lecture 16 - Activity LifeCycle - III  
Lecture 17 - Adding Icon, Layouts, Handling Rotation - I  
Lecture 18 - Adding Icon, Layouts, Handling Rotation - II  
Lecture 19 - Debugging  
Lecture 20 - Intents - I  
Lecture 21 - Intents - II  
Lecture 22 - Observer Pattern  
Lecture 23 - Fragments - I  
Lecture 24 - Fragments - II  
Lecture 25 - Fragment Basic Programming Example  
Lecture 26 - Fragments - Advanced Example  
Lecture 27 - Implicit Intents  
Lecture 28 - Saving Data - I  
Lecture 29 - Saving Data - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Security and System Permissions
- Lecture 31 - Services
- Lecture 32 - Processes and threads
- Lecture 33 - Working with Fragments - I
- Lecture 34 - Working with Fragments - II
- Lecture 35 - Working with Fragments - III
- Lecture 36 - RecyclerView, Adapter
- Lecture 37 - RecyclerView, Adapter, ViewHolder
- Lecture 38 - ViewPager
- Lecture 39 - Dialogues

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Modern Application Development

Subject Co-ordinator - Tanmai Gopal, Prof. Gaurav Raina

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Introduction to a web-app
- Lecture 3 - Building a web-app
- Lecture 4 - Networks
- Lecture 5 - Practical - Running your own web-server
- Lecture 6 - Protocols
- Lecture 7 - Practical - SSH + Network experiments
- Lecture 8 - Practical - Building a webapp with nodejs and using git. Introduction to reverse proxies.
- Lecture 9 - Practical - Introduction to server-side javascript and HTML/CSS
- Lecture 10 - Introduction to client-side Javascript
- Lecture 11 - Practical - APIs and mobile apps use web-servers
- Lecture 12 - Introduction to databases
- Lecture 13 - Data modelling and constraints
- Lecture 14 - Interacting with a DBMS
- Lecture 15 - Practical - Deeper exploration of a DBMS (column types and more)
- Lecture 16 - Introduction to SQL
- Lecture 17 - Understanding database performance
- Lecture 18 - Transactions and ACID properties
- Lecture 19 - Database security, backup and recovery
- Lecture 20 - Analytics and Views
- Lecture 21 - Scaling a database
- Lecture 22 - Connecting your webapp to your database and SQL Injection
- Lecture 23 - SQL and NoSQL systems
- Lecture 24 - Authentication with HTTP
- Lecture 25 - Understanding security, and some best practices for webapps
- Lecture 26 - Introduction to authentication, hashing, curl and sessions
- Lecture 27 - Introduction to mobile apps
- Lecture 28 - Introduction to Mobile Application Development Part 2
- Lecture 29 - Introduction to Android

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Getting started with Android Application Development
- Lecture 31 - Building Custom UI using XML and Logs
- Lecture 32 - Building a Blog App
- Lecture 33 - Deploying an app to the Google Play Store
- Lecture 34 - Introduction to iOS
- Lecture 35 - The API Economy



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Information Security-3

Subject Co-ordinator - Prof. V. Kamakoti

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Operating System Introduction  
Lecture 2 - Storage Hierarchy, Exceptions, Interrupts and traps  
Lecture 3 - OS Management Services  
Lecture 4 - OS Security Issues  
Lecture 5 - Process and Threads  
Lecture 6 - Process Scheduling  
Lecture 7 - Scheduling Algorithm  
Lecture 8 - Process Synchronization  
Lecture 9 - Memory Management - 1  
Lecture 10 - Memory Management - 2  
Lecture 11 - File Systems - 1  
Lecture 12 - File Systems - 2  
Lecture 13 - Unix Filesystem  
Lecture 14 - Unix Filesystem (Continued...)  
Lecture 15 - Linux  
Lecture 16 - Linux  
Lecture 17 - Linux  
Lecture 18 - Linux  
Lecture 19 - Linux  
Lecture 20 - Linux  
Lecture 21 - Linux  
Lecture 22 - Linux  
Lecture 23 - Linux  
Lecture 24 - Linux  
Lecture 25 - Basic Networking Administration  
Lecture 26 - Filesystems and Devices  
Lecture 27 - Shell Introduction  
Lecture 28 - Shell Comments and Variables  
Lecture 29 - Shell Variables

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Shell Arrays and Arithmetic
- Lecture 31 - Shell Condition and Relation
- Lecture 32 - Shell Examples
- Lecture 33 - Shell Functions
- Lecture 34 - Shell File Test
- Lecture 35 - Shell Loop Control
- Lecture 36 - Shell Script Variations
- Lecture 37 - Shell Pattern Matching
- Lecture 38 - Shell Case Statements
- Lecture 39 - Shell Co-routines
- Lecture 40 - Shell Signals and Traps
- Lecture 41 - Shell Subshell
- Lecture 42 - Shell Declarations
- Lecture 43 - Shell Examples 2
- Lecture 44 - Shell Review
- Lecture 45 - An Introduction
- Lecture 46 - Structure of a Network
- Lecture 47 - Network Core - Definition
- Lecture 48 - Network Access and Physical Media
- Lecture 49 - Structure of ISP and Packet Delays
- Lecture 50 - Network Protocol Layers
- Lecture 51 - Network Devices
- Lecture 52 - Network Security - An Introduction
- Lecture 53 - Public Key Cryptography
- Lecture 54 - Digital Signatures
- Lecture 55 - Security in Practise
- Lecture 56 - Security in Practise (Continued...)
- Lecture 57 - Wireshark
- Lecture 58 - Snort
- Lecture 59 - Review I
- Lecture 60 - Review II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:AI:Constraint Satisfaction

Subject Co-ordinator - Prof. Deepak Khemani

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Constraint Satisfaction Problems
- Lecture 2 - CSP Examples: Map colouring, N-Queens, Classroom scheduling
- Lecture 3 - CSP Examples: Huffman-Clowes Labelling, Waltz Algorithm, Crosswords
- Lecture 4 - Model Based Diagnosis - An application of CSP
- Lecture 5 - Constraint Networks - An Introduction
- Lecture 6 - Binary Constraint Networks (BCN), Equivalent Networks
- Lecture 7 - Projection Networks
- Lecture 8 - Constraint Propagation
- Lecture 9 - Algorithms AC1 and AC3
- Lecture 10 - Can we do better than AC3?
- Lecture 11 - Algorithm AC4
- Lecture 12 - Generalized AC, Path-Consistency
- Lecture 13 - i-Consistency, Algorithm PC1
- Lecture 14 - Algorithm PC2, Strong i-Consistency
- Lecture 15 - Directional Consistency and Graph Ordering
- Lecture 16 - Min-Width and Min-Induced-Width Ordering
- Lecture 17 - Directional Arc-Consistency and Tree CSPs
- Lecture 18 - Directional Path-Consistency and Directional i-Consistency
- Lecture 19 - Backtrack-Free search and Adaptive Consistency
- Lecture 20 - Adaptive Consistency: Bucket Elimination
- Lecture 21 - Search Methods for Solving CSPs
- Lecture 22 - Algorithm Backtracking
- Lecture 23 - Look-Ahead Methods in Search
- Lecture 24 - Look-Ahead Search: Examples
- Lecture 25 - Combining Search with Reasoning: Algorithm DPLL
- Lecture 26 - Algorithm Backmarking
- Lecture 27 - Dynamic Value Ordering, Dynamic Variable Ordering
- Lecture 28 - Look-Back Methods - Definitions
- Lecture 29 - Gaschnig's Backjumping: The Culprit Variable

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gaschnig's Backjumping, Graph-Based Backjumping
- Lecture 31 - Graph-Based Backjumping: Internal and Relevant Dead-Ends
- Lecture 32 - Conflict-Directed Backjumping: Definitions
- Lecture 33 - Algorithm Conflict-Directed Backjumping
- Lecture 34 - Combining Look-Ahead and Look-Back: FC-CBJ
- Lecture 35 - Learning During Search
- Lecture 36 - Model Based Systems
- Lecture 37 - Model Based Diagnosis
- Lecture 38 - Truth Maintenance Systems
- Lecture 39 - Planning as Constraint Satisfaction
- Lecture 40 - Planning as Constraint Satisfaction (Continued...)
- Lecture 41 - Planning as Satisfiability
- Lecture 42 - Wrapping Up and Further Study

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Organization

Subject Co-ordinator - Prof. V. Kamakoti

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction High Speed Circuit - Design Recursive Doubling  
Lecture 2 - High Speed Circuit Design - Fast Adder Circuits  
Lecture 3 - Lab 1  
Lecture 4 - Fast Adder Circuits (Continued...)  
Lecture 5 - Fast Multiplier Circuit  
Lecture 6 - Fast Multiplier Circuit (Continued...)  
Lecture 7 - Programming using X86 ISA - Addressing Modes  
Lecture 8 - Programming using X86 ISA - Addressing Modes  
Lecture 9 - Floating point - Precision and Accuracy  
Lecture 10 - Floating Point - Addition, Subtraction and Multiplication  
Lecture 11 - Instruction Set Architecture  
Lecture 12 - Instruction Set Architecture (Continued...)  
Lecture 13 - Lab 2  
Lecture 14 - Lab 2  
Lecture 15 - Lab 2  
Lecture 16 - Orthogonal ISA, C Constructs Mapping, Addressing Modes  
Lecture 17 - Atomic and Predicated Instructions  
Lecture 18 - Atomic and Predicated Instructions (Continued...)  
Lecture 19 - General Purpose Registers  
Lecture 20 - Expanding opcodes  
Lecture 21 - Introduction to Pipelining  
Lecture 22 - Pipelining  
Lecture 23 - Data Hazards  
Lecture 24 - Lab 2  
Lecture 25 - Dynamic Instruction Scheduling  
Lecture 26 - Dynamic Instruction Scheduling (Continued...)  
Lecture 27 - Control Hazard, Branch Prediction  
Lecture 28 - Process Management  
Lecture 29 - Branch prediction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Global Branch Prediction
- Lecture 31 - Structural Hazard, Architectural Enhancements
- Lecture 32 - Lab 3
- Lecture 33 - Locality of Reference, Demand paging
- Lecture 34 - Page Replacement Algorithm
- Lecture 35 - Multilevel Paging, Translational Lookaside Buffer
- Lecture 36 - Multilevel Paging
- Lecture 37 - Multilevel Paging - Part 1
- Lecture 38 - Page Frame Allocation, Beledy's Anomaly
- Lecture 39 - Paging, Cache
- Lecture 40 - Cache
- Lecture 41 - Cache Organisation
- Lecture 42 - Cache - Cache Coherency, Dual Ported Cache
- Lecture 43 - Multilevel Caching, Multitasking
- Lecture 44 - Cache, Degree of Multiprogramming
- Lecture 45 - Shared Memory Architecture
- Lecture 46 - Shared Memory Architecture - Part I
- Lecture 47 - Virtually Indexed - Virtually Tagged and Physically Tagged Caches
- Lecture 48 - Lab 4
- Lecture 49 - Shared Memory Architecture, Cache Coherence
- Lecture 50 - Concurrent Programming in Hardware - Part I
- Lecture 51 - Concurrent Programming in Hardware - Part II
- Lecture 52 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Wireless and Cellular Communication

Subject Co-ordinator - Prof. David Kovil Pillai

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of Cellular Systems - Part 1
- Lecture 2 - Overview of Cellular Systems - Part 2
- Lecture 3 - Overview of Cellular Systems - Part 3
- Lecture 4 - 5G and other Wireless Technologies
- Lecture 5 - Basic Cellular Terminology
- Lecture 6 - Introduction to Antennas and Propagation Models
- Lecture 7 - Link budget, Fading margin, Outage
- Lecture 8 - Cellular Concept
- Lecture 9 - Cellular system design and analysis
- Lecture 10 - Cellular Geometry and System Design
- Lecture 11 - Cellular System Capacity, Trunking
- Lecture 12 - Handoff and Mobility
- Lecture 13 - Handoff Part 2, Classification of Signal Variation
- Lecture 14 - Shadowing, Outage, Multipath
- Lecture 15 - Rayleigh Fading and Statistical Characterization
- Lecture 16 - Properties of Rayleigh Distribution
- Lecture 17 - BER in Fading, Narrowband vs Wideband Channels
- Lecture 18 - Characterization of Multipath Fading Channels
- Lecture 19 - Choice of Modulation
- Lecture 20 - Coherent versus Differential Detection
- Lecture 21 - Review of Lecture 1-19
- Lecture 22 - Coherent vs Differential Detection - Part II and BER in Fading
- Lecture 23 - BER in Fading - Part II, Ricean Fading
- Lecture 24 - Ricean and Nakagami Fading, Moment Generating Function (MGF)
- Lecture 25 - MGF Part II, WSSUS Model
- Lecture 26 - WSSUS Part II, Coherence Time, Doppler Spectrum
- Lecture 27 - Doppler, Temporal Characteristics of Fading Channels
- Lecture 28 - WSSUS-Characterization of Time Dispersive Fading Channels
- Lecture 29 - WSSUS-Classification of Fading Channels

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Practical Channel Models (ITU, COST), Computer generation of Rayleigh fading
- Lecture 31 - Rayleigh Fading simulation - Clark and Gans Method, Jakesâ Method
- Lecture 32 - Jakesâ Method properties
- Lecture 33 - Introduction to Diversity, Antenna selection diversity
- Lecture 34 - Statistical Characterization of Antenna Diversity, Optimal Diversity Combining
- Lecture 35 - BER in fading, Equal Gain Combining
- Lecture 36 - Array Gain, Diversity Gain, Alamouti Scheme
- Lecture 37 - Alamouti Scheme - Part II, Channel Capacity
- Lecture 38 - Capacity of fading Channels, Capacity with Outage
- Lecture 39 - Channel State Information, Optimum Power Allocation
- Lecture 40
- Lecture 41
- Lecture 42
- Lecture 43
- Lecture 44
- Lecture 45
- Lecture 46 - (Missing)
- Lecture 47 - (Missing)
- Lecture 48 - Rake Receiver for multipath channels
- Lecture 49 - Multiuser environment
- Lecture 50 - CDMA system Capacity
- Lecture 51 - CDMA Multiuser Detectors - Part 1
- Lecture 52 - CDMA Multiuser Detectors - Part 2
- Lecture 53
- Lecture 54
- Lecture 55
- Lecture 56



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Distributed Systems

Subject Co-ordinator - Dr. Rajiv Misra

Co-ordinating Institute - IIT - Patna

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Distributed Systems
- Lecture 2 - Basic Algorithms in Message Passing System
- Lecture 3 - Leader Election in Rings
- Lecture 4 - Distributed Models of Computation, Causality and Logical Time
- Lecture 5 - Size of Vector Clock, Matrix Clocks, Virtual Time and Physical Clock Synchronization
- Lecture 6 - Global State and Snapshot Recording Algorithms
- Lecture 7 - Distributed Mutual Exclusion and Non-Token based Approaches
- Lecture 8 - Quorum Based Distributed Mutual Exclusion Approaches
- Lecture 9 - Token Based Distributed Mutual Exclusion Approaches
- Lecture 10 - Consensus and Agreement Algorithms
- Lecture 11 - Checkpointing and Rollback Recovery
- Lecture 12 - Deadlock Detection in Distributed Systems
- Lecture 13 - Distributed Shared Memory
- Lecture 14 - Distributed Minimum Spanning Tree
- Lecture 15 - Termination Detection in Distributed System
- Lecture 16 - Message Ordering and Group Communication
- Lecture 17 - Self-Stabilization
- Lecture 18 - Case Study 1 - Distributed Randomized Algorithms
- Lecture 19 - Case Study 2 - Peer-to-Peer Computing and Structured Overlay Network
- Lecture 20 - Case Study 3 - The Google File System (GFS)
- Lecture 21 - Case Study 4 - MapReduce
- Lecture 22 - Case Study 5 - HDFS
- Lecture 23 - Case Study 6 - Spark
- Lecture 24 - Case Study 7 - Distributed Algorithms for Sensor Networks
- Lecture 25 - Case Study 8 - Authentication in Distributed Systems
- Lecture 26 - Case Study 9 - Bitcoin
- Lecture 27 - Case Study 10 - BlockChain Technology

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Social Networks

Subject Co-ordinator - Prof. Sudarshan Iyengar

Co-ordinating Institute - IIT - Ropar

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Answer to the puzzle  
Lecture 3 - Introduction to Python - 1  
Lecture 4 - Introduction to Python - 2  
Lecture 5 - Introduction to Networkx - 1  
Lecture 6 - Introduction to Networkx - 2  
Lecture 7 - Social Networks  
Lecture 8 - Google Page Rank  
Lecture 9 - Searching in a Network  
Lecture 10 - Link Prediction  
Lecture 11 - The Contagions  
Lecture 12 - Importance of Acquaintances  
Lecture 13 - Marketing on Social Networks  
Lecture 14 - Introduction to Datasets  
Lecture 15 - Ingredients Network  
Lecture 16 - Synonymy Network  
Lecture 17 - Web Graph  
Lecture 18 - Social Network Datasets  
Lecture 19 - Datasets  
Lecture 20 - Datasets  
Lecture 21 - Datasets  
Lecture 22 - Datasets  
Lecture 23 - Introduction  
Lecture 24 - Advanced Material  
Lecture 25 - Programming Illustration  
Lecture 26 - Summary to Datasets  
Lecture 27 - Introduction  
Lecture 28 - Granovetter's Strength of weak ties  
Lecture 29 - Triads, clustering coefficient and neighborhood overlap

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structure of weak ties, bridges, and local bridges
- Lecture 31 - Validation of Granovetter's experiment using cell phone data
- Lecture 32 - Embeddedness
- Lecture 33 - Structural Holes
- Lecture 34 - Social Capital
- Lecture 35 - Finding Communities in a graph (Brute Force Method)
- Lecture 36 - Community Detection Using Girvan Newman Algorithm
- Lecture 37 - Visualising Communities using Gephi
- Lecture 38 - Tie Strength, Social Media and Passive Engagement
- Lecture 39 - Betweenness Measures and Graph Partitioning
- Lecture 40 - Strong and Weak Relationship - Summary
- Lecture 41 - Introduction to Homophily - Should you watch your company ?
- Lecture 42 - Selection and Social Influence
- Lecture 43 - Interplay between Selection and Social Influence
- Lecture 44 - Homophily - Definition and measurement
- Lecture 45 - Foci Closure and Membership Closure
- Lecture 46 - Introduction to Fatman Evolutionary model
- Lecture 47 - Fatman Evolutionary Model - The Base Code (Adding people)
- Lecture 48 - Fatman Evolutionary Model - The Base Code (Adding Social Foci)
- Lecture 49 - Fatman Evolutionary Model - Implementing Homophily
- Lecture 50 - Quantifying the Effect of Triadic Closure
- Lecture 51 - Fatman Evolutionary Model - Implementing Closures
- Lecture 52 - Fatman Evolutionary Model - Implementing Social Influence
- Lecture 53 - Fatman Evolutionary Model - Storing and analyzing longitudinal data
- Lecture 54 - Spatial Segregation
- Lecture 55 - Spatial Segregation
- Lecture 56 - Spatial Segregation
- Lecture 57 - Schelling Model Implementation - 1 (Introduction)
- Lecture 58 - Schelling Model Implementation - 2 (Base Code)
- Lecture 59 - Schelling Model Implementation - 3 (Visualization and Getting a list of boundary and internal nodes)
- Lecture 60 - Schelling Model Implementation - 4 (Getting a list of unsatisfied nodes)
- Lecture 61 - Schelling Model Implementation - 5 (Shifting the unsatisfied nodes and visualizing the final graph)
- Lecture 62 - Chapter - 5 Positive and Negative Relationships (Introduction)
- Lecture 63 - Structural Balance
- Lecture 64 - Enemy'S Enemy is a Friend
- Lecture 65 - Characterizing the Structure of Balanced Networks
- Lecture 66 - Balance Theorem
- Lecture 67 - Proof of Balance Theorem
- Lecture 68 - Introduction to positive and negative edges

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- Lecture 69 - Outline of implementation
- Lecture 70 - Creating graph, displaying it and counting unstable triangles
- Lecture 71 - Moving a network from an unstable to stable state
- Lecture 72 - Forming two coalitions
- Lecture 73 - Forming two coalitions (Continued...)
- Lecture 74 - Visualizing coalitions and the evolution
- Lecture 75 - The Web Graph
- Lecture 76 - Collecting the Web Graph
- Lecture 77 - Equal Coin Distribution
- Lecture 78 - Random Coin Dropping
- Lecture 79 - Google Page Ranking Using Web Graph
- Lecture 80 - Implementing PageRank Using Points Distribution Method - 1
- Lecture 81 - Implementing PageRank Using Points Distribution Method - 2
- Lecture 82 - Implementing PageRank Using Points Distribution Method - 3
- Lecture 83 - Implementing PageRank Using Points Distribution Method - 4
- Lecture 84 - Implementing PageRank Using Random Walk Method - 1
- Lecture 85 - Implementing PageRank Using Random Walk Method - 2
- Lecture 86 - DegreeRank versus PageRank
- Lecture 87 - We Follow
- Lecture 88 - Why do we Follow?
- Lecture 89 - Diffusion in Networks
- Lecture 90 - Modeling Diffusion
- Lecture 91 - Modeling Diffusion (Continued...)
- Lecture 92 - Impact of Communities on Diffusion
- Lecture 93 - Cascade and Clusters
- Lecture 94 - Knowledge, Thresholds and the Collective Action
- Lecture 95 - An Introduction to the Programming Screencast (Coding 4 major ideas)
- Lecture 96 - The Base Code
- Lecture 97 - Coding the First Big Idea - Increasing the Payoff
- Lecture 98 - Coding the Second Big Idea - Key People
- Lecture 99 - Coding the Third Big Idea - Impact of Communities on Cascades
- Lecture 100 - Coding the Fourth Big Idea - Cascades and Clusters
- Lecture 101 - Introduction to Hubs and Authorities (A Story)
- Lecture 102 - Principle of Repeated Improvement (A story)
- Lecture 103 - Principle of Repeated Improvement (An example)
- Lecture 104 - Hubs and Authorities
- Lecture 105 - PageRank Revisited - An example
- Lecture 106 - PageRank Revisited - Convergence in the Example
- Lecture 107 - PageRank Revisited - Conservation and Convergence

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - PageRank, conservation and convergence - Another example
- Lecture 109 - Matrix Multiplication (Pre-requisite 1)
- Lecture 110 - Convergence in Repeated Matrix Multiplication (Pre-requisite 1)
- Lecture 111 - Addition of Two Vectors (Pre-requisite 2)
- Lecture 112 - Convergence in Repeated Matrix Multiplication- The Details
- Lecture 113 - PageRank as a Matrix Operation
- Lecture 114 - PageRank Explained
- Lecture 115 - Introduction to Powerlaw
- Lecture 116 - Why do Normal Distributions Appear?
- Lecture 117 - Power Law emerges in WWW graphs
- Lecture 118 - Detecting the Presence of Powerlaw
- Lecture 119 - Rich Get Richer Phenomenon
- Lecture 120 - Summary So Far
- Lecture 121 - Implementing Rich-getting-richer Phenomenon (Barabasi-Albert Model) - 1
- Lecture 122 - Implementing Rich-getting-richer Phenomenon (Barabasi-Albert Model) - 2
- Lecture 123 - Implementing a Random Graph (Erdos-Renyi Model) - 1
- Lecture 124 - Implementing a Random Graph (Erdos-Renyi Model) - 2
- Lecture 125 - Forced Versus Random Removal of Nodes (Attack Survivability)
- Lecture 126 - Rich Get Richer - A Possible Reason
- Lecture 127 - Rich Get Richer - The Long Tail
- Lecture 128 - Epidemics- An Introduction
- Lecture 129 - Introduction to epidemics (Continued...)
- Lecture 130 - Simple Branching Process for Modeling Epidemics
- Lecture 131 - Simple Branching Process for Modeling Epidemics (Continued...)
- Lecture 132 - Basic Reproductive Number
- Lecture 133 - Modeling epidemics on complex networks
- Lecture 134 - SIR and SIS spreading models
- Lecture 135 - Comparison between SIR and SIS spreading models
- Lecture 136 - Basic Reproductive Number Revisited for Complex Networks
- Lecture 137 - Percolation model
- Lecture 138 - Analysis of basic reproductive number in branching model (The problem statement)
- Lecture 139 - Analyzing basic reproductive number - 2
- Lecture 140 - Analyzing basic reproductive number - 3
- Lecture 141 - Analyzing basic reproductive number - 4
- Lecture 142 - Analyzing basic reproductive number - 5
- Lecture 143 - Small World Effect - An Introduction
- Lecture 144 - Milgram's Experiment
- Lecture 145 - The Reason
- Lecture 146 - The Generative Model

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 147 - Decentralized Search - I
- Lecture 148 - Decentralized Search - II
- Lecture 149 - Decentralized Search - III
- Lecture 150 - Programming illustration- Small world networks
- Lecture 151 - Base code
- Lecture 152 - Making homophily based edges
- Lecture 153 - Adding weak ties
- Lecture 154 - Plotting change in diameter
- Lecture 155 - Programming illustration- Myopic Search
- Lecture 156 - Myopic Search
- Lecture 157 - Myopic Search comparison to optimal search
- Lecture 158 - Time Taken by Myopic Search
- Lecture 159 - PseudoCores
- Lecture 160 - How to be Viral
- Lecture 161 - Who are the right key nodes?
- Lecture 162 - finding the right key nodes (the core)
- Lecture 163 - Coding K-Shell Decomposition
- Lecture 164 - Coding cascading Model
- Lecture 165 - Coding the importance of core nodes in cascading
- Lecture 166 - Pseudo core

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:An Introduction to Probability in Computing

Subject Co-ordinator - Prof. John Augustine

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Probability - A box of chocolates
- Lecture 2 - Introduction to Probability - Axiomatic Approach to Probability Theory
- Lecture 3 - Introduction to Probability - Verifying Matrix Multiplication (Statement, Algorithm and Independence)
- Lecture 4 - Introduction to Probability - Verifying Matrix Multiplication (Correctness and Law of Total Probability)
- Lecture 5 - Introduction to Probability - How Strong is your Network?
- Lecture 6 - Introduction to Probability - How to Understand the World? Play with it!
- Lecture 7 - Tutorial 1
- Lecture 8 - Tutorial 2
- Lecture 9 - Discrete Random Variables - Basic Definitions
- Lecture 10 - Discrete Random Variables - Linearity of Expectation and Jensen's Inequality
- Lecture 11 - Discrete Random Variables - Conditional Expectation I
- Lecture 12 - Discrete Random Variables - Conditional Expectation II
- Lecture 13 - Discrete Random Variables - Geometric Random Variables and Collecting Coupons
- Lecture 14 - Discrete Random Variables - Randomized Selection
- Lecture 15 - Tail Bounds I - Markov's Inequality
- Lecture 16 - Tail Bounds I - The Second Moment, Variance and Chebyshev's Inequality
- Lecture 17 - Tail Bounds I - Median via Sampling
- Lecture 18 - Tail Bounds I - Median via Sampling - Analysis
- Lecture 19 - Tail Bounds I - Moment Generating Functions and Chernoff Bounds
- Lecture 20 - Tail Bounds I - Parameter Estimation
- Lecture 21 - Tail Bounds I - Control Group Selection
- Lecture 22 - Applications of Tail Bounds - Routing in Sparse Networks
- Lecture 23 - Applications of Tail Bounds - Analysis of Valiant's Routing
- Lecture 24 - Applications of Tail Bounds - Random Graphs
- Lecture 25 - Live Session 2
- Lecture 26 - Live Session

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Human Computer Interaction

Subject Co-ordinator - Prof. Ponnurangam Kumaraguru

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Human Computer Interaction
- Lecture 2 - What is HCI? Commonalities and Differences in Interfaces
- Lecture 3 - Door handle, Elevators, Contextual Inquiry, Affinity Diagrams
- Lecture 4 - Lab Session Contextual Inquiry
- Lecture 5 - Lab Session Affinity Diagram
- Lecture 6 - Tutorial on Photoshop
- Lecture 7 - Tutorial on UI Designing using Photoshop
- Lecture 8 - Institutional Review Board, Ethics committee, IRB documents / application, consent form
- Lecture 9 - Tutorial on Proto.io
- Lecture 10 - Tutorial on Lookback
- Lecture 11 - How to understand user needs? Surveys, Questionnaire
- Lecture 12 - How to understand user needs? Surveys, Questionnaire - Continues
- Lecture 13 - Prototyping
- Lecture 14 - User-Centered Design
- Lecture 15 - Lab Session
- Lecture 16 - Design Patterns
- Lecture 17 - Lab Session
- Lecture 18 - Usable security
- Lecture 19 - Lab Session
- Lecture 20 - Continuity of Usable Security
- Lecture 21 - Visual Design
- Lecture 22 - Visual Design - 2
- Lecture 23 - Crypto price Tracker App
- Lecture 24 - Interacto
- Lecture 25 - Tech Hinder
- Lecture 26 - busKARO
- Lecture 27 - MayMayMe
- Lecture 28 - noWhinge

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Information Security-IV

Subject Co-ordinator - Prof.M J Shankar Raman, Prof. V. Kamakoti, Prof.Vasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - WISE Gen and The IT Revolution - 1
- Lecture 2 - WISE Gen and The IT Revolution - 1 (Continued...)
- Lecture 3 - WISE GEN - Next Step
- Lecture 4 - Network Security
- Lecture 5 - Symmetric Key Cryptography and Digital Signatures
- Lecture 6 - Basic Network Security Components
- Lecture 7 - Internet Security Threats
- Lecture 8 - History of Kali Linux
- Lecture 9 - Penetration Testing with Kali Linux
- Lecture 10 - Network Security and Forensics Introduction - I
- Lecture 11 - Network Security and Forensics Introduction - II
- Lecture 12 - Penetration Testing
- Lecture 13 - Penetration testing steps in Kali Linux
- Lecture 14 - Kali Linux Installation
- Lecture 15 - Reconnaissance - Part I
- Lecture 16 - Reconnaissance - Part II
- Lecture 17 - Serverside Attacks
- Lecture 18 - Serverside Attacks
- Lecture 19 - Serverside Attacks
- Lecture 20 - Serverside Attacks
- Lecture 21 - Serverside Attacks
- Lecture 22 - Serverside Attacks
- Lecture 23 - Client Side Attacks - Tools in Kali Linux - 1
- Lecture 24 - Client Side Attacks - Tools in Kali Linux - 2
- Lecture 25 - Client Side Attacks - Tools in Kali Linux - 3
- Lecture 26 - Client Side Attacks - Tools in Kali Linux - 4
- Lecture 27 - Authentication Based Attacks - Tools in Kali Linux - 1
- Lecture 28 - Authentication Based Attacks - Tools in Kali Linux - 2
- Lecture 29 - Authentication Based Attacks - Tools in Kali Linux - 3

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- Lecture 30 - Authentication Based Attacks - Tools in Kali Linux - 4
- Lecture 31 - Authentication Based Attacks - Tools in Kali Linux - 5
- Lecture 32 - Web Attacks - Tools in Kali Linux - 1
- Lecture 33 - Web Attacks - Tools in Kali Linux - 2
- Lecture 34 - Penetration Testing Attacks - Defensive Countermeasures
- Lecture 35 - Technical Fundamentals for Evidence Acquisition - 1
- Lecture 36 - Technical Fundamentals for Evidence Acquisition - 2
- Lecture 37 - Packet Capture Tools and Methods
- Lecture 38 - Wireshark Introduction
- Lecture 39 - Packet Analysis
- Lecture 40 - Flow Analysis
- Lecture 41 - Case study 1
- Lecture 42 - Case study 1 (Continued...)
- Lecture 43 - Wireless Forensics - Technology
- Lecture 44 - Wireless Network Security Framework
- Lecture 45 - Wireless Access Points - Security issues
- Lecture 46 - Case Study 2 - Use of tools
- Lecture 47 - Network Security Devices - IDS
- Lecture 48 - IDS Evidence Acquisition and SNORT
- Lecture 49 - SNORT Rules
- Lecture 50 - SNORT Installation
- Lecture 51 - SNORT Configuration and Demonstration
- Lecture 52 - Evidence collection in Switches and Routers
- Lecture 53 - Evidence collection in Routers and Firewalls
- Lecture 54 - IPTables rules and tool usage
- Lecture 55 - Logs, Rules and Automated Tools
- Lecture 56 - Re-cap of All Topics
- Lecture 57 - Introduction to Meltdown Attack
- Lecture 58 - Introduction to Meltdown - Address Space Basics
- Lecture 59 - Meltdown Attack - Out of Order Execution
- Lecture 60 - Meltdown Attack - Recovering from Exception

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Data Science for Engineers

Subject Co-ordinator - Prof. Shankar Narasimhan, Prof. Ragunathan Rengasamy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Data science for engineers Course philosophy and expectation

Lecture 2 - Introduction to R

Lecture 3 - Introduction to R (Continued...)

Lecture 4 - Variables and datatypes in R

Lecture 5 - Data frames

Lecture 6 - Recasting and joining of dataframes

Lecture 7 - Arithmetic, Logical and Matrix operations in R

Lecture 8 - Advanced programming in R

Lecture 9 - Advanced Programming in R

Lecture 10 - Control structures

Lecture 11 - Data visualization in R Basic graphics

Lecture 12 - Linear Algebra for Data science

Lecture 13 - Solving Linear Equations

Lecture 14 - Solving Linear Equations (Continued...)

Lecture 15 - Linear Algebra - Distance, Hyperplanes and Halfspaces, Eigenvalues, Eigenvectors

Lecture 16 - Linear Algebra - Distance, Hyperplanes and Halfspaces, Eigenvalues, Eigenvectors (Continued... 1)

Lecture 17 - Linear Algebra - Distance, Hyperplanes and Halfspaces, Eigenvalues, Eigenvectors (Continued... 2)

Lecture 18 - Linear Algebra - Distance, Hyperplanes and Halfspaces, Eigenvalues, Eigenvectors (Continued... 3)

Lecture 19 - Statistical Modelling

Lecture 20 - Random Variables and Probability Mass/Density Functions

Lecture 21 - Sample Statistics

Lecture 22 - Hypotheses Testing

Lecture 23 - Optimization for Data Science

Lecture 24 - Unconstrained Multivariate Optimization

Lecture 25 - Unconstrained Multivariate Optimization (Continued...)

Lecture 26 - Gradient (Steepest) Descent (OR) Learning Rule

Lecture 27 - Multivariate Optimization With Equality Constraints

Lecture 28 - Multivariate Optimization With Inequality Constraints

Lecture 29 - Introduction to Data Science

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solving Data Analysis Problems - A Guided Thought Process
- Lecture 31 - Module
- Lecture 32 - Linear Regression
- Lecture 33 - Model Assessment
- Lecture 34 - Diagnostics to Improve Linear Model Fit
- Lecture 35 - Simple Linear Regression Model Building
- Lecture 36 - Simple Linear Regression Model Assessment
- Lecture 37 - Simple Linear Regression Model Assessment (Continued...)
- Lecture 38 - Multiple Linear Regression
- Lecture 39 - Cross Validation
- Lecture 40 - Multiple Linear Regression Modelling Building and Selection
- Lecture 41 - Classification
- Lecture 42 - Logistic Regression
- Lecture 43 - Logistic Regression (Continued...)
- Lecture 44 - Performance Measures
- Lecture 45 - Logistic Regression Implementation in R
- Lecture 46 - K-Nearest Neighbors (kNN)
- Lecture 47 - K-Nearest Neighbors implementation in R
- Lecture 48 - K-means Clustering
- Lecture 49 - K-means implementation in R
- Lecture 50 - Data Science for engineers - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:The Joy of Computing using Python

Subject Co-ordinator - Prof. Sudarshan Iyengar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Programming
- Lecture 2 - Why Programming ?
- Lecture 3 - Programming for Everybody
- Lecture 4 - Any Prerequisites ?
- Lecture 5 - Where to start?
- Lecture 6 - Why do we have so many languages?
- Lecture 7 - How to go about programming?
- Lecture 8 - Why to learn programming?
- Lecture 9 - What is programming?
- Lecture 10 - How to give instructions ?
- Lecture 11 - Introduction To Scratch
- Lecture 12 - Introduction To Loops
- Lecture 13 - More About Loops
- Lecture 14 - Solution To Looping Problem
- Lecture 15 - Scratch
- Lecture 16 - Scratch
- Lecture 17 - Scratch
- Lecture 18 - More On Scratch
- Lecture 19 - Introduction to Anaconda
- Lecture 20 - Installation of Anaconda
- Lecture 21 - Introduction to Spyder IDE
- Lecture 22 - Printing statements in Python
- Lecture 23 - Understanding Variables in Python
- Lecture 24 - Executing a sequence of instructions in the Console
- Lecture 25 - Writing your First Program
- Lecture 26 - Taking inputs from the user
- Lecture 27 - Discount Calculation
- Lecture 28 - Motivation to if condition
- Lecture 29 - A reminder on how to deal with numbers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Understanding if condition's working
- Lecture 31 - Realizing the importance of syntax and indentation
- Lecture 32 - Introductions to loops
- Lecture 33 - Loops
- Lecture 34 - Loops
- Lecture 35 - Loops
- Lecture 36 - Introduction to While Loop
- Lecture 37 - Lists Part 1
- Lecture 38 - Lists Part 2
- Lecture 39 - Lists Part 3
- Lecture 40 - Lists Part 4
- Lecture 41 - Loops and Conditionals
- Lecture 42 - Loops and Conditionals
- Lecture 43 - Crowd Computing - Just estimate 01
- Lecture 44 - Crowd Computing - Just estimate 02
- Lecture 45 - Crowd Computing - Just estimate 03
- Lecture 46 - Crowd Computing - Just estimate 04
- Lecture 47 - Crowd Computing - Just estimate 05
- Lecture 48 - Crowd Computing - Just estimate 06
- Lecture 49 - Permutations - Jumbled Words 01
- Lecture 50 - Permutations - Jumbled Words 02
- Lecture 51 - Permutations - Jumbled Words 03
- Lecture 52 - Theory of Evolution 01
- Lecture 53 - Theory of Evolution 02
- Lecture 54 - Theory of Evolution 03
- Lecture 55 - Theory of Evolution 04
- Lecture 56 - Practice is the key
- Lecture 57 - Magic Square Hit and Trial 01
- Lecture 58 - Magic Square Hit and Trial 02
- Lecture 59 - Magic Square Hit and Trial 03
- Lecture 60 - Magic Square Hit and Trial 04
- Lecture 61 - Magic Square Hit and Trial 05
- Lecture 62 - Let's program and play
- Lecture 63 - Dobble Game - Spot the similarity 01
- Lecture 64 - Dobble Game - Spot the similarity 02
- Lecture 65 - Dobble Game - Spot the similarity 03
- Lecture 66 - Dobble Game - Spot the similarity 04
- Lecture 67 - What is your date of birth?
- Lecture 68 - Birthday Paradox - Find your twin 01

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Lecture 69 - Birthday Paradox - Find your twin 02  
Lecture 70 - Birthday Paradox - Find your twin 03  
Lecture 71 - Birthday Paradox - Find your twin 04  
Lecture 72 - Birthday Paradox - Find your twin 05  
Lecture 73 - What's your favourite movie?  
Lecture 74 - Guess the Movie Name 01  
Lecture 75 - Guess the Movie Name 02  
Lecture 76 - Guess the Movie Name 03  
Lecture 77 - Guess the Movie Name 04  
Lecture 78 - Guess the Movie Name 05  
Lecture 79 - Guess the Movie Name 06  
Lecture 80 - Dictionaries  
Lecture 81 - Speech to Text  
Lecture 82 - Speech to Text  
Lecture 83 - Speech to Text  
Lecture 84 - Monte Hall  
Lecture 85 - Monte Hall  
Lecture 86 - Rock, Paper and Scissor  
Lecture 87 - Rock, Paper and Scissor  
Lecture 88 - Rock, Paper and Scissor  
Lecture 89 - Rock, Paper and Scissor  
Lecture 90 - Sorting and Searching  
Lecture 91 - Sorting and Searching  
Lecture 92 - Sorting and Searching  
Lecture 93 - Sorting and Searching  
Lecture 94 - Sorting and Searching  
Lecture 95 - Sorting and Searching  
Lecture 96 - Sorting and Searching  
Lecture 97 - Sorting and Searching  
Lecture 98 - Substitution Cipher -The science of secrecy  
Lecture 99 - Substitution Cipher -The science of secrecy 01  
Lecture 100 - Substitution Cipher -The science of secrecy 02  
Lecture 101 - Substitution Cipher -The science of secrecy 03  
Lecture 102 - Tic Tac Toe - Down the memory Lane  
Lecture 103 - Tic Tac Toe - Down the memory Lane 01  
Lecture 104 - Tic Tac Toe - Down the memory Lane 02  
Lecture 105 - Tic Tac Toe - Down the memory Lane 03  
Lecture 106 - Tic Tac Toe - Down the memory Lane 04  
Lecture 107 - Tic Tac Toe - Down the memory Lane 05

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Lecture 108 - Recursion  
Lecture 109 - Recursion 01  
Lecture 110 - Recursion 02  
Lecture 111 - Recursion 03  
Lecture 112 - Recursion 04  
Lecture 113 - Recursion 05  
Lecture 114 - Recursion 06  
Lecture 115 - Snakes and Ladders - Not on the Board  
Lecture 116 - Snakes and Ladders - Not on the Board - Part 01  
Lecture 117 - Snakes and Ladders - Not on the Board - Part 02  
Lecture 118 - Snakes and Ladders - Not on the Board - Part 03  
Lecture 119 - Snakes and Ladders - Not on the Board - Part 04  
Lecture 120 - Snakes and Ladders - Not on the Board - Part 05  
Lecture 121 - Snakes and Ladders - Not on the Board - Part 06  
Lecture 122 - Spiral Traversing - Let's Animate  
Lecture 123 - Spiral Traversing - Let's Animate - Part 01  
Lecture 124 - Spiral Traversing - Let's Animate - Part 02  
Lecture 125 - Spiral Traversing - Let's Animate - Part 03  
Lecture 126 - Spiral Traversing - Let's Animate - Part 04  
Lecture 127 - Spiral Traversing - Let's Animate - Part 05  
Lecture 128 - Spiral Traversing - Let's Animate - Part 06  
Lecture 129 - Spiral Traversing - Let's Animate - Part 07  
Lecture 130 - GPS - Track the route  
Lecture 131 - GPS - Track the route - Part 01  
Lecture 132 - GPS - Track the route - Part 02  
Lecture 133 - GPS - Track the route - Part 03  
Lecture 134 - GPS - Track the route - Part 04  
Lecture 135 - Tuples- Python Data Structure  
Lecture 136 - Lottery Simulation - Profit or Loss  
Lecture 137 - Lottery Simulation - Profit or Loss - Part 01  
Lecture 138 - Lottery Simulation - Profit or Loss - Part 02  
Lecture 139 - Lottery Simulation - Profit or Loss - Part 03  
Lecture 140 - Lottery Simulation - Profit or Loss - Part 04  
Lecture 141 - Lottery Simulation - Profit or Loss - Part 05  
Lecture 142 - Lottery Simulation - Profit or Loss - Part 06  
Lecture 143 - Image Processing - Enhance your images  
Lecture 144 - Image Processing - Enhance your images - Part 01  
Lecture 145 - Image Processing - Enhance your images - Part 02  
Lecture 146 - Image Processing - Enhance your images - Part 03

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Lecture 147 - Anagrams  
Lecture 148 - Anagrams - Part 01  
Lecture 149 - Anagrams - Part 02  
Lecture 150 - Anagrams - Part 03  
Lecture 151 - Anagrams - Part 04  
Lecture 152 - Facebook Sentiment Analysis  
Lecture 153 - Facebook Sentiment Analysis - Part 01  
Lecture 154 - Facebook Sentiment Analysis - Part 02  
Lecture 155 - Facebook Sentiment Analysis - Part 03  
Lecture 156 - Facebook Sentiment Analysis - Part 04  
Lecture 157 - Natural Language Processing - Author Stylometry  
Lecture 158 - Natural Language Processing - Author Stylometry - Part 01  
Lecture 159 - Natural Language Processing - Author Stylometry - Part 02  
Lecture 160 - Natural Language Processing - Author Stylometry - Part 03  
Lecture 161 - Natural Language Processing - Author Stylometry - Part 04  
Lecture 162 - Natural Language Processing - Author Stylometry - Part 05  
Lecture 163 - Natural Language Processing - Author Stylometry - Part 06  
Lecture 164 - Natural Language Processing - Author Stylometry - Part 07  
Lecture 165 - Natural Language Processing - Author Stylometry - Part 08  
Lecture 166 - Natural Language Processing - Author Stylometry - Part 09  
Lecture 167 - Natural Language Processing - Author Stylometry - Part 10  
Lecture 168 - Introduction to Networkx - Part 01  
Lecture 169 - Introduction to Networkx - Part 02  
Lecture 170 - Six Degrees of Separation  
Lecture 171 - Six Degrees of Separation  
Lecture 172 - Six Degrees of Separation  
Lecture 173 - Six Degrees of Separation  
Lecture 174 - Area Calculation - Don't Measure  
Lecture 175 - Area Calculation - Don't Measure - Part 01  
Lecture 176 - Area Calculation - Don't Measure - Part 02  
Lecture 177 - Area Calculation - Don't Measure - Part 03  
Lecture 178 - Area Calculation - Don't Measure - Part 04  
Lecture 179 - Area Calculation - Don't Measure - Part 05  
Lecture 180 - Area Calculation - Don't Measure - Part 06  
Lecture 181 - FLAMES - Part 01  
Lecture 182 - FLAMES - Part 02  
Lecture 183 - FLAMES - Part 03  
Lecture 184 - FLAMES - Part 04  
Lecture 185 - FLAMES - Part 05

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Lecture 186 - FLAMES - Part 06  
Lecture 187 - Data Compression - Part 01  
Lecture 188 - Data Compression - Part 02  
Lecture 189 - Data Compression - Part 03  
Lecture 190 - Data Compression - Part 04  
Lecture 191 - Data Compression - Part 05  
Lecture 192 - Browser Automation Watsapp using Python - Part 01  
Lecture 193 - Browser Automation Watsapp using Python - Part 02  
Lecture 194 - Browser Automation Watsapp using Python - Part 03  
Lecture 195 - Browser Automation Watsapp using Python - Part 04  
Lecture 196 - Fun with Calendar - Part 01  
Lecture 197 - Fun with Calendar - Part 02  
Lecture 198 - Fun with Calendar - Part 03  
Lecture 199 - Fun with Calendar - Part 04  
Lecture 200 - Fun with Calendar - Part 05  
Lecture 201 - Fun with Calendar - Part 06  
Lecture 202 - Fun with Calendar - Part 07  
Lecture 203 - Fun with Calendar - Part 08  
Lecture 204 - Fun with Calendar - Part 09  
Lecture 205 - Fun with Calendar - Part 10  
Lecture 206 - Fun with Calendar - Part 11  
Lecture 207 - Fun with Calendar - Part 12  
Lecture 208 - Page Rank - How does Google Work ? - Part 01  
Lecture 209 - Page Rank - How does Google Work ? - Part 02  
Lecture 210 - Page Rank - How does Google Work ? - Part 03  
Lecture 211 - Page Rank - How does Google Work ? - Part 04  
Lecture 212 - Page Rank - How does Google Work ? - Part 05  
Lecture 213 - Page Rank - How does Google Work ? - Part 06  
Lecture 214 - Page Rank - How does Google Work ? - Part 07  
Lecture 215 - Page Rank - How does Google Work ? - Part 08  
Lecture 216 - Page Rank - How does Google Work ? - Part 09  
Lecture 217 - Page Rank - How does Google Work ? - Part 10  
Lecture 218 - Page Rank - How does Google Work ? - Part 11  
Lecture 219 - Page Rank - How does Google Work ? - Part 12  
Lecture 220 - Page Rank - How does Google Work ? - Part 13  
Lecture 221 - Page Rank - How does Google Work ? - Part 14  
Lecture 222 - Page Rank - How does Google Work ? - Part 15  
Lecture 223 - Page Rank - How does Google Work ? - Part 16  
Lecture 224 - Collatz Conjecture - Part 01

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 225 - Collatz Conjecture - Part 02

Lecture 226 - JOC Conclusion

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Discrete Mathematics

Subject Co-ordinator - Prof. Sudarshan Iyengar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Motivation for Counting  
Lecture 2 - Paper Folding Example  
Lecture 3 - Rubik's Cube Example  
Lecture 4 - Factorial Example  
Lecture 5 - Counting in Computer Science  
Lecture 6 - Motivation for Catalan numbers  
Lecture 7 - Rule of Sum and Rule of Product  
Lecture 8 - Problems on Rule of Sum and Rule of Product  
Lecture 9 - Factorial Explained  
Lecture 10 - Proof of  $n!$  - Part 1  
Lecture 11 - Proof of  $n!$  - Part 2  
Lecture 12 - Astronomical Numbers  
Lecture 13 - Permutations - Part 1  
Lecture 14 - Permutations - Part 2  
Lecture 15 - Permutations - Part 3  
Lecture 16 - Permutations - Part 4  
Lecture 17 - Problems on Permutations  
Lecture 18 - Combinations - Part 1  
Lecture 19 - Combinations - Part 2  
Lecture 20 - Combinations - Part 3  
Lecture 21 - Combinations - Part 4  
Lecture 22 - Problems on Combinations  
Lecture 23 - Difference between Permutations and Combinations  
Lecture 24 - Combination with Repetition - Part 1  
Lecture 25 - Combination with Repetition - Part 2  
Lecture 26 - Combination with Repetition - Problems  
Lecture 27 - Binomial theorem  
Lecture 28 - Applications of Binomial theorem  
Lecture 29 - Properties of Binomial theorem

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multinomial theorem
- Lecture 31 - Problems on Binomial theorem
- Lecture 32 - Pascal's Triangle
- Lecture 33 - Fun facts on Pascal's Triangle
- Lecture 34 - Catalan Numbers - Part 1
- Lecture 35 - Catalan Numbers - Part 2
- Lecture 36 - Catalan Numbers - Part 3
- Lecture 37 - Catalan Numbers - Part 4
- Lecture 38 - Examples of Catalan numbers
- Lecture 39 - Chapter Summary
- Lecture 40 - Introduction to Set Theory
- Lecture 41 - Example, definition and notation
- Lecture 42 - Sets - Problems Part 1
- Lecture 43 - Subsets - Part 1
- Lecture 44 - Subsets - Part 2
- Lecture 45 - Subsets - Part 3
- Lecture 46 - Union and intersections of sets
- Lecture 47 - Union and intersections of sets - Part 1
- Lecture 48 - Union and intersections of sets - Part 2
- Lecture 49 - Union and intersections of sets - Part 3
- Lecture 50 - Cardinality of Union of two sets - Part 1
- Lecture 51 - Cardinality of Union of two sets - Part 2
- Lecture 52 - Cardinality of Union of three sets
- Lecture 53 - Power Set - Part 1
- Lecture 54 - Power set - Part 2
- Lecture 55 - Power set - Part 3
- Lecture 56 - Connection between Binomial Theorem and Power Sets
- Lecture 57 - Power set - Problems
- Lecture 58 - Complement of a set
- Lecture 59 - De Morgan's Laws - Part 1
- Lecture 60 - De Morgan's Laws - Part 2
- Lecture 61 - A proof technique
- Lecture 62 - De Morgan's Laws - Part 3
- Lecture 63 - De Morgan's Laws - Part 4
- Lecture 64 - Set difference - Part 1
- Lecture 65 - Set difference - Part 2
- Lecture 66 - Symmetric difference
- Lecture 67 - History
- Lecture 68 - Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Motivational example
- Lecture 70 - Introduction to Statements
- Lecture 71 - Examples and Non-examples of Statements
- Lecture 72 - Introduction to Negation
- Lecture 73 - Negation - Explanation
- Lecture 74 - Negation - Truthtable
- Lecture 75 - Examples for Negation
- Lecture 76 - Motivation for OR operator
- Lecture 77 - Introduction to OR operator
- Lecture 78 - Truthtable for OR operator
- Lecture 79 - OR operator for 3 Variables
- Lecture 80 - Truthtable for AND operator
- Lecture 81 - AND operator for 3 Variables
- Lecture 82 - Primitive and Compound statements - Part 1
- Lecture 83 - Primitive and Compound statements - Part 2
- Lecture 84 - Problems involving NOT, OR and AND operators
- Lecture 85 - Introduction to implication
- Lecture 86 - Examples and Non-examples of Implication - Part 1
- Lecture 87 - Examples and Non-examples of Implication - Part 2
- Lecture 88 - Explanation of Implication
- Lecture 89 - Introduction to Double Implication
- Lecture 90 - Explanation of Double Implication
- Lecture 91 - Converse, Inverse and Contrapositive
- Lecture 92 - XOR operator - Part 1
- Lecture 93 - XOR operator - Part 2
- Lecture 94 - XOR operator - Part 3
- Lecture 95 - Problems
- Lecture 96 - Tautology, Contradiction - Part 1
- Lecture 97 - Tautology, Contradiction - Part 2
- Lecture 98 - Tautology, Contradiction - Part 3
- Lecture 99 - SAT Problem - Part 1
- Lecture 100 - SAT Problem - Part 2
- Lecture 101 - Logical Equivalence - Part 1
- Lecture 102 - Logical Equivalence - Part 2
- Lecture 103 - Logical Equivalence - Part 3
- Lecture 104 - Logical Equivalence - Part 4
- Lecture 105 - Motivation for laws of logic
- Lecture 106 - Double negation - Part 1
- Lecture 107 - Double negation - Part 2

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- Lecture 108 - Laws of Logic
- Lecture 109 - De Morgan's Law - Part 1
- Lecture 110 - De Morgan's Law - Part 2
- Lecture 111 - Rules of Inferences - Part 1
- Lecture 112 - Rules of Inferences - Part 2
- Lecture 113 - Rules of Inferences - Part 3
- Lecture 114 - Rules of Inferences - Part 4
- Lecture 115 - Rules of Inferences - Part 5
- Lecture 116 - Rules of Inferences - Part 6
- Lecture 117 - Rules of Inferences - Part 7
- Lecture 118 - Conclusion
- Lecture 119 - Introduction to Relation
- Lecture 120 - Graphical Representation of a Relation
- Lecture 121 - Various sets
- Lecture 122 - Matrix Representation of a Relation
- Lecture 123 - Relation - An Example
- Lecture 124 - Cartesian Product
- Lecture 125 - Set Representation of a Relation
- Lecture 126 - Revisiting Representations of a Relation
- Lecture 127 - Examples of Relations
- Lecture 128 - Number of relations - Part 1
- Lecture 129 - Number of relations - Part 2
- Lecture 130 - Reflexive relation - Introduction
- Lecture 131 - Example of a Reflexive relation
- Lecture 132 - Reflexive relation - Matrix representation
- Lecture 133 - Number of Reflexive relations
- Lecture 134 - Symmetric Relation - Introduction
- Lecture 135 - Symmetric Relation - Matrix representation
- Lecture 136 - Symmetric Relation - Examples and non examples
- Lecture 137 - Parallel lines revisited
- Lecture 138 - Number of symmetric relations - Part 1
- Lecture 139 - Number of symmetric relations - Part 2
- Lecture 140 - Examples of Reflexive and Symmetric Relations
- Lecture 141 - Pattern
- Lecture 142 - Transitive relation - Examples and non examples
- Lecture 143 - Antisymmetric relation
- Lecture 144 - Examples of Transitive and Antisymmetric Relation
- Lecture 145 - Antisymmetric - Graphical representation
- Lecture 146 - Antisymmetric - Matrix representation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 147 - Number of Antisymmetric relations
- Lecture 148 - Condition for relation to be reflexive
- Lecture 149 - Few notations
- Lecture 150 - Condition for relation to be reflexive
- Lecture 151 - Condition for relation to be reflexive
- Lecture 152 - Condition for relation to be symmetric
- Lecture 153 - Condition for relation to be symmetric
- Lecture 154 - Condition for relation to be antisymmetric
- Lecture 155 - Equivalence relation
- Lecture 156 - Equivalence relation - Example 4
- Lecture 157 - Partition - Part 1
- Lecture 158 - Partition - Part 2
- Lecture 159 - Partition - Part 3
- Lecture 160 - Partition - Part 4
- Lecture 161 - Partition - Part 5
- Lecture 162 - Partition - Part 6
- Lecture 163 - Motivational Example - 1
- Lecture 164 - Motivational Example - 2
- Lecture 165 - Commonality in examples
- Lecture 166 - Motivational Example - 3
- Lecture 167 - Example - 4 Explanation
- Lecture 168 - Introduction to functions
- Lecture 169 - Definition of a function - Part 1
- Lecture 170 - Definition of a function - Part 2
- Lecture 171 - Definition of a function - Part 3
- Lecture 172 - Relations vs Functions - Part 1
- Lecture 173 - Relations vs Functions - Part 2
- Lecture 174 - Introduction to One-One Function
- Lecture 175 - One-One Function - Example 1
- Lecture 176 - One-One Function - Example 2
- Lecture 177 - One-One Function - Example 3
- Lecture 178 - Proving a Function is One-One
- Lecture 179 - Examples and Non- examples of One-One function
- Lecture 180 - Cardinality condition in One-One function - Part 1
- Lecture 181 - Cardinality condition in One-One function - Part 2
- Lecture 182 - Introduction to Onto Function - Part 1
- Lecture 183 - Introduction to Onto Function - Part 2
- Lecture 184 - Definition of Onto Function
- Lecture 185 - Examples of Onto Function

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- Lecture 186 - Cardinality condition in Onto function - Part 1
- Lecture 187 - Cardinality condition in Onto function - Part 2
- Lecture 188 - Introduction to Bijection
- Lecture 189 - Examples of Bijection
- Lecture 190 - Cardinality condition in Bijection - Part 1
- Lecture 191 - Cardinality condition in Bijection - Part 2
- Lecture 192 - Counting number of functions
- Lecture 193 - Number of functions
- Lecture 194 - Number of One-One functions - Part 1
- Lecture 195 - Number of One-One functions - Part 2
- Lecture 196 - Number of One-One functions - Part 3
- Lecture 197 - Number of Onto functions
- Lecture 198 - Number of Bijections
- Lecture 199 - Counting number of functions.
- Lecture 200 - Motivation for Composition of functions - Part 1
- Lecture 201 - Motivation for Composition of functions - Part 2
- Lecture 202 - Definition of Composition of functions
- Lecture 203 - Why study Composition of functions
- Lecture 204 - Example of Composition of functions - Part 1
- Lecture 205 - Example of Composition of functions - Part 2
- Lecture 206 - Motivation for Inverse functions
- Lecture 207 - Inverse functions
- Lecture 208 - Examples of Inverse functions
- Lecture 209 - Application of inverse functions - Part 1
- Lecture 210 - Three stories
- Lecture 211 - Three stories - Connecting the dots
- Lecture 212 - Mathematical induction - An illustration
- Lecture 213 - Mathematical Induction - Its essence
- Lecture 214 - Mathematical Induction - The formal way
- Lecture 215 - MI - Sum of odd numbers
- Lecture 216 - MI - Sum of powers of 2
- Lecture 217 - MI - Inequality 1
- Lecture 218 - MI - Inequality 1 (solution)
- Lecture 219 - MI - To prove divisibility
- Lecture 220 - MI - To prove divisibility (solution)
- Lecture 221 - MI - Problem on satisfying inequalities
- Lecture 222 - MI - Problem on satisfying inequalities (solutions)
- Lecture 223 - MI - Inequality 2
- Lecture 224 - MI - Inequality 2 solution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 225 - Mathematical Induction - Example 9
- Lecture 226 - Mathematical Induction - Example 10 solution
- Lecture 227 - Binomial Coefficients - Proof by induction
- Lecture 228 - Checker board and Triominoes - A puzzle
- Lecture 229 - Checker board and triominoes - Solution
- Lecture 230 - Mathematical induction - An important note
- Lecture 231 - Mathematical Induction - A false proof
- Lecture 232 - A false proof - Solution
- Lecture 233 - Motivation for Pigeonhole Principle
- Lecture 234 - Group of n people
- Lecture 235 - Set of n integers
- Lecture 236 - 10 points on an equilateral triangle
- Lecture 237 - Pigeonhole Principle - A result
- Lecture 238 - Consecutive integers
- Lecture 239 - Consecutive integers solution
- Lecture 240 - Matching initials
- Lecture 241 - Matching initials - Solution
- Lecture 242 - Numbers adding to 9
- Lecture 243 - Numbers adding to 9 - Solution
- Lecture 244 - Deck of cards
- Lecture 245 - Deck of cards - Solution
- Lecture 246 - Number of errors
- Lecture 247 - Number of errors - Solution
- Lecture 248 - Puzzle - Challenge for you
- Lecture 249 - Friendship - an interesting property
- Lecture 250 - Connectedness through Connecting people
- Lecture 251 - Traversing the bridges
- Lecture 252 - Three utilities problem
- Lecture 253 - Coloring the India map
- Lecture 254 - Definition of a Graph
- Lecture 255 - Degree and degree sequence
- Lecture 256 - Relation between number of edges and degrees
- Lecture 257 - Relation between number of edges and degrees - Proof
- Lecture 258 - Hand shaking lemma - Corollary
- Lecture 259 - Problems based on Hand shaking lemma
- Lecture 260 - Havel Hakimi theorem - Part 1
- Lecture 261 - Havel Hakimi theorem - Part 2
- Lecture 262 - Havel Hakimi theorem - Part 3
- Lecture 263 - Havel Hakimi theorem - Part 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 264 - Havel Hakimi theorem - Part 5
- Lecture 265 - Regular graph and irregular graph
- Lecture 266 - Walk
- Lecture 267 - Trail
- Lecture 268 - Path and closed path
- Lecture 269 - Definitions revisited
- Lecture 270 - Examples of walk, trail and path
- Lecture 271 - Cycle and circuit
- Lecture 272 - Example of cycle and circuit
- Lecture 273 - Relation between walk and path
- Lecture 274 - Relation between walk and path - An induction proof
- Lecture 275 - Subgraph
- Lecture 276 - Spanning and induced subgraph
- Lecture 277 - Spanning and induced subgraph - A result
- Lecture 278 - Introduction to Tree
- Lecture 279 - Connected and Disconnected graphs
- Lecture 280 - Property of a cycle
- Lecture 281 - Edge condition for connectivity
- Lecture 282 - Connecting connectedness and path
- Lecture 283 - Connecting connectedness and path - An illustration
- Lecture 284 - Cut vertex
- Lecture 285 - Cut edge
- Lecture 286 - Illustration of cut vertices and cut edges
- Lecture 287 - NetworkX - Need of the hour
- Lecture 288 - Introduction to Python - Installation
- Lecture 289 - Introduction to Python - Basics
- Lecture 290 - Introduction to NetworkX
- Lecture 291 - Story so far - Using NetworkX
- Lecture 292 - Directed, weighted and multi graphs
- Lecture 293 - Illustration of Directed, weighted and multi graphs
- Lecture 294 - Graph representations - Introduction
- Lecture 295 - Adjacency matrix representation
- Lecture 296 - Incidence matrix representation
- Lecture 297 - Isomorphism - Introduction
- Lecture 298 - Isomorphic graphs - An illustration
- Lecture 299 - Isomorphic graphs - A challenge
- Lecture 300 - Non-isomorphic graphs
- Lecture 301 - Isomorphism - A question
- Lecture 302 - Complement of a Graph - Introduction

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- Lecture 303 - Complement of a Graph - Illustration
- Lecture 304 - Self complement
- Lecture 305 - Complement of a disconnected graph is connected
- Lecture 306 - Complement of a disconnected graph is connected - Solution
- Lecture 307 - Which is more? Connected graphs or disconnected graphs?
- Lecture 308 - Bipartite graphs.
- Lecture 309 - Bipartite graphs
- Lecture 310 - Bipartite graphs - A puzzle
- Lecture 311 - Bipartite graphs - Converse part of the puzzle
- Lecture 312 - Definition of Eulerian Graph
- Lecture 313 - Illustration of Eulerian graph
- Lecture 314 - Non- example of Eulerian graph
- Lecture 315 - Litmus test for an Eulerian graph
- Lecture 316 - Why even degree?
- Lecture 317 - Proof for even degree implies graph is Eulerian
- Lecture 318 - A condition for Eulerian trail
- Lecture 319 - Why the name Eulerian
- Lecture 320 - Can you traverse all locations?
- Lecture 321 - Definition of Hamiltonian graphs
- Lecture 322 - Examples of Hamiltonian graphs
- Lecture 323 - Hamiltonian graph - A result
- Lecture 324 - A result on connectedness
- Lecture 325 - A result on Path
- Lecture 326 - Dirac's Theorem
- Lecture 327 - Dirac's theorem - A note
- Lecture 328 - Ore's Theorem
- Lecture 329 - Dirac's Theorem v/s Ore's Theorem
- Lecture 330 - Eulerian and Hamiltonian Are they related
- Lecture 331 - Importance of Hamiltonian graphs in Computer science
- Lecture 332 - Constructing non intersecting roads
- Lecture 333 - Definition of a Planar graph
- Lecture 334 - Examples of Planar graphs
- Lecture 335 -  $V - E + R = 2$
- Lecture 336 - Illustration of  $V - E + R = 2$
- Lecture 337 -  $V - E + R = 2$ ; Use induction
- Lecture 338 - Proof of  $V - E + R = 2$
- Lecture 339 - Famous non-planar graphs
- Lecture 340 - Litmus test for planarity
- Lecture 341 - Planar graphs - Inequality 1

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- Lecture 342 - 3 Utilities problem - Revisited
- Lecture 343 - Complete graph on 5 vertices is non-planar - Proof
- Lecture 344 - Prisoners and cells
- Lecture 345 - Prisoners example and Proper coloring
- Lecture 346 - Chromatic number of a graph
- Lecture 347 - Examples on Proper coloring
- Lecture 348 - Recalling the India map problem
- Lecture 349 - Recalling the India map problem - Solution
- Lecture 350 - NetworkX - Digraphs
- Lecture 351 - NetworkX - Adjacency matrix
- Lecture 352 - NetworkX - Random graphs
- Lecture 353 - NetworkX - Subgraph
- Lecture 354 - NetworkX - Isomorphic graphs Part 1
- Lecture 355 - NetworkX - Isomorphic graphs Part 2
- Lecture 356 - NetworkX - Isomorphic graphs
- Lecture 357 - NetworkX - Graph complement
- Lecture 358 - NetworkX - Eulerian graphs
- Lecture 359 - NetworkX - Bipartite graphs
- Lecture 360 - NetworkX - Coloring
- Lecture 361 - Counting in a creative way
- Lecture 362 - Example 1 - Fun with words
- Lecture 363 - Words and the polynomial
- Lecture 364 - Words and the polynomial - Explained
- Lecture 365 - Example 2 - Picking five balls
- Lecture 366 - Picking five balls - Solution
- Lecture 367 - Picking five balls - Another version
- Lecture 368 - Definition of Generating function
- Lecture 369 - Generating function examples - Part 1
- Lecture 370 - Generating function examples - Part 2
- Lecture 371 - Generating function examples - Part 3
- Lecture 372 - Binomial expansion - A generating function
- Lecture 373 - Binomial expansion - Explained
- Lecture 374 - Picking 7 balls - The naive way
- Lecture 375 - Picking 7 balls - The creative way
- Lecture 376 - Generating functions - Problem 1
- Lecture 377 - Generating functions - Problem 2
- Lecture 378 - Generating functions - Problem 3
- Lecture 379 - Why Generating function?
- Lecture 380 - Introduction to Advanced Counting

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 381 - Example 1
- Lecture 382 - Inclusion-Exclusion Formula
- Lecture 383 - Proof of Inclusion - Exclusion formula
- Lecture 384 - Example 2
- Lecture 385 - Example 3
- Lecture 386 - Example 4
- Lecture 387 - Example 5
- Lecture 388 - Example 6
- Lecture 389 - A tip in solving problems
- Lecture 390 - Example 7
- Lecture 391 - Example 8
- Lecture 392 - Example 10
- Lecture 393 - Example 11
- Lecture 394 - Example 11
- Lecture 395 - Example 12
- Lecture 396 - Number of Onto Functions.
- Lecture 397 - Formula for Number of Onto Functions
- Lecture 398 - Example 13
- Lecture 399 - Example 14
- Lecture 400 - Derangements
- Lecture 401 - Derangements of 4 numbers
- Lecture 402 - Example 15
- Lecture 403 - Example 16
- Lecture 404 - Example 17
- Lecture 405 - Example 18
- Lecture 406 - Example 19
- Lecture 407 - Placing rooks on the chessboard
- Lecture 408 - Rook Polynomial
- Lecture 409 - Rook Polynomial
- Lecture 410 - Motivation for recurrence relation
- Lecture 411 - Getting started with recurrence relations
- Lecture 412 - What is a recurrence relation?
- Lecture 413 - Compound Interest as a recurrence relation
- Lecture 414 - Examples of recurrence relations
- Lecture 415 - Example - Number of ways of climbing steps
- Lecture 416 - Number of ways of climbing steps
- Lecture 417 - Example - Rabbits on an island
- Lecture 418 - Example - n-bit string
- Lecture 419 - Example - n-bit string without consecutive zero

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 420 - Solving Linear Recurrence Relations - A theorem
- Lecture 421 - A note on the proof
- Lecture 422 - Solving recurrence relation - Example 1
- Lecture 423 - Solving recurrence relation - Example 2
- Lecture 424 - Fibonacci Sequence
- Lecture 425 - Introduction to Fibonacci sequence
- Lecture 426 - Solution of Fibonacci sequence
- Lecture 427 - A basic introduction to 'complexity'
- Lecture 428 - Intuition for 'complexity'
- Lecture 429 - Visualizing complexity order as a graph
- Lecture 430 - Tower of Hanoi
- Lecture 431 - Recurrence relation of Tower of Hanoi
- Lecture 432 - Solution for the recurrence relation of Tower of Hanoi
- Lecture 433 - A searching technique
- Lecture 434 - Recurrence relation for Binary search
- Lecture 435 - Solution for the recurrence relation of Binary search
- Lecture 436 - Example
- Lecture 437 - Example
- Lecture 438 - Door knock example and Merge sort
- Lecture 439 - Introduction to Merge sort - 1
- Lecture 440 - Recurrence relation for Merge sort
- Lecture 441 - Introduction to advanced topics
- Lecture 442 - Introduction to Chromatic polynomial
- Lecture 443 - Chromatic polynomial of complete graphs
- Lecture 444 - Chromatic polynomial of cycle on 4 vertices - Part 1
- Lecture 445 - Chromatic polynomial of cycle on 4 vertices - Part 2
- Lecture 446 - Correspondence between partition and generating functions
- Lecture 447 - Correspondence between partition and generating functions
- Lecture 448 - Distinct partitions and odd partitions
- Lecture 449 - Distinct partitions and generating functions
- Lecture 450 - Odd partitions and generating functions
- Lecture 451 - Distinct partitions equals odd partitions
- Lecture 452 - Distinct partitions equals odd partitions
- Lecture 453 - Why 'partitions' to 'polynomial'?
- Lecture 454 - Example
- Lecture 455 - Motivation for exponential generating function
- Lecture 456 - Recurrence relation
- Lecture 457 - Introduction to Group Theory
- Lecture 458 - Uniqueness of the identity element

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 459 - Formal definition of a Group
- Lecture 460 - Groups
- Lecture 461 - Groups
- Lecture 462 - Groups
- Lecture 463 - Subgroup
- Lecture 464 - Lagrange's theorem
- Lecture 465 - Summary
- Lecture 466 - Conclusion



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Deep Learning

Subject Co-ordinator - Prof.Mitesh Khapra

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Biological Neuron
- Lecture 2 - From Spring to Winter of AI
- Lecture 3 - The Deep Revival
- Lecture 4 - From Cats to Convolutional Neural Networks
- Lecture 5 - Faster, higher, stronger
- Lecture 6 - The Curious Case of Sequences
- Lecture 7 - Beating humans at their own games (literally)
- Lecture 8 - The Madness (2013)
- Lecture 9 - (Need for) Sanity
- Lecture 10 - Motivation from Biological Neurons
- Lecture 11 - McCulloch Pitts Neuron, Thresholding Logic
- Lecture 12 - Perceptrons
- Lecture 13 - Error and Error Surfaces
- Lecture 14 - Perceptron Learning Algorithm
- Lecture 15 - Proof of Convergence of Perceptron Learning Algorithm
- Lecture 16 - Deep Learning (CS7015)
- Lecture 17 - Deep Learning (CS7015)
- Lecture 18 - Deep Learning (CS7015)
- Lecture 19 - Deep Learning (CS7015)
- Lecture 20 - Deep Learning (CS7015)
- Lecture 21 - Deep Learning (CS7015)
- Lecture 22 - Deep Learning (CS7015)
- Lecture 23 - Feedforward Neural Networks (a.k.a multilayered network of neurons)
- Lecture 24 - Learning Parameters of Feedforward Neural Networks (Intuition)
- Lecture 25 - Output functions and Loss functions
- Lecture 26 - Backpropagation (Intuition)
- Lecture 27 - Backpropagation
- Lecture 28 - Backpropagation
- Lecture 29 - Backpropagation

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- Lecture 30 - Backpropagation
- Lecture 31 - Derivative of the activation function
- Lecture 32 - Information content, Entropy and cross entropy
- Lecture 33 - Recap
- Lecture 34 - Contours Maps
- Lecture 35 - Momentum based Gradient Descent
- Lecture 36 - Nesterov Accelerated Gradient Descent
- Lecture 37 - Stochastic And Mini-Batch Gradient Descent
- Lecture 38 - Tips for Adjusting Learning Rate and Momentum
- Lecture 39 - Line Search
- Lecture 40 - Gradient Descent with Adaptive Learning Rate
- Lecture 41 - Bias Correction in Adam
- Lecture 42 - Eigenvalues and Eigenvectors
- Lecture 43 - Linear Algebra
- Lecture 44 - Eigenvalue Decomposition
- Lecture 45 - Principal Component Analysis and its Interpretations
- Lecture 46 - PCA
- Lecture 47 - PCA
- Lecture 48 - PCA
- Lecture 49 - PCA
- Lecture 50 - Singular Value Decomposition
- Lecture 51 - Introduction to Autoencoders
- Lecture 52 - Link between PCA and Autoencoders
- Lecture 53 - Regularization in autoencoders (Motivation)
- Lecture 54 - Denoising Autoencoders
- Lecture 55 - Sparse Autoencoders
- Lecture 56 - Contractive Autoencoders
- Lecture 57 - Bias and Variance
- Lecture 58 - Train error vs Test error
- Lecture 59 - Train error vs Test error (Recap)
- Lecture 60 - True error and Model complexity
- Lecture 61 - L2 regularization
- Lecture 62 - Dataset augmentation
- Lecture 63 - Parameter sharing and tying
- Lecture 64 - Adding Noise to the inputs
- Lecture 65 - Adding Noise to the outputs
- Lecture 66 - Early stopping
- Lecture 67 - Ensemble Methods
- Lecture 68 - Dropout

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- Lecture 69 - A quick recap of training deep neural networks
- Lecture 70 - Unsupervised pre-training
- Lecture 71 - Better activation functions
- Lecture 72 - Better initialization strategies
- Lecture 73 - Batch Normalization
- Lecture 74 - One-hot representations of words
- Lecture 75 - Distributed Representations of words
- Lecture 76 - SVD for learning word representations
- Lecture 77 - SVD for learning word representations (Continued...)
- Lecture 78 - Continuous bag of words model
- Lecture 79 - Skip-gram model
- Lecture 80 - Skip-gram model (Continued...)
- Lecture 81 - Contrastive estimation
- Lecture 82 - Hierarchical softmax
- Lecture 83 - GloVe representations
- Lecture 84 - Evaluating word representations
- Lecture 85 - Relation between SVD and Word2Vec
- Lecture 86 - The convolution operation
- Lecture 87 - Relation between input size, output size and filter size
- Lecture 88 - Convolutional Neural Networks
- Lecture 89 - Convolutional Neural Networks (Continued...)
- Lecture 90 - CNNs (success stories on ImageNet)
- Lecture 91 - CNNs (success stories on ImageNet) (Continued...)
- Lecture 92 - Image Classification continued (GoogLeNet and ResNet)
- Lecture 93 - Visualizing patches which maximally activate a neuron
- Lecture 94 - Visualizing filters of a CNN
- Lecture 95 - Occlusion experiments
- Lecture 96 - Finding influence of input pixels using backpropagation
- Lecture 97 - Guided Backpropagation
- Lecture 98 - Optimization over images
- Lecture 99 - Create images from embeddings
- Lecture 100 - Deep Dream
- Lecture 101 - Deep Art
- Lecture 102 - Fooling Deep Convolutional Neural Networks
- Lecture 103 - Sequence Learning Problems
- Lecture 104 - Recurrent Neural Networks
- Lecture 105 - Backpropagation through time
- Lecture 106 - The problem of Exploding and Vanishing Gradients
- Lecture 107 - Some Gory Details

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Selective Read, Selective Write, Selective Forget - The Whiteboard Analogy
- Lecture 109 - Long Short Term Memory (LSTM) and Gated Recurrent Units (GRUs)
- Lecture 110 - How LSTMs avoid the problem of vanishing gradients
- Lecture 111 - How LSTMs avoid the problem of vanishing gradients (Continued...)
- Lecture 112 - Introduction to Encoder Decoder Models
- Lecture 113 - Applications of Encoder Decoder models
- Lecture 114 - Attention Mechanism
- Lecture 115 - Attention Mechanism (Continued...)
- Lecture 116 - Attention over images
- Lecture 117 - Hierarchical Attention

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Cryptology

Subject Co-ordinator - Dr. Sugata Gangopadhyay

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction Caesar cipher
- Lecture 2 - Modular arithmetic, shift cipher
- Lecture 3 - Affine Cipher, Vigenere Cipher
- Lecture 4 - Perfect secrecy, Application of Shift Cipher
- Lecture 5 - Problem Discussion on Affine cipher and Perfect Secrecy
- Lecture 6 - Product Cipher, Block Cipher, Modes of Operation for Block Cipher
- Lecture 7 - Substitution Permutation network, Feistel Cipher
- Lecture 8 - S-Box Theory
- Lecture 9 - Cryptanalysis and its Variants, Linear Attack
- Lecture 10 - Problem Discussion
- Lecture 11 - Public Key Cryptology Introduction RSA Cryptosystem
- Lecture 12 - Complexity analysis of Euclidian Algorithm and RSA Cryptosystem square and multiply algorithm
- Lecture 13 - Primality testing
- Lecture 14 - Efficient Computation of Jacobi Symbol Primality Testing
- Lecture 15 - Problem Discussion on Jacobi Symbol Calculation and RSA Cryptosystem
- Lecture 16 - Cryptographic hash function
- Lecture 17 - Random Oracle model, Security of hash functions
- Lecture 18 - Randomized Algorithm and its application on Preimage resistance and collision resistance
- Lecture 19 - Iterated Hash Functions
- Lecture 20 - Problem Discussion

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Combinatorics

Subject Co-ordinator - Dr. L. Sunil Chandran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Pigeon hole principle - (Part 1)
- Lecture 2 - Pigeon hole principle - (Part 2)
- Lecture 3 - Pigeon hole principle - (Part 3)
- Lecture 4 - Pigeon hole principle - (Part 4)
- Lecture 5 - Elementary concepts and basic counting principles
- Lecture 6 - Elementary concepts; Binomial theorem; Bijective proofs - Part (1)
- Lecture 7 - Bijective proofs â Part (2)
- Lecture 8 - Bijective proofs - Part (3); Properties of binomial coefficients; Combinatorial identities - Part (1)
- Lecture 9 - Combinatorial identities - Part (2); Permutations of multisets â Part (1)
- Lecture 10 - Permutations of multisets â Part (2)
- Lecture 11 - Multinomial Theorem, Combinations of Multisets â Part (1)
- Lecture 12 - Combinations of Multisets - Part (2)
- Lecture 13 - Combinations of Multisets â Part (3), Bounds for binomial coefficients
- Lecture 14 - Sterlingâ s Formula, Generalization of Binomial coefficients - Part (1)
- Lecture 15 - Generalization of Binomial coefficients - Part (2)
- Lecture 16 - Generalization of Binomial coefficients - Part (3); Double counting - Part (1)
- Lecture 17 - Double counting - Part (2)
- Lecture 18 - Hallâ s Theorem for regular bipartite graphs; Inclusion exclusion principle - Part (1)
- Lecture 19 - Inclusion exclusion principle - Part (2)
- Lecture 20 - Inclusion exclusion principle - Part (3)
- Lecture 21 - Inclusion exclusion principle - Part (4)
- Lecture 22 - Inclusion exclusion principle - Part (5)
- Lecture 23 - Recurrence Relations - Part (1)
- Lecture 24 - Recurrence Relations - Part (2)
- Lecture 25 - Recurrence Relations - Part (3)
- Lecture 26 - Recurrence Relations - Part (4)
- Lecture 27 - Recurrence Relations - Part (5)
- Lecture 28 - Generating functions - Part (1)
- Lecture 29 - Generating functions - Part (2)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solving recurrence relations using generating functions - Part (1)
- Lecture 31 - Solving recurrence relations using generating functions - Part (2)
- Lecture 32 - Exponential generating functions - Part (1)
- Lecture 33 - Exponential generating functions - Part (2), Partition Number - Part (1)
- Lecture 34 - Partition Number - Part (2)
- Lecture 35 - Partition Number - Part (3)
- Lecture 36 - Partition Number - Part (4); Catalan Numbers - Part (1)
- Lecture 37 - Catalans Numbers - Part (2)
- Lecture 38 - Catalan Numbers - Part (3), Sterling numbers of the 2nd kind
- Lecture 39 - Difference Sequences
- Lecture 40 - Sterling Numbers
- Lecture 41 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Compiler Design (Prof. Y.N. Srikanth)

Subject Co-ordinator - Prof. Y.N. Srikanth

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - An Overview of a Compiler - Part 1

Lecture 2 - An Overview of a Compiler - Part 2 and Run-Time Environments - Part 1

Lecture 3 - An Overview of a Compiler - Part 2 and Run-Time Environments - Part 1

Lecture 4 - Run-Time Environments - Part 2

Lecture 5 - Run-Time Environments - Part 3 and Local Optimizations - Part 1

Lecture 6 - Run-Time Environments - Part 3 and Local Optimizations - Part 1

Lecture 7 - Local Optimizations - Part 2 and Code Generation - Part 1

Lecture 8 - Local Optimizations - Part 2 and Code Generation - Part 1

Lecture 9 - Code Generation - Part 1

Lecture 10 - Code Generation - Part 2

Lecture 11 - Code Generation - Part 3 and Global Register Allocation - Part 1

Lecture 12 - Code Generation - Part 3 and Global Register Allocation - Part 1

Lecture 13 - Global Register Allocation - Part 2

Lecture 14 - Global Register Allocation - Part 3 and Implementing Object-Oriented Languages - Part 1

Lecture 15 - Global Register Allocation - Part 3 and Implementing Object-Oriented Languages - Part 1

Lecture 16 - Implementing Object-Oriented Languages - Part 2 and Introduction to Machine-Independent Optimizations

Lecture 17 - Implementing Object-Oriented Languages - Part 2 and Introduction to Machine-Independent Optimizations

Lecture 18 - Introduction to Machine-Independent Optimizations - Part 2 and Data-Flow Analysis - Part 1

Lecture 19 - Introduction to Machine-Independent Optimizations - Part 2 and Data-Flow Analysis - Part 1

Lecture 20 - Data-Flow Analysis - Part 2

Lecture 21 - Data-Flow Analysis - Part 3 and Control-Flow Analysis - Part 1

Lecture 22 - Data-Flow Analysis - Part 3 and Control-Flow Analysis - Part 1

Lecture 23 - Control-Flow Analysis - Part 2

Lecture 24 - Machine-Independent Optimizations - Part 1

Lecture 25 - Machine-Independent Optimizations - Part 2

Lecture 26 - Machine-Independent Optimizations - Part 3 and Data-Flow Analysis

Lecture 27 - Machine-Independent Optimizations - Part 3 and Data-Flow Analysis

Lecture 28 - Data-Flow Analysis

Lecture 29 - Data-Flow Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Partial Redundancy Elimination - Part 2
- Lecture 31 - The Static Single Assignment Form
- Lecture 32 - The Static Single Assignment Form
- Lecture 33 - The Static Single Assignment Form
- Lecture 34 - Automatic Parallelization - Part 1
- Lecture 35 - Automatic Parallelization - Part 2
- Lecture 36 - Automatic Parallelization - Part 3
- Lecture 37 - Automatic Parallelization - Part 4
- Lecture 38 - Instruction Scheduling - Part 1
- Lecture 39 - Instruction Scheduling - Part 2
- Lecture 40 - Instruction Scheduling - Part 3
- Lecture 41 - Software Pipelining
- Lecture 42 - Energy-Aware Software Systems - Part 1
- Lecture 43 - Energy-Aware Software Systems - Part 2
- Lecture 44 - Energy-Aware Software Systems - Part 3
- Lecture 45 - Energy-Aware Software Systems - Part 4
- Lecture 46 - Just-In-Time Compilation and Optimizations for .NET CLR
- Lecture 47 - Garbage Collection
- Lecture 48 - Interprocedural Data-Flow Analysis
- Lecture 49 - Worst Case Execution Time - Part 1
- Lecture 50 - Worst Case Execution Time - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Graph Theory

Subject Co-ordinator - Dr. L. Sunil Chandran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Matchings
- Lecture 3 - More on Hall's theorem and some applications
- Lecture 4 - Tutte's theorem on existence of a perfect matching
- Lecture 5 - More on Tutte's theorem
- Lecture 6 - More on Matchings
- Lecture 7 - Dominating set, path cover
- Lecture 8 - Gallai's Millgram theorem, Dilworth's theorem
- Lecture 9 - Connectivity
- Lecture 10 - Menger's theorem
- Lecture 11 - More on connectivity
- Lecture 12 - Minors, topological minors and more on k-linkedness
- Lecture 13 - Vertex coloring
- Lecture 14 - More on vertex coloring
- Lecture 15 - Edge coloring
- Lecture 16 - Proof of Vizing's theorem, Introduction to planarity
- Lecture 17 - 5-coloring planar graphs, Kuratowski's theorem
- Lecture 18 - Proof of Kuratowski's theorem, List coloring
- Lecture 19 - List chromatic index
- Lecture 20 - Adjacency polynomial of a graph and combinatorial Nullstellensatz
- Lecture 21 - Chromatic polynomial, k-critical graphs
- Lecture 22 - Gallai-Roy theorem, Acyclic coloring, Hadwiger's conjecture
- Lecture 23 - Perfect graphs
- Lecture 24 - Interval graphs, chordal graphs
- Lecture 25 - Proof of weak perfect graph theorem (WPGT)
- Lecture 26 - Second proof of WPGT, Some non-perfect graph classes
- Lecture 27 - More special classes of graphs
- Lecture 28 - Boxicity, Sphericity, Hamiltonian circuits
- Lecture 29 - More on Hamiltonicity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Chvatal's theorem, toughness, Hamiltonicity and 4-color conjecture
- Lecture 31 - Network flows
- Lecture 32 - More on network flows
- Lecture 33 - Circulations and tensions
- Lecture 34 - More on circulations and tensions, flow number and Tutte's flow conjectures
- Lecture 35 - Random graphs and probabilistic method
- Lecture 36 - Probabilistic method
- Lecture 37 - Probabilistic method
- Lecture 38 - Probabilistic method
- Lecture 39 - Graph minors and Hadwiger's conjecture
- Lecture 40 - More on graph minors, tree decompositions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - High Performance Computing

Subject Co-ordinator - Prof. Mathew Jacob

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Programs and Data  
Lecture 2 - Data Representation  
Lecture 3 - Registers and Memory  
Lecture 4 - Instructions, Addressing Modes  
Lecture 5 - A RISC Instruction Set  
Lecture 6 - A RISC Instruction Set (Continued...)  
Lecture 7 - Function Call and Return  
Lecture 8 - Function Call and Return (Continued...)  
Lecture 9 - Instruction Execution  
Lecture 10 - Instruction Execution (Continued...)  
Lecture 11 - Software organization  
Lecture 12 - System Calls  
Lecture 13 - Virtual memory  
Lecture 14 - Virtual memory (Continued...)  
Lecture 15 - Virtual Memory (Continued...)  
Lecture 16 - Process  
Lecture 17 - Process scheduling  
Lecture 18 - Process lifetime  
Lecture 19 - Interprocess communication  
Lecture 20 - Concurrent programming  
Lecture 21 - Pipelining  
Lecture 22 - Pipeline hazards  
Lecture 23 - Pipeline hazards (Continued...)  
Lecture 24 - Pipeline hazards (Continued...)  
Lecture 25 - Cache memory  
Lecture 26 - Memory hierarchy  
Lecture 27 - Cache operation  
Lecture 28 - Cache operation (Continued)  
Lecture 29 - Cache aware programming

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cache aware programming (Continued...)
- Lecture 31 - More on cache
- Lecture 32 - Measuring time
- Lecture 33 - Program Profiling
- Lecture 34 - Secondary storage
- Lecture 35 - Files and disks
- Lecture 36 - Directories
- Lecture 37 - Protection and Performance
- Lecture 38 - Parallel architecture
- Lecture 39 - Cache coherence
- Lecture 40 - MPI programming
- Lecture 41 - MPI programming (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Numerical Optimization

Subject Co-ordinator - Dr. Shirish K. Shevade

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Mathematical Background
- Lecture 3 - Mathematical Background (Continued...)
- Lecture 4 - One Dimensional Optimization - Optimality Conditions
- Lecture 5 - One Dimensional Optimization (Continued...)
- Lecture 6 - Convex Sets
- Lecture 7 - Convex Sets (Continued...)
- Lecture 8 - Convex Functions
- Lecture 9 - Convex Functions (Continued...)
- Lecture 10 - Multi Dimensional Optimization - Optimality Conditions, Conceptual Algorithm
- Lecture 11 - Line Search Techniques
- Lecture 12 - Global Convergence Theorem
- Lecture 13 - Steepest Descent Method
- Lecture 14 - Classical Newton Method
- Lecture 15 - Trust Region and Quasi-Newton Methods
- Lecture 16 - Quasi-Newton Methods - Rank One Correction, DFP Method
- Lecture 17 - i) Quasi-Newton Methods - Broyden Family ii) Coordinate Descent Method
- Lecture 18 - Conjugate Directions
- Lecture 19 - Conjugate Gradient Method
- Lecture 20 - Constrained Optimization - Local and Global Solutions, Conceptual Algorithm
- Lecture 21 - Feasible and Descent Directions
- Lecture 22 - First Order KKT Conditions
- Lecture 23 - Constraint Qualifications
- Lecture 24 - Convex Programming Problem
- Lecture 25 - Second Order KKT Conditions
- Lecture 26 - Second Order KKT Conditions (Continued...)
- Lecture 27 - Weak and Strong Duality
- Lecture 28 - Geometric Interpretation
- Lecture 29 - Lagrangian Saddle Point and Wolfe Dual

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Programming Problem
- Lecture 31 - Geometric Solution
- Lecture 32 - Basic Feasible Solution
- Lecture 33 - Optimality Conditions and Simplex Tableau
- Lecture 34 - Simplex Algorithm and Two-Phase Method
- Lecture 35 - Duality in Linear Programming
- Lecture 36 - Interior Point Methods - Affine Scaling Method
- Lecture 37 - Karmarkar's Method
- Lecture 38 - Lagrange Methods, Active Set Method
- Lecture 39 - Active Set Method (Continued...)
- Lecture 40 - Barrier and Penalty Methods, Augmented Lagrangian Method and Cutting Plane Method
- Lecture 41 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Storage Systems

Subject Co-ordinator - Dr. K. Gopinath

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview
- Lecture 2 - Storage, Processing, Networking
- Lecture 3 - Naming and Storing
- Lecture 4 - Storage Filesystems
- Lecture 5 - Access Architecture, Hard Disks
- Lecture 6 - SCSI
- Lecture 7 - Fibre Channel Protocol (FCP)
- Lecture 8 - FCP, 10Gb Ethernet, iSCSI, TCP
- Lecture 9 - NFS, NFSv2
- Lecture 10 - NFSv2, NFSv3, NFSv4, CIFS
- Lecture 11 - USB Storage
- Lecture 12 - Tiering
- Lecture 13 - Mobile/Personal/Organizational - type Storage
- Lecture 14 - Parallel/Cloud/Web-scale Storage
- Lecture 15 - Long-term Storage
- Lecture 16 - Storage interfaces
- Lecture 17 - User-Memory-CPU interactions
- Lecture 18 - Spinlock, Concurrency
- Lecture 19 - Block Layer design
- Lecture 20 - FAT, TFAT, F2FS, LFS, FTL
- Lecture 21 - Data Structures
- Lecture 22 - Abstractions
- Lecture 23 - Link & Write Operations
- Lecture 24 - ZFS
- Lecture 25 - RAID in Filesystems
- Lecture 26 - RAID-Z, NetApp RAID4, Flash Filesystems
- Lecture 27 - Reliability
- Lecture 28 - Performance
- Lecture 29 - Security

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - CAP Theorem
- Lecture 31 - POSIX/NFS/S3/Zookeeper, ACID Vs. BASE
- Lecture 32 - Consistency & Commit problems
- Lecture 33 - Paxos
- Lecture 34 - Group Communication problem
- Lecture 35 - Message Ordering
- Lecture 36 - Ordering Models
- Lecture 37 - Orderings in Filesystems
- Lecture 38 - Semantics of highly scalable filesystems
- Lecture 39 - GFS
- Lecture 40 - GFS Model
- Lecture 41 - GFS functions and operations
- Lecture 42 - GFS problems, BigTable
- Lecture 43 - Lessons to learn

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - System Analysis and Design

Subject Co-ordinator - Prof. V. Rajaraman

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture - 1  
Lecture - 2  
Lecture - 3  
Lecture - 4  
Lecture - 5  
Lecture - 6  
Lecture - 7  
Lecture - 8  
Lecture - 9  
Lecture - 10  
Lecture - 11  
Lecture - 12  
Lecture - 13  
Lecture - 14  
Lecture - 15  
Lecture - 16  
Lecture - 17  
Lecture - 18  
Lecture - 19  
Lecture - 20  
Lecture - 21  
Lecture - 22  
Lecture - 23  
Lecture - 24  
Lecture - 25  
Lecture - 26  
Lecture - 27  
Lecture - 28  
Lecture - 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture - 30  
Lecture - 31  
Lecture - 32  
Lecture - 33  
Lecture - 34  
Lecture - 35  
Lecture - 36  
Lecture - 37  
Lecture - 38  
Lecture - 39  
Lecture - 40

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Principles of Compiler Design

Subject Co-ordinator - Prof. Y.N. Srikanth

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - An Overview of a Compiler  
Lecture 2 - Lexical Analysis - Part 1  
Lecture 3 - Lexical Analysis - Part 2  
Lecture 4 - Lexical Analysis - Part 3  
Lecture 5 - Syntax Analysis  
Lecture 6 - Syntax Analysis  
Lecture 7 - Syntax Analysis  
Lecture 8 - Syntax Analysis  
Lecture 9 - Syntax Analysis  
Lecture 10 - Syntax Analysis  
Lecture 11 - Syntax Analysis  
Lecture 12 - Semantic Analysis with Attribute Grammars Part - 1  
Lecture 13 - Semantic Analysis with Attribute Grammars Part - 2  
Lecture 14 - Semantic Analysis with Attribute Grammars Part - 3  
Lecture 15 - Semantic Analysis with Attribute Grammars Part - 4  
Lecture 16 - Semantic Analysis with Attribute Grammars Part - 5  
Lecture 17 - Intermediate code generation Part - 1  
Lecture 18 - Intermediate code generation Part - 2  
Lecture 19 - Intermediate code generation Part - 3  
Lecture 20 - Intermediate code generation Part - 4 (first half of lecture)  
Lecture 21 - Run-time environments - 1 (second half of lecture)  
Lecture 22 - Run-time environments - 2  
Lecture 23 - Run-time environments - 3  
Lecture 24 - Run-time environments - 4 (first half of lecture)  
Lecture 25 - Control-Flow Graph and Local Optimizations - Part 1 (second half of lecture)  
Lecture 26 - Control-Flow Graph and Local Optimizations - Part 2 (first half of lecture)  
Lecture 27 - Machine code generation - 1 (second half of lecture)  
Lecture 28 - Machine code generation - 2  
Lecture 29 - Machine code generation - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Machine code generation - 4 (first half of lecture), Implementing object-oriented languages 1 (s
- Lecture 31 - Implementing object-oriented languages 2 (first half of lecture)
- Lecture 32 - Global register allocation - 1 (second half of lecture)
- Lecture 33 - Global register allocation - 2
- Lecture 34 - Global register allocation - 3
- Lecture 35 - Introduction to Machine-Independent Optimizations - 1
- Lecture 36 - Introduction to Machine-Independent Optimizations - 2
- Lecture 37 - Introduction to Machine-Independent Optimizations - 3
- Lecture 38 - Introduction to Machine-Independent Optimizations - 4
- Lecture 39 - Introduction to Machine-Independent Optimizations - 5
- Lecture 40 - Introduction to Machine-Independent Optimizations - 6
- Lecture 41 - Introduction to Machine-Independent Optimizations - 7 (first half of lecture)
- Lecture 42 - Instruction Scheduling and Software Pipelining - 1 (second half of lecture)
- Lecture 43 - Instruction Scheduling and Software Pipelining - 2
- Lecture 44 - Instruction Scheduling and Software Pipelining - 3 (first part of lecture)
- Lecture 45 - Automatic parallelization - 1 (second half of lecture)
- Lecture 46 - Automatic parallelization - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - Ergonomics for beginners: Industrial design perspective

Subject Co-ordinator - Prof. Debkumar Chakrabarti

Co-ordinating Institute - IIT - Guwahati

- Lecture 1 - Introduction
- Lecture 2 - Design today - human aid to lifestyle
- Lecture 3 - Journey, fitting task to man
- Lecture 4 - Domain, philosophy and objective
- Lecture 5 - Mutual task comfort
- Lecture 6 - Ergonomics/ human factors fundamentals
- Lecture 7 - Physiology, (work physiology) and stress
- Lecture 8 - Human body - structure and function, anthropometrics
- Lecture 9 - Anthropometry
- Lecture 10 - Static and dynamic anthropometry
- Lecture 11 - Anthropometry landmark
- Lecture 12 - Anthropometry
- Lecture 13 - Measuring techniques
- Lecture 14 - Statistical treatment of data and
- Lecture 15 - Human body-structure and function
- Lecture 16 - Posture and job relation
- Lecture 17 - Posture and body supportive devices
- Lecture 18 - Chair characteristics
- Lecture 19 - Vertical work surface
- Lecture 20 - Horizontal work surface
- Lecture 21 - Movement
- Lecture 22 - Work Counter
- Lecture 23 - Communication and cognitive issues
- Lecture 24 - Psycho-social behaviour aspects,
- Lecture 25 - Information processing and perception
- Lecture 26 - Cognitive aspects and mental workload
- Lecture 27 - Human error and risk perception
- Lecture 28 - Visual performance
- Lecture 29 - Visual displays
- Lecture 30 - Environmental factors influencing
- Lecture 31 - Ergonomics design methodology
- Lecture 32 - Ergonomics criteria/check
- Lecture 33 - Design process involving

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 34 - Some checklist for task easiness
- Lecture 35 - Occupational safety and stress at workplace
- Lecture 36 - Workstation design
- Lecture 37 - Furniture support
- Lecture 38 - Vertical arm reach and relevant
- Lecture 39 - Humanising design
- Lecture 40 - Scope for exploration

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC: System Design for Sustainability

Subject Co-ordinator - Prof. Sharmistha Banerjee

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sustainability and Sustainable Development - Understanding Un-sustainability and need for Sustainability
- Lecture 2 - Sustainability and Sustainable Development - Definitions
- Lecture 3 - Sustainability and Sustainable Development - Pathway
- Lecture 4 - Systems Approach to Design
- Lecture 5 - Evolution of sustainability within Design
- Lecture 6 - Diverse Approaches to Design for Sustainability - Part A
- Lecture 7 - Diverse Approaches to Design for Sustainability - Part B
- Lecture 8 - Relationship between approaches to Design for Sustainability and the application context
- Lecture 9 - Product Life Cycle Design - Methods and Strategies
- Lecture 10 - Product Life Cycle Assessment - Part A
- Lecture 11 - Product Life Cycle Assessment - Part B
- Lecture 12 - Life Cycle Assessment using Software
- Lecture 13 - Design for Product Life Cycle
- Lecture 14 - Product-Service System Design - Definition and Types
- Lecture 15 - Sustainable Product-Service System Design - Definition and Examples
- Lecture 16 - Sustainable Product-Service System Design - Examples
- Lecture 17 - Khadi Movement as a precursor to PSS thinking
- Lecture 18 - Sustainable Product-Service System Design - Transition Paths, Strategy and Challenges
- Lecture 19 - Sustainable Product-Service System Design - Methods and Tools - Part A
- Lecture 20 - Sustainable Product-Service System Design - Methods and Tools - Part B
- Lecture 21 - Sustainable Product-Service System Design - Methods and Tools - Part C
- Lecture 22 - Sustainable Product-Service System Design - Methods and Tools - Part D
- Lecture 23 - Sustainable Product-Service System Design - Methods and Tools - Part E
- Lecture 24 - Sustainable Product-Service System Design - Methods and Tools - Part F
- Lecture 25 - Sustainable Product-Service System Design - Methods and Tools - Part G
- Lecture 26 - Sustainable Product-Service System Design - Methods and Tools (Summary)
- Lecture 27 - Sufficiency Economy Philosophy applied to Sustainable PSS Thinking
- Lecture 28 - LCA of PSS
- Lecture 29 - Sustainable Product-Service System Design Applied to Distributed Economy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Other Design for Sustainability Tools and approaches - Architecture
- Lecture 31 - Other Design for Sustainability Tools and approaches - Agriculture
- Lecture 32 - Other Design for Sustainability Tools and approaches - Cities and communities
- Lecture 33 - Other Design for Sustainability Tools and approaches - Carbon Footprint
- Lecture 34 - Co-design Session
- Lecture 35 - Design for Sustainability - Engineering Design Criteria and Guidelines
- Lecture 36 - Design for Sustainability - Engineering Design Criteria and Guidelines (ICS Toolkit)
- Lecture 37 - Design for Sustainability - Concluding Lecture - Part A
- Lecture 38 - Design for Sustainability - Concluding Lecture - Part B

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Product Design and Innovation

Subject Co-ordinator - Prof. Debayan Dhar, Prof.Swati Pal, Prof. Supradip Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Innovation

Lecture 2 - Design Inspired Innovation and User Innovation

Lecture 3 - Product Design - Part I

Lecture 4 - Product Design - Part II

Lecture 5 - Product Design - Part III

Lecture 6 - Introduction to User study and Problem and need Identification

Lecture 7 - Contextual Enquiry

Lecture 8 - Physical model

Lecture 9 - Creative Techniques and tools for concept generation, concept evaluation

Lecture 10 - Importance and Overview of Human Factors/Ergonomics in Product Design

Lecture 11 - Physical Ergonomics Principles and Issues (Part 1) - Anthropometry

Lecture 12 - Physical Ergonomics Principles and Issues (Part 2) - Biomechanics

Lecture 13 - Cognitive and Emotional aspects of Human Factors with respect to Product Design and Innovation

Lecture 14 - Tools and Techniques for Prototyping

Lecture 15 - Evaluation Tools and Techniques for User-Product Interaction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Interaction Design

Subject Co-ordinator - Prof.Abhishek Shrivastava

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Definitions and Concepts in Interaction Design

Lecture 2 - Relevance of goals in Interaction Design

Lecture 3 - System model, mental model, and representation model

Lecture 4 - Interaction Models and Interaction Paradigms

Lecture 5 - Interaction paradigm

Lecture 6 - Overview of Goal Directed Design Process

Lecture 7 - The Research phase in Goal Directed Design Process - Part 1

Lecture 8 - The Research phase in Goal Directed Design Process - Part 2

Lecture 9 - The Research phase in Goal Directed Design Process - Part 3

Lecture 10 - The Modeling phase in Goal Directed Design Process

Lecture 11 - The Requirement definition phase in Goal Directed Design Process - Part 1

Lecture 12 - The Requirement definition phase in Goal Directed Design Process - Part 2

Lecture 13 - The Framework definition and refinement phase in Goal Directed Design Process - Interaction fram

Lecture 14 - The Framework definition and refinement phase in Goal Directed Design Process - Visual design an

Lecture 15 - Design evaluation and testing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - Principles of Engineering System Design

Subject Co-ordinator - Dr. T. Asokan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to system Design
- Lecture 2 - Engineering systems Classification & examples
- Lecture 3 - Modern System design processes
- Lecture 4 - Six functions of design process
- Lecture 5 - Tools for enabling creative development
- Lecture 6 - Team Development
- Lecture 7 - System Requirement Analysis
- Lecture 8 - Originating Requirements
- Lecture 9 - Functional Architecture Development
- Lecture 10 - Functional Decomposition
- Lecture 11 - Functional Decomposition
- Lecture 12 - Physical Architecture Development
- Lecture 13 - Implementing Fault Tolerance in Physical Architecture
- Lecture 14 - Operational Architecture Development - Part I
- Lecture 15 - Operational Architecture Development - Part II
- Lecture 16 - Interface architecture Development
- Lecture 17 - Interface standards and Design process
- Lecture 18 - Integration and qualification
- Lecture 19 - Qualification planning and methods
- Lecture 20 - System Design Example
- Lecture 21 - System Design Examples
- Lecture 22 - System Design Examples (Continued...)
- Lecture 23 - Graphical Modelling Techniques
- Lecture 24 - Process modeling
- Lecture 25 - Behavior modeling
- Lecture 26 - Graphical Modelling Techniques (Continued...)
- Lecture 27 - System modeling and simulation
- Lecture 28 - Bondgraph modeling of Dyanamic systems
- Lecture 29 - Decision making in System Design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Decision making in System Design (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - Vehicle Dynamics

Subject Co-ordinator - Dr. R. Krishnakumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Vehicle Dynamics
- Lecture 2 - Longitudinal Dynamics
- Lecture 3 - Vehicle Load Distribution - Acceleration and Braking
- Lecture 4 - Brake Force Distribution, Braking Efficiency and Braking Distance
- Lecture 5 - Tractor - Semi Trailer
- Lecture 6 - Tire Mechanics - An Introduction
- Lecture 7 - Mechanical Properties of Rubber
- Lecture 8 - Slip, Grip and Rolling Resistance
- Lecture 9 - Tire Construction and Force Development
- Lecture 10 - Contact Patch and Contact Pressure Distribution
- Lecture 11 - Tire Brush Model
- Lecture 12 - Lateral Force Generation
- Lecture 13 - Ply Steer and Conicity - Part 1
- Lecture 14 - Ply Steer and Conicity - Part 2
- Lecture 15 - Tire Models - Magic Formula
- Lecture 16 - Classification of Tyre Models and Combined Slip
- Lecture 17 - Lateral Dynamics - An Introduction
- Lecture 18 - Lateral Dynamics - Bicycle Model
- Lecture 19 - Lateral Dynamics - Stability and Steering Conditions
- Lecture 20 - Understeer Gradient and State Space Approach
- Lecture 21 - Handling Response of a Vehicle
- Lecture 22 - Mimuro Plot for Lateral Transient Response - Part 1
- Lecture 23 - Mimuro Plot for Lateral Transient Response - Part 2
- Lecture 24 - Parameters affecting vehicle handling characteristics
- Lecture 25 - Subjective and Objective Evaluation of Vehicle Handling - Part 1
- Lecture 26 - Subjective and Objective Evaluation of Vehicle Handling - Part 2
- Lecture 27 - Subjective and Objective Evaluation of Vehicle Handling and Rollover P
- Lecture 28 - Rollover Prevention (Continued...) and Vertical Dynamics
- Lecture 29 - Vertical Dynamics - An Introduction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Vertical Dynamics - Quarter Car Model
- Lecture 31 - Noise, Vibration and Harshness - Random Processes
- Lecture 32 - Random Process and Conclusion (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Control Systems

Subject Co-ordinator - Prof. C.S.Shankar Ram

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Control Systems - Part 1  
Lecture 2 - Introduction to Control Systems - Part 2  
Lecture 3 - Overview of Feedback Control Systems - Part 1  
Lecture 4 - Overview of Feedback Control Systems - Part 2  
Lecture 5 - Mathematical Preliminaries - Part 1  
Lecture 6 - Mathematical Preliminaries - Part 2  
Lecture 7 - Transfer Function - Part 1  
Lecture 8 - Transfer Function - Part 2  
Lecture 9 - System Response - Part 1  
Lecture 10 - System Response - Part 2  
Lecture 11 - BIBO Stability - Part 1  
Lecture 12 - BIBO Stability - Part 2  
Lecture 13 - Effect of Zeros - Part 1  
Lecture 14 - Effect of Zeros - Part 2  
Lecture 15 - Closed Loop System - Part 1  
Lecture 16 - Closed Loop System - Part 2  
Lecture 17 - First Order Systems - Part 1  
Lecture 18 - First Order Systems - Part 2  
Lecture 19 - Second Order Systems - Part 1  
Lecture 20 - Second Order Systems - Part 2  
Lecture 21 - Controllers - Part 1  
Lecture 22 - Controllers - Part 2  
Lecture 23 - Closed Loop Control - Part 1  
Lecture 24 - Closed Loop Control - Part 2  
Lecture 25 - Routh's Stability Criterion - Part 1  
Lecture 26 - Routh's Stability Criterion - Part 2  
Lecture 27 - Special Cases of Routh's Stability Criterion - Part 1  
Lecture 28 - Special Cases of Routh's Stability Criterion - Part 2  
Lecture 29 - Performance Specifications - Part 1

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Performance Specifications - Part 2
- Lecture 31 - Steady State Error Analysis - Part 1
- Lecture 32 - Steady State Error Analysis - Part 2
- Lecture 33 - Root Locus 1 - Part 1
- Lecture 34 - Root Locus 1 - Part 2
- Lecture 35 - Root Locus 2 - Part 1
- Lecture 36 - Root Locus 2 - Part 2
- Lecture 37 - Root Locus 3 - Part 1
- Lecture 38 - Root Locus 3 - Part 2
- Lecture 39 - Root Locus 4 - Part 1
- Lecture 40 - Root Locus 4 - Part 2
- Lecture 41 - Case Study - Modelling - Part 1
- Lecture 42 - Case Study - Modelling - Part 2
- Lecture 43 - Case Study - Control Design - Part 1
- Lecture 44 - Case Study - Control Design - Part 2
- Lecture 45 - State Space Representation - Part 1
- Lecture 46 - State Space Representation - Part 2
- Lecture 47 - Frequency Response - Part 1
- Lecture 48 - Frequency Response - Part 2
- Lecture 49 - Bode Plot 1 - Part 1
- Lecture 50 - Bode Plot 1 - Part 2
- Lecture 51 - Bode Plot 2 - Part 1
- Lecture 52 - Bode Plot 2 - Part 2
- Lecture 53 - Bode Plot 3 - Part 1
- Lecture 54 - Bode Plot 3 - Part 2
- Lecture 55 - Bode Plot 4 - Part 1
- Lecture 56 - Bode Plot 4 - Part 2
- Lecture 57 - Nyquist Plot 1 - Part 1
- Lecture 58 - Nyquist Plot 1 - Part 2
- Lecture 59 - Nyquist Plot 2 - Part 1
- Lecture 60 - Nyquist Plot 2 - Part 2
- Lecture 61 - Nyquist Stability Criterion - Part 1
- Lecture 62 - Nyquist Stability Criterion - Part 2
- Lecture 63 - Relative Stability 1 - Part 1
- Lecture 64 - Relative Stability 1 - Part 2
- Lecture 65 - Relative Stability 2 - Part 1
- Lecture 66 - Relative Stability 2 - Part 2
- Lecture 67 - Lead Compensation - Part 1
- Lecture 68 - Lead Compensation - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Lead Compensator Design - Part 1
- Lecture 70 - Lead Compensator Design - Part 2
- Lecture 71 - Lag and Lag-Lead Compensation - Part 1
- Lecture 72 - Lag and Lag-Lead Compensation - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Nonlinear Dynamical Systems

Subject Co-ordinator - Prof. Harish K. Pillai, Prof. Madhu N. Belur

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - First Order systems

Lecture 3 - Classification of Equilibrium points

Lecture 4 - Lipschitz Functions

Lecture 5 - Existence/uniqueness theorems

Lecture 6 - Existence/uniqueness of solutions to differential equations

Lecture 7 - Lyapunov theorem on stability

Lecture 8 - Extension of Lyapunov's Theorem in different contexts

Lecture 9 - LaSalle's Invariance principle, Barbashin and Krasovski theorems, periodic orbits

Lecture 10 - Bendixson criterion and Poincare-Bendixson criterion. Example

Lecture 11 - Bendixson and Poincare-Bendixson criteria van-der-Pol Oscillator

Lecture 12 - Scilab simulation of Lotka Volterra predator prey model, van-der-Pol Oscillator Review of linear

Lecture 13 - Signals, operators

Lecture 14 - Norms of signals, systems (operators), Finite gain L2 stable

Lecture 15 - Nyquist plots and Nyquist criterion for stability

Lecture 16 - Interconnection between linear system & non-linearity, passive filters

Lecture 17 - Passive filters, Dissipation equality, positive real lemma

Lecture 18 - Positive real lemma proof

Lecture 19 - Definition for positive realness and Kalman Yakubovich-Popov Theorem

Lecture 20 - Kalman-Yakubovich-Popov Lemma/theorem and memoryless nonlinearities

Lecture 21 - Loop transformations and circle criterion

Lecture 22 - Nonlinearities based on circle criterion

Lecture 23 - Limit cycles

Lecture 24 - Popov criterion continuous, frequency-domain theorem

Lecture 25 - Popov criterion continuous, frequency-domain theorem

Lecture 26 - Describing function method

Lecture 27 - Describing Function

Lecture 28 - Describing

Lecture 29 - Describing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Describing functions
- Lecture 31 - Describing functions
- Lecture 32 - Describing functions for nonlinearities
- Lecture 33 - Ideal relay with Hysteresis and dead zone
- Lecture 34 - Dynamical systems on manifolds-1
- Lecture 35 - Dynamical systems on manifolds-2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power System Dynamics and Control

Subject Co-ordinator - Dr. A.M. Kulkarni

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Introduction

Lecture 3 - Analysis of Dynamical Systems

Lecture 4 - Analysis of Dynamical Systems (Continued.)

Lecture 5 - Analysis of LINEAR Time Invariant Dynamical Systems

Lecture 6 - Analysis of LINEAR Time Invariant Dynamical Systems (Continued.)

Lecture 7 - Stiff Systems, Multi Time Scale Modeling

Lecture 8 - Numerical Integration

Lecture 9 - Numerical Integration (Continued.)

Lecture 10 - Numerical Integration (Continued.)

Lecture 11 - Modeling of Synchronous Machines

Lecture 12 - Modeling of Synchronous Machines (Continued.)

Lecture 13 - Modeling of Synchronous Machines (Continued.)

Lecture 14 - Modeling of Synchronous Machines. dq0 transformation (Continued.)

Lecture 15 - Modeling of Synchronous Machines. Standard Parameters

Lecture 16 - Modeling of Synchronous Machines. Standard Parameters

Lecture 17 - Synchronous Generator Models using Standard Parameters

Lecture 18 - Synchronous Generator Models using Standard Parameters. PER UNIT REPRESENTATION

Lecture 19 - Open Circuit Response of a Synchronous Generator

Lecture 20 - Synchronous Machine Modeling. Short Circuit Analysis (Continued.)

Lecture 21 - Synchronous Machine Modeling. Short Circuit Analysis (Continued.) Synchronization of a Synchronous Machine

Lecture 22 - Synchronization of a Synchronous Machine (Continued.)

Lecture 23 - Simplified Synchronous Machine Models

Lecture 24 - Excitation Systems

Lecture 25 - Excitation System Modeling

Lecture 26 - Excitation System Modeling. Automatic Voltage Regulator

Lecture 27 - Excitation System Modeling. Automatic Voltage Regulator (Continued.)

Lecture 28 - Excitation System Modeling. Automatic Voltage Regulator (Simulation)

Lecture 29 - Excitation System Modeling. Automatic Voltage Regulator (Simulation) â (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Excitation System Modeling. Automatic Voltage Regulator. Linearized Analysis
- Lecture 31 - Load Modeling
- Lecture 32 - Induction Machines, Transmission Lines
- Lecture 33 - Transmission Lines. Prime Mover Systems
- Lecture 34 - Transmission Lines (Continued.) Prime Mover Systems
- Lecture 35 - Prime Mover Systems. Stability in Integrated Power System
- Lecture 36 - Stability in Integrated Power System
- Lecture 37 - Two Machine System (Continued.)
- Lecture 38 - Stability in Integrated Power System
- Lecture 39 - Frequency/Angular Stability Programs. Stability Phenomena
- Lecture 40 - Voltage Stability Example (Continued.). Fast Transients
- Lecture 41 - Torsional Transients
- Lecture 42 - Sub-Synchronous Resonance. Stability Improvement
- Lecture 43 - Stability Improvement
- Lecture 44 - Stability Improvement. Power System Stabilizers
- Lecture 45 - Stability Improvement (Large Disturbance Stability)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Control Engineering (Prof. S.D. Agashe)

Subject Co-ordinator - Prof. S.D. Agashe

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Control Problem
- Lecture 2 - Some More Examples
- Lecture 3 - Different Kinds of Control Systems
- Lecture 4 - History of Feedback
- Lecture 5 - Modern Control Problems
- Lecture 6 - DC Motor Speed Control
- Lecture 7 - System Modelling, Analogy
- Lecture 8 - Causes of System Error
- Lecture 9 - Calculation of Error
- Lecture 10 - Control System Sensitivity
- Lecture 11 - Automatic Control of DC Motor
- Lecture 12 - Proportional Control
- Lecture 13 - Non-Unity Feedback
- Lecture 14 - Signal-Flow Graph
- Lecture 15 - Mason's Gain Formula
- Lecture 16 - Signal-Flow Graph for DC Motor Control
- Lecture 17 - Steady-State Calculations
- Lecture 18 - Differential Equation Model and Laplace Transformation Model
- Lecture 19 - D-Operator Method
- Lecture 20 - Second-Order System Response
- Lecture 21 - Frequency Response
- Lecture 22 - Laplace Transformation Theorems
- Lecture 23 - Final Value Theorem
- Lecture 24 - Transfer Function and Pole-Zero Diagram
- Lecture 25 - 'Good' Poles and 'Bad' Poles
- Lecture 26 - Signal Flow Graph with Transfer Functions
- Lecture 27 - s-Domain and t-Domain
- Lecture 28 - Second-Order System Response in s-Domain
- Lecture 29 - Integral Feedback

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- Lecture 30 - Root-Locus Method
- Lecture 31 - Root-Locus Rules
- Lecture 32 - Asymptotes of Root Locus
- Lecture 33 - Routh Array
- Lecture 34 - Singular Cases
- Lecture 35 - Closed Loop Poles
- Lecture 36 - Controller in the Forwarded Path
- Lecture 37 - Mapping of Control in the Complex-Plane
- Lecture 38 - Encirclement by a Curve
- Lecture 39 - Nyquist Criterion
- Lecture 40 - Application of the Nyquist Criterion
- Lecture 41 - Polar Plot and Bode Plots
- Lecture 42 - Logarithmic Scale for Frequency
- Lecture 43 - 'Asymptotic' DB Gain
- Lecture 44 - Compensating Network
- Lecture 45 - Nichols' Chart
- Lecture 46 - Time Domain Methods of Analysis and Design
- Lecture 47 - State-Variable Equations



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power Electronics

Subject Co-ordinator - Prof. Kishore Chatterjee, Prof. B.G. Fernandes

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Power Electronics  
Lecture 2 - Power Electronics  
Lecture 3 - Power Electronics  
Lecture 4 - Power Electronics  
Lecture 5 - Power Electronics  
Lecture 6 - Power Electronics  
Lecture 7 - Power Electronics  
Lecture 8 - Power Electronics  
Lecture 9 - Power Electronics  
Lecture 10 - Power Electronics  
Lecture 11 - Power Electronics  
Lecture 12 - Power Electronics  
Lecture 13 - Power Electronics  
Lecture 14 - Power Electronics  
Lecture 15 - Power Electronics  
Lecture 16 - Power Electronics  
Lecture 17 - Power Electronics  
Lecture 18 - Power Electronics  
Lecture 19 - Power Electronics  
Lecture 20 - Power Electronics  
Lecture 21 - Power Electronics  
Lecture 22 - Power Electronics  
Lecture 23 - Power Electronics  
Lecture 24 - Power Electronics  
Lecture 25 - Power Electronics  
Lecture 26 - Power Electronics  
Lecture 27 - Power Electronics  
Lecture 28 - Power Electronics  
Lecture 29 - Power Electronics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Power Electronics  
Lecture 31 - Power Electronics  
Lecture 32 - Power Electronics  
Lecture 33 - Power Electronics  
Lecture 34 - Power Electronics  
Lecture 35 - Power Electronics  
Lecture 36 - Power Electronics  
Lecture 37 - Power Electronics  
Lecture 38 - Power Electronics  
Lecture 39 - Power Electronics  
Lecture 40 - Power Electronics  
Lecture 41 - Power Electronics  
Lecture 42 - Power Electronics  
Lecture 43 - Power Electronics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Fabrication of Silicon VLSI Circuits using the MOS technology

Subject Co-ordinator - Prof. A.N. Chandorkar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction Micro to Nano A Journey into Intergrated Circuit Technology
- Lecture 2 - Introduction Micro to Nano A Journey into Intergrated Circuit Technology
- Lecture 3 - Crystal Properties and Silico Growth
- Lecture 4 - Crystal Properties and Silico Growth (Continued...)
- Lecture 5 - IC Fab Labs and Fabrication of IC
- Lecture 6 - Diffusion
- Lecture 7 - Diffusion (Continued...)
- Lecture 8 - Solid State Diffusion
- Lecture 9 - Solid State Diffusion (Continued...)
- Lecture 10 - Solid State Diffusion (Continued...)
- Lecture 11 - Thermal Oxidation of Silicons
- Lecture 12 - Thermal Oxidation of Silicons
- Lecture 13 - Thermal Oxidation of Silicons
- Lecture 14 - Thermal Oxidation of Silicons (Continued...)
- Lecture 15 - Thermal Oxidation of Silicons (Continued...)
- Lecture 16 - Lithography
- Lecture 17 - Lithography
- Lecture 18 - Lithography
- Lecture 19 - ION Implantation
- Lecture 20 - ION Implantation
- Lecture 21 - ION Implantation and Silicon IC Processing Flow for CMOS Technology
- Lecture 22 - ION Implantation and Silicon IC Processing Flow for CMOS Technology
- Lecture 23 - Silicon IC Processing Flow for CMOS Technology
- Lecture 24 - Thin Film Deposition
- Lecture 25 - Thin Film Deposition
- Lecture 26 - Thin Film Deposition
- Lecture 27 - Thin Film Deposition and Etching in VLSI Processing
- Lecture 28 - Etching in VLSI Processing and Back -End Technology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Computational Electromagnetics and Applications

Subject Co-ordinator - Prof.Krish Sankaran

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1  
Lecture 2 - Lecture 2  
Lecture 3 - Lecture 3  
Lecture 4 - Exercise 1  
Lecture 5 - Exercise 2  
Lecture 6 - Exercise 3  
Lecture 7 - Lab Tour 1  
Lecture 8 - Summary week 1  
Lecture 9 - Lecture 4  
Lecture 10 - Lecture 5  
Lecture 11 - Exercise 4  
Lecture 12 - Exercise 5  
Lecture 13 - Exercise 6  
Lecture 14 - Summary Week 2  
Lecture 15 - Lecture 6  
Lecture 16 - Lecture 7  
Lecture 17 - Lecture 8  
Lecture 18 - Exercise 7  
Lecture 19 - Exercise 8  
Lecture 20 - Summary Week 3  
Lecture 21 - Lecture 9  
Lecture 22 - Lecture 10  
Lecture 23 - Lecture 11  
Lecture 24 - Lecture 12  
Lecture 25 - Lecture 13  
Lecture 26 - Lecture 14  
Lecture 27 - Exercise 9  
Lecture 28 - Lab Tour - 2  
Lecture 29 - Summary Week 4

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Lecture 30 - Lecture 15  
Lecture 31 - Lecture 16  
Lecture 32 - Lecture 17  
Lecture 33 - Lecture 18  
Lecture 34 - Exercise 10  
Lecture 35 - Summary week 5  
Lecture 36 - Lecture 19  
Lecture 37 - Lecture 20  
Lecture 38 - Lecture 21  
Lecture 39 - Lecture 22  
Lecture 40 - Exercise 11  
Lecture 41 - Summary week 6  
Lecture 42 - Exercise 12  
Lecture 43 - Exercise 13  
Lecture 44 - Exercise 14  
Lecture 45 - Exercise 15  
Lecture 46 - Exercise 16  
Lecture 47 - Exercise 17  
Lecture 48 - Summary week 7  
Lecture 49 - Lecture 23  
Lecture 50 - Lecture 24  
Lecture 51 - Lecture 25  
Lecture 52 - Exercise 18  
Lecture 53 - Exercise 19  
Lecture 54 - Lab tour 3  
Lecture 55 - Summary week 8  
Lecture 56 - Lecture 26  
Lecture 57 - Lecture 27  
Lecture 58 - Lecture 28  
Lecture 59 - Lecture 29  
Lecture 60 - Lecture 30  
Lecture 61 - Lecture 31  
Lecture 62 - Lab tour 4  
Lecture 63 - Summary week 9  
Lecture 64 - Lecture 32  
Lecture 65 - Lecture 33  
Lecture 66 - Lecture 34  
Lecture 67 - Lecture 35  
Lecture 68 - Exercise 20

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Lab tour 5  
Lecture 70 - Summary week 10  
Lecture 71 - Lecture 36  
Lecture 72 - Lecture 37  
Lecture 73 - Lecture 38  
Lecture 74 - Lecture 39  
Lecture 75 - Lecture 40  
Lecture 76 - Summary week 11  
Lecture 77 - Lecture 41  
Lecture 78 - Lecture 42  
Lecture 79 - Lecture 43  
Lecture 80 - Lecture 44  
Lecture 81 - Exercise 21  
Lecture 82 - Exercise 22  
Lecture 83 - Summary week 12

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Basic Electronics

Subject Co-ordinator - Prof. Mahesh B. Patil

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - A brief history of electronics  
Lecture 2 - Superposition  
Lecture 3 - Useful circuit techniques - 1  
Lecture 4 - Useful circuit techniques - 2  
Lecture 5 - Phasors - 1  
Lecture 6 - Phasors - 2  
Lecture 7 - RC/RL circuits in time domain - 1  
Lecture 8 - RC/RL circuits in time domain - 2  
Lecture 9 - RC/RL circuits in time domain - 3  
Lecture 10 - RC/RL circuits in time domain - 4  
Lecture 11 - RC/RL circuits in time domain - 5  
Lecture 12 - Simulation of RC circuit  
Lecture 13 - Diode circuits - 1  
Lecture 14 - Diode circuits - 2  
Lecture 15 - Diode circuits - 3  
Lecture 16 - Diode circuits - 4  
Lecture 17 - Diode circuits - 5  
Lecture 18 - Diode circuits - 6  
Lecture 19 - Diode rectifiers - 1  
Lecture 20 - Diode rectifiers - 2  
Lecture 21 - Diode rectifiers - 3  
Lecture 22 - Bipolar Junction Transistor - 1  
Lecture 23 - Bipolar Junction Transistor - 2  
Lecture 24 - Bipolar Junction Transistor - 3  
Lecture 25 - BJT amplifier - 1  
Lecture 26 - BJT amplifier - 2  
Lecture 27 - BJT amplifier - 3  
Lecture 28 - BJT amplifier - 4  
Lecture 29 - BJT amplifier - 5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - BJT amplifier - 6
- Lecture 31 - BJT amplifier - 7
- Lecture 32 - Introduction to op-amps
- Lecture 33 - Op-amp circuits - 1
- Lecture 34 - Op-amp circuits - 2
- Lecture 35 - Op-amp circuits - 3
- Lecture 36 - Difference amplifier
- Lecture 37 - Instrumentation amplifier - 1
- Lecture 38 - Instrumentation amplifier - 2
- Lecture 39 - Op-amp nonidealities - 1
- Lecture 40 - Op-amp nonidealities - 2
- Lecture 41 - Bode plots - 1
- Lecture 42 - Bode plots - 2
- Lecture 43 - Bode plots - 3
- Lecture 44 - Op-amp filters
- Lecture 45 - Simulation of op-amp filter
- Lecture 46 - Precision rectifiers - 1
- Lecture 47 - Precision rectifiers - 2
- Lecture 48 - Precision rectifiers - 3
- Lecture 49 - Simulation of triangle-to-sine converter
- Lecture 50 - Schmitt triggers - 1
- Lecture 51 - Schmitt triggers - 2
- Lecture 52 - Schmitt triggers - 3
- Lecture 53 - Sinusoidal oscillators - 1
- Lecture 54 - Sinusoidal oscillators - 2
- Lecture 55 - Introduction to digital circuits
- Lecture 56 - Boolean algebra
- Lecture 57 - Karnaugh maps
- Lecture 58 - Combinatorial circuits - 1
- Lecture 59 - Combinatorial circuits - 2
- Lecture 60 - Combinatorial circuits - 3
- Lecture 61 - Introduction to sequential circuits
- Lecture 62 - Latch and flip-flop
- Lecture 63 - JK flip-flop
- Lecture 64 - D flip-flop
- Lecture 65 - Shift registers
- Lecture 66 - Counters - 1
- Lecture 67 - Counters - 2
- Lecture 68 - Simulation of a synchronous counter

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - 555 timer
- Lecture 70 - Digital-to-analog conversion - 1
- Lecture 71 - Digital-to-analog conversion - 2
- Lecture 72 - Analog-to-digital conversion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Antennas

Subject Co-ordinator - Prof. Girish Kumar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Antenna Introduction - I  
Lecture 2 - Antenna Introduction - II  
Lecture 3 - Antenna Introduction - III  
Lecture 4 - Antenna Fundamentals - I  
Lecture 5 - Antenna Fundamentals - II  
Lecture 6 - Antenna Radiation Hazards - I  
Lecture 7 - Antenna Radiation Hazards - II  
Lecture 8 - Dipole Antennas - I  
Lecture 9 - Dipole Antennas - II  
Lecture 10 - Dipole Antennas - III  
Lecture 11 - Monopole Antennas - I  
Lecture 12 - Monopole Antennas - II  
Lecture 13 - Loop Antennas  
Lecture 14 - Slot Antennas  
Lecture 15 - Linear Arrays - I  
Lecture 16 - Linear Arrays - II  
Lecture 17 - Linear Arrays - III  
Lecture 18 - Planar Arrays  
Lecture 19 - Microstrip Antennas (MSA)  
Lecture 20 - Rectangular MSA  
Lecture 21 - MSA Parametric Analysis - I  
Lecture 22 - MSA Parametric Analysis - II  
Lecture 23 - Circular MSA  
Lecture 24 - Broadband MSA - I  
Lecture 25 - Broadband MSA - II  
Lecture 26 - Broadband MSA - III  
Lecture 27 - Broadband MSA - IV  
Lecture 28 - Broadband MSA - V  
Lecture 29 - Compact MSA - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Compact MSA - II
- Lecture 31 - Compact MSA - III
- Lecture 32 - Tunable MSA - I
- Lecture 33 - Tunable MSA - II
- Lecture 34 - Circularly Polarized MSA - I
- Lecture 35 - Circularly Polarized MSA - II
- Lecture 36 - Circularly Polarized MSA - III
- Lecture 37 - MSA Arrays - I
- Lecture 38 - MSA Arrays - II
- Lecture 39 - MSA Arrays - III
- Lecture 40 - Helical Antennas - I
- Lecture 41 - Helical Antennas - II
- Lecture 42 - Helical Antennas - III
- Lecture 43 - Helical Antennas - IV
- Lecture 44 - Helical Antennas - V
- Lecture 45 - Horn Antennas - I
- Lecture 46 - Horn Antennas - II
- Lecture 47 - Horn Antennas - III
- Lecture 48 - Horn Antennas - IV
- Lecture 49 - Horn Antennas - V
- Lecture 50 - Yagi-Uda and Log-Periodic Antennas - I
- Lecture 51 - Yagi-Uda and Log-Periodic Antennas - II
- Lecture 52 - Yagi-Uda and Log-Periodic Antennas - III
- Lecture 53 - IE3D Session TA - I
- Lecture 54 - IE3D Session TA - II
- Lecture 55 - IE3D Session TA - III
- Lecture 56 - Reflector Antennas - I
- Lecture 57 - Reflector Antennas - II
- Lecture 58 - Reflector Antennas - III
- Lecture 59 - Reflector Antennas - IV
- Lecture 60 - Lab Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Wavelets, Filter Banks and Time Frequency Analysis

Subject Co-ordinator - Prof. V.M. Gadre

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1 - Lecture 1 - Introduction  
Lecture 2 - Module 1 - Lecture 2 - Origin of Wavelets  
Lecture 3 - Module 1 - Lecture 3 - Haar Wavelet  
Lecture 4 - Module 2 - Lecture 1 - Dyadic Wavelet  
Lecture 5 - Module 2 - Lecture 2 - Dilates and Translates of Haar Wavelets  
Lecture 6 - Module 2 - Lecture 3 - L2 Norm of a Function  
Lecture 7 - Module 3 - Lecture 1 - Piecewise Constant Representation of a Function  
Lecture 8 - Module 3 - Lecture 2 - Ladder of Subspaces  
Lecture 9 - Module 3 - Lecture 3 - Scaling Function for Haar Wavelet Demo  
Lecture 10 - Demonstration 1  
Lecture 11 - Module 4 - Lecture 1 - Vector Representation of Sequences  
Lecture 12 - Module 4 - Lecture 2 - Properties of Norm  
Lecture 13 - Module 4 - Lecture 3 - Parseval's Theorem  
Lecture 14 - Module 5 - Lecture 1 - Equivalence of sequences and functions  
Lecture 15 - Module 5 - Lecture 2 - Angle between Functions and their Decomposition  
Lecture 16 - Demonstration 2  
Lecture 17 - Module 6 - Lecture 1 - Introduction to filter banks  
Lecture 18 - Module 6 - Lecture 2 - Haar Analysis Filter Bank in Z-domain  
Lecture 19 - Module 6 - Lecture 3 - Haar Synthesis Filter Bank in Z-domain  
Lecture 20 - Module 7 - Lecture 1 - Moving from Z-domain to frequency domain  
Lecture 21 - Module 7 - Lecture 2 - Frequency Response of Haar Analysis Low pass Filter bank  
Lecture 22 - Module 7 - Lecture 3 - Frequency Response of Haar Analysis High pass Filter bank  
Lecture 23 - Module 8 - Lecture 1 - Ideal two-band filter bank  
Lecture 24 - Module 8 - Lecture 2 - Disqualification of Ideal filter bank  
Lecture 25 - Module 8 - Lecture 3 - Realizable two-band filter bank  
Lecture 26 - Demonstration 3  
Lecture 27 - Module 9 - Lecture 1 - Relating Fourier transform of scaling function to filter bank  
Lecture 28 - Module 9 - Lecture 2 - Fourier transform of scaling function  
Lecture 29 - Module 9 - Lecture 3 - Construction of scaling and wavelet functions from filter bank

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Demonstration 4
- Lecture 31 - Module 10 - Lecture 1 - Introduction to upsampling and down sampling as Multirate operations
- Lecture 32 - Module 10 - Lecture 2 - Up sampling by a general factor M- a Z-domain analysis.
- Lecture 33 - Module 10 - Lecture 3 - Down sampling by a general factor M- a Z-domain analysis
- Lecture 34 - Module 11 - Lecture 1 - Z domain analysis of 2 channel filter bank.
- Lecture 35 - Module 11 - Lecture 2 - Effect of X (-Z) in time domain and aliasing
- Lecture 36 - Module 11 - Lecture 3 - Consequences of aliasing and simple approach to avoid it
- Lecture 37 - Module 12 - Lecture 1 - Revisiting aliasing and the Idea of perfect reconstruction
- Lecture 38 - Module 12 - Lecture 2 - Applying perfect reconstruction and alias cancellation on Haar MRA
- Lecture 39 - Module 12 - Lecture 3 - Introduction to Daubechies family of MRA
- Lecture 40 - Module 13 - Lecture 1 - Power Complementarity of low pass filter
- Lecture 41 - Module 13 - Lecture 2 - Applying perfect reconstruction condition to obtain filter coefficient
- Lecture 42 - Module 14 - Lecture 1 - Effect of minimum phase requirement on filter coefficients
- Lecture 43 - Module 14 - Lecture 2 - Building compactly supported scaling functions
- Lecture 44 - Module 14 - Lecture 3 - Second member of Daubechies family
- Lecture 45 - Module 15 - Lecture 1 - Fourier transform analysis of Haar scaling and Wavelet functions
- Lecture 46 - Module 15 - Lecture 2 - Revisiting Fourier Transform and Parseval's theorem
- Lecture 47 - Module 15 - Lecture 3 - Transform Analysis of Haar Wavelet function
- Lecture 48 - Module 16 - Lecture 1 - Nature of Haar scaling and Wavelet functions in frequency domain
- Lecture 49 - Module 16 - Lecture 2 - The Idea of Time-Frequency Resolution
- Lecture 50 - Module 16 - Lecture 3 - Some thoughts on Ideal time- frequency domain behavior
- Lecture 51 - Module 17 - Lecture 1 - Defining Probability Density function
- Lecture 52 - Module 17 - Lecture 2 - Defining Mean, Variance and  $\hat{A}$  containment in a given domain $\hat{A}$
- Lecture 53 - Module 17 - Lecture 3 - Example
- Lecture 54 - Module 17 - Lecture 4 - Variance from a slightly different perspective
- Lecture 55 - Module 18 - Lecture 1 - Signal transformations
- Lecture 56 - Module 18 - Lecture 2 - Time-Bandwidth product and its properties
- Lecture 57 - Module 18 - Lecture 3 - Simplification of Time-Bandwidth formulae
- Lecture 58 - Module 19 - Lecture 1 - Introduction
- Lecture 59 - Module 19 - Lecture 2 - Evaluation of Time-Bandwidth product
- Lecture 60 - Module 19 - Lecture 3 - Optimal function in the sense of Time-Bandwidth product
- Lecture 61 - Module 20 - Lecture 1 - Discontent with the  $\hat{A}$  Optimal function $\hat{A}$  .
- Lecture 62 - Module 20 - Lecture 2 - Journey from infinite to finite Time-Bandwidth product of Haar scaling f
- Lecture 63 - Module 20 - Lecture 3 - More insights about Time-Bandwidth product
- Lecture 64 - Module 20 - Lecture 4 - Time-frequency plane
- Lecture 65 - Module 20 - Lecture 5 - Tiling the Time-frequency plane
- Lecture 66 - Module 21 - Lecture 1 - STFT
- Lecture 67 - Module 21 - Lecture 2 - STFT
- Lecture 68 - Module 21 - Lecture 3 - STFT

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Module 21 - Lecture 4 - Continuous Wavelet Transform (CWT)
- Lecture 70 - Demonstration 5
- Lecture 71 - Student's Presentation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Analog Circuits (2017)

Subject Co-ordinator - Prof. Jayanta Mukherjee

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1 - Introduction  
Lecture 2 - Module 2 - Poles and zeros  
Lecture 3 - Module 3 - OP-AMPS  
Lecture 4 - Module 4 - Application of Op-Amps  
Lecture 5 - Module 5 - Inverting amplifier and Non Inverting amplifier  
Lecture 6 - Module 1 - Non Idealities in Op-AMP (Finite Gain, Finite Bandwidth and Slew Rate)  
Lecture 7 - Module 2 - Non Idealities in Op-AMP (Offset Voltage and Bias Current)  
Lecture 8 - Module 3 - Bode Plot  
Lecture 9 - Module 4 - Frequency Response  
Lecture 10 - Module 1 - Frequency Response (High Frequency Response)  
Lecture 11 - Module 2 - Frequency Response example  
Lecture 12 - Module 3 - Feedback  
Lecture 13 - Module 4 - Effects of Feedback  
Lecture 14 - Tutorial 1 and 2  
Lecture 15 - Module 1 - Effect of feedback and stability  
Lecture 16 - Module 2 - Stability  
Lecture 17 - Module 3 - Stability and pole location  
Lecture 18 - Module 4 - Stability and Pole location continuation  
Lecture 19 - Tutorial 3  
Lecture 20 - Module 1 - Gain Margin  $\hat{A}$  An example  
Lecture 21 - Module 2 - Frequency Compensation  
Lecture 22 - Module 3 - Filters  
Lecture 23 - Module 4 - Filter prototypes  
Lecture 24 - Tutorial 4  
Lecture 25 - Tutorial 5  
Lecture 26 - Tutorial 6  
Lecture 27 - Module 1 - Chebyshev Prototype, Filter transformation  
Lecture 28 - Module 2 - Filter Transformations (Continued....)  
Lecture 29 - Module 3 - Active Filters

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Module 4 - Non Linear Applications of OPAMPS  
Lecture 31 - Module 5 - Limiter, Diodes  
Lecture 32 - Module 1 - Oscillators  
Lecture 33 - Module 2 - Oscillator Amplitude Control , Quadrature Oscillator  
Lecture 34 - Module 3 - Multivibrators  
Lecture 35 - Module 4 - Multivibrators (Continued...)  
Lecture 36 - Module 5 - Monostable Multivibrator  
Lecture 37 - Module 1 - Zener Effect, Rectifiers  
Lecture 38 - Module 2 - Rectifiers  
Lecture 39 - Module 3 - Clamper, Peak Rectifier, Super diodes  
Lecture 40 - Module 4 - BJT DC Circuits  
Lecture 41 - Module 5 - Current Mirror



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC: Microwave Theory and Techniques

Subject Co-ordinator - Prof. Girish Kumar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Microwave Theory and Techniques Introduction - I  
Lecture 2 - Microwave Theory and Techniques Introduction - II  
Lecture 3 - Microwave Theory and Techniques Introduction - III  
Lecture 4 - Effects of Microwaves on Human Body - I  
Lecture 5 - Effects of Microwaves on Human Body - II  
Lecture 6 - Waveguides - I  
Lecture 7 - Waveguides - II  
Lecture 8 - Waveguides - III  
Lecture 9 - Transmission Lines - I  
Lecture 10 - Transmission Lines - II  
Lecture 11 - Smith Chart and Impedance Matching - I  
Lecture 12 - Smith Chart and Impedance Matching - II  
Lecture 13 - Smith Chart and Impedance Matching - III  
Lecture 14 - ABCD - Parameters  
Lecture 15 - S - Parameters  
Lecture 16 - Power Dividers - I  
Lecture 17 - Power Dividers - II  
Lecture 18 - Microwave Couplers - I  
Lecture 19 - Microwave Couplers - II  
Lecture 20 - Microwave Couplers - III  
Lecture 21 - Microwave Filters - I  
Lecture 22 - Microwave Filters - II  
Lecture 23 - Microwave Filters - III  
Lecture 24 - Microwave Filters - IV  
Lecture 25 - Microwave Filters - V  
Lecture 26 - Microwave Diodes  
Lecture 27 - Microwave Attenuators  
Lecture 28 - Microwave RF Switches  
Lecture 29 - Series and Shunt SPDT Switches and Introduction to Phase Shifters

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Microwave Phase Shifters
- Lecture 31 - Microwave Transistors
- Lecture 32 - Microwave Amplifiers - I
- Lecture 33 - Microwave Amplifiers - II
- Lecture 34 - Microwave Amplifiers - III
- Lecture 35 - Low Noise Amplifiers - I
- Lecture 36 - Low Noise Amplifiers - II
- Lecture 37 - Power Amplifiers
- Lecture 38 - Microwave Tubes - I
- Lecture 39 - Microwave Tubes - II
- Lecture 40 - Microwave Tubes - III
- Lecture 41 - Microwave Oscillators - I
- Lecture 42 - Microwave Oscillators - II
- Lecture 43 - Microwave Mixers - I
- Lecture 44 - Microwave Mixers - II
- Lecture 45 - Microwave Mixers - III
- Lecture 46 - Fundamentals of Antennas
- Lecture 47 - Dipole, Monopole, loop and Slot Antennas
- Lecture 48 - Linear and Planar Arrays
- Lecture 49 - Microstrip Antennas
- Lecture 50 - Horn and Helical Antennas
- Lecture 51 - Yagi - Uda, Log-Periodic and Reflector Antennas
- Lecture 52 - RF MEMS and Microwave Imaging
- Lecture 53 - Microwave Systems
- Lecture 54 - Microwave Measurements and Lab Demonstration
- Lecture 55 - CST Software Introduction with Filter Design
- Lecture 56 - Power Divider and Combiner Design in CST
- Lecture 57 - Hybrid Coupler Design
- Lecture 58 - Antenna Design and Amplifier Simulation in CST
- Lecture 59 - Mixer Design in NI AWR Software - I
- Lecture 60 - Mixer Design in NI AWR Software - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Principles of Digital Communications

Subject Co-ordinator - Prof. S.N. Merchant

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Overview
- Lecture 2 - Introduction to Information Theory
- Lecture 3 - Entropy and its properties
- Lecture 4 - Lossless Source Coding Theorem
- Lecture 5 - Prefix Codes and Kraft's Inequality
- Lecture 6 - Huffman Coding
- Lecture 7 - Discrete Memory-less Channels
- Lecture 8 - Channel Capacity - I
- Lecture 9 - Channel Capacity - II
- Lecture 10 - Channel Coding Theorem
- Lecture 11 - Differential Entropy - I
- Lecture 12 - Differential Entropy - II
- Lecture 13 - Channel Capacity - III
- Lecture 14 - Channel Capacity - IV
- Lecture 15 - Summary of Information Theory
- Lecture 16 - Signal Space Representations - I
- Lecture 17 - Signal Space Representations - II
- Lecture 18 - Vector Representation of a Random Process
- Lecture 19 - AWGN Vector Channel
- Lecture 20 - Basics of Signal Detection
- Lecture 21 - ML,MAP Detectors for AWGN Channel
- Lecture 22 - Optimal Receiver
- Lecture 23 - Probability of error for Optimal Receiver
- Lecture 24 - Probability of Error for M-ary Scheme
- Lecture 25 - Pulse Code Modulation
- Lecture 26 - Uniform Quantizer
- Lecture 27 - Step Size and Quantization Noise
- Lecture 28 - Non-uniform Quantizer (Lloyd-Max Quantizer)
- Lecture 29 - Companded Quantization - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Companded Quantization - II
- Lecture 31 - Differential Pulse Code Modulation DPCM - I
- Lecture 32 - DPCM-II (Linear Prediction)
- Lecture 33 - Delta Modulation
- Lecture 34 - M-ary PCM/PAM - I
- Lecture 35 - M-ary PCM/PAM - II
- Lecture 36 - Line Coding - I
- Lecture 37 - Line Coding - II
- Lecture 38 - Line Coding - III
- Lecture 39 - Pulse Shaping for Zero ISI - I
- Lecture 40 - Pulse Shaping for Zero ISI - II
- Lecture 41 - Pulse Shaping for Zero ISI - III
- Lecture 42 - Partial Response Signaling - I
- Lecture 43 - Partial Response Signaling - II
- Lecture 44 - Principle of Invariance of Probability of Error
- Lecture 45 - Binary ASK and PSK
- Lecture 46 - Binary Frequency Shift Keying - I
- Lecture 47 - Binary Frequency Shift Keying - II
- Lecture 48 - Quadrature Phase Shift Keying - I
- Lecture 49 - Quadrature Phase Shift Keying - II
- Lecture 50 - Quadrature Phase Shift Keying - III
- Lecture 51 - Continuous Phase Frequency Shift Keying
- Lecture 52 - Minimum Shift Keying - I
- Lecture 53 - Minimum Shift Keying - II
- Lecture 54 - M-ary Coherent ASK (M-ASK)
- Lecture 55 - M-ary PSK
- Lecture 56 - M-ary Quadrature Amplitude Modulation (M-QAM)
- Lecture 57 - M-ary FSK
- Lecture 58 - Comparison of M-ary Schemes
- Lecture 59 - Non-coherent BFSK
- Lecture 60 - Differential Phase Shift Keying
- Lecture 61 - Channel Coding - I
- Lecture 62 - Channel Coding - II
- Lecture 63 - Channel Coding - III
- Lecture 64 - Channel Coding
- Lecture 65 - Channel Coding

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Circuit Theory

Subject Co-ordinator - Prof. S.C. Dutta Roy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Review of Signals and Systems  
Lecture 2 - Review of Signals and Systems  
Lecture 3 - Network Equations; Initial and Final Conditions  
Lecture 4 - Problem Session 1  
Lecture 5 - Step, Impulse and Complete Responses  
Lecture 6 - 2nd Order Circuits  
Lecture 7 - Transformer Transform Domain Analysis  
Lecture 8 - Problem Session 2  
Lecture 9 - Network Theorems and Network Functions  
Lecture 10 - Network Functions (Continued.)  
Lecture 11 - Amplitude and Phase of Network Functions  
Lecture 12 - Problem Session 3  
Lecture 13 - Poles, Zeros and Network Response  
Lecture 14 - Single Tuned Circuits  
Lecture 15 - Single Tuned Circuits (Continued.)  
Lecture 16 - Double Tuned Circuits  
Lecture 17 - Double Tuned Circuits (Continued.)  
Lecture 18 - Problem Session 4  
Lecture 19 - Double Tuned Circuits (Continued.)  
Lecture 20 - Concept of Delay and Introduction  
Lecture 21 - Two-port Networks (Continued.)  
Lecture 22 - Problem Session 5  
Lecture 23 - Minor - 1  
Lecture 24 - The Hybrid & Transmission Parameters of 2 ports  
Lecture 25 - Problem Session 6  
Lecture 26 - Two - port Network parameters  
Lecture 27 - Two-port Interconnections  
Lecture 28 - Interconnection of Two-port Networks (Continued.)  
Lecture 29 - Problem Session 7

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Scattering Matrix
- Lecture 31 - Scattering Parameters of a Two-port
- Lecture 32 - Problem Session 8
- Lecture 33 - Solutions of Minor - 2 Problems
- Lecture 34 - Insertion Loss
- Lecture 35 - Example of Insertion Loss and Elements
- Lecture 36 - Elements of Realizability Theory (Continued.)
- Lecture 37 - Positive Real Functions
- Lecture 38 - Testing of Positive Real Functions
- Lecture 39 - Problem Session 9
- Lecture 40 - More on PRF's and their Synthesis
- Lecture 41 - LC Driving Point Functions
- Lecture 42 - LC Driving Point Synthesis (Continued.)
- Lecture 43 - RC and RL Driving Point Synthesis
- Lecture 44 - Problem Session 10
- Lecture 45 - RC & RL One-port Synthesis (Continued.)
- Lecture 46 - Elementary RLC One-port Synthesis
- Lecture 47 - Properties and Synthesis of Transfer Parameters
- Lecture 48 - Resistance Terminated LC Ladder
- Lecture 49 - Resistance Terminated LC Ladder (Continued.)
- Lecture 50 - Problem session 11
- Lecture 51 - Network Transmission Criteria

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Control Engineering (Prof. M. Gopal)

Subject Co-ordinator - Prof. M. Gopal

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to control problem
- Lecture 2 - Basic Feedback Structure
- Lecture 3 - Introduction to Control Problem (Continued.)
- Lecture 4 - Dynamic Systems and Dynamic Response
- Lecture 5 - Dynamic Systems and Dynamic Response (Continued.)
- Lecture 6 - Dynamic Systems and Dynamic Response (Continued.)
- Lecture 7 - Dynamic Systems and Dynamic Response (Continued.)
- Lecture 8 - Dynamic Systems and Dynamic Response (Continued.)
- Lecture 9 - Dynamic Systems and Dynamic Response (Continued.)
- Lecture 10 - Models of Industrial Control Devices and Systems
- Lecture 11 - Models of Industrial Control Devices and Systems (Continued.)
- Lecture 12 - Models of Industrial Control Devices and Systems( Continued.)
- Lecture 13 - Models of Industrial Control Devices and Systems( Continued.)
- Lecture 14 - Models of Industrial Control Devices and Systems( Continued.)
- Lecture 15 - Models of Industrial Control Devices and Systems( Continued.)
- Lecture 16 - Models of Industrial Control Devices and Systems (Continued.)
- Lecture 17 - Models of Industrial Control Devices and Systems (Continued.)
- Lecture 18 - Models of Industrial Control Devices and Systems (Continued.)
- Lecture 19 - Basic Principles of Feedback Control
- Lecture 20 - Basic Principles of Feedback Control (Continued.)
- Lecture 21 - Basic Principles of Feedback Control (Continued.)
- Lecture 22 - Basic Principles of Feedback Control (Continued.)
- Lecture 23 - Concepts of stability and Routh Stability Criterion
- Lecture 24 - Concepts of stability and Routh Stability Criterion (Continued.)
- Lecture 25 - Concepts of stability and Routh Stability Criterion (Continued.)
- Lecture 26 - The Performance of Feedback Systems
- Lecture 27 - The Performance of Feedback Systems (Continued.)
- Lecture 28 - The Performance of Feedback Systems (Continued.)
- Lecture 29 - The Performance of Feedback Systems (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Compensator Design Using Root Locus Plots
- Lecture 31 - Compensator Design Using Root Locus Plots (Continued.)
- Lecture 32 - Compensator Design Using Root Locus Plots (Continued.)
- Lecture 33 - Compensator Design Using Root Locus Plots (Continued.)
- Lecture 34 - Compensator Design Using Root Locus Plots (Continued.)
- Lecture 35 - The Nyquist Stability Criterion and Stability Margins
- Lecture 36 - The Nyquist Stability Criterion and Stability Margins (Continued.)
- Lecture 37 - The Nyquist Stability Criterion and Stability Margins (Continued.)
- Lecture 38 - The Nyquist Stability Criterion and Stability Margins (Continued.)
- Lecture 39 - Feedback System Performance Based on the Frequency Response
- Lecture 40 - Feedback System Performance Based on the Frequency Response (Continued.)
- Lecture 41 - Compensator Design Using Frequency Response Plots



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Embedded Systems

Subject Co-ordinator - Prof. Santanu Chaudhary

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Embedded Systems
- Lecture 2 - Embedded Hardware
- Lecture 3 - PIC
- Lecture 4 - PIC Peripherals On Chip
- Lecture 5 - ARM Processor
- Lecture 6 - More ARM Instructions
- Lecture 7 - ARM
- Lecture 8 - Digital Signal Processors
- Lecture 9 - More on DSP Processors
- Lecture 10 - System On Chip (SOC)
- Lecture 11 - Memory
- Lecture 12 - Memory Organization
- Lecture 13 - Virtual Memory and Memory Management Unit
- Lecture 14 - Bus Structure
- Lecture 15 - Bus Structure - 2
- Lecture 16 - Bus Structure - 3 Serial Interfaces
- Lecture 17 - Serial Interfaces
- Lecture 18 - Power Aware Architecture
- Lecture 19 - Software for Embedded Systems
- Lecture 20 - Fundamentals of Embedded Operating Systems
- Lecture 21 - Scheduling Policies
- Lecture 22 - Resource Management
- Lecture 23 - Embedded - OS
- Lecture 24 - Networked Embedded Systems - I
- Lecture 25 - Networked Embedded Systems - II
- Lecture 26 - Networked Embedded Systems - III
- Lecture 27 - Networked Embedded Systems - IV
- Lecture 28 - Designing Embedded Systems - I
- Lecture 29 - Designing Embedded Systems - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Designing Embedded Systems- III
- Lecture 31 - Embedded System Design - IV
- Lecture 32 - Designing Embedded Systems - V
- Lecture 33 - Platform Based Design
- Lecture 34 - Compilers for Embedded Systems
- Lecture 35 - Developing Embedded Systems
- Lecture 36 - Building Dependable Embedded Systems
- Lecture 37 - Pervasive and Ubiquitous Computing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power System Generation, Transmission and Distribution (Encapsu

Subject Co-ordinator - Prof. D.P. Kothari

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Electric Energy Systems A Perspective
- Lecture 2 - Structure of Power Systems
- Lecture 3 - Conventional Sources of Electric Energy
- Lecture 4 - Hydroelectric Power Generation
- Lecture 5 - Non Conventional Energy Sources
- Lecture 6 - Renewable Energy (Continued.)
- Lecture 7 - Energy Storage
- Lecture 8 - Deregulation
- Lecture 9 - Air Pollutants
- Lecture 10 - Transmission Line Parameters
- Lecture 11 - Capacitance of Transmission Lines
- Lecture 12 - Characteristics and Performance of Transmission Lines
- Lecture 13 - Voltage Regulation (VR)
- Lecture 14 - Power Flow through a Line
- Lecture 15 - Methods of Voltage Control
- Lecture 16 - Compensation of Transmission Lines
- Lecture 17 - Compensation of Transmission Lines (Continued.)
- Lecture 18 - Underground Cables
- Lecture 19 - Cables (Continued.)
- Lecture 20 - Insulators for Overhead Lines
- Lecture 21 - HVDC
- Lecture 22 - HVDC (Continued.)
- Lecture 23 - Distribution Systems
- Lecture 24 - Automatic Generation Control
- Lecture 25 - Automatic Generation Control (Continued.)
- Lecture 26 - Load Flow Studies
- Lecture 27 - Load Flow Problem
- Lecture 28 - Load Flow Analysis (Continued.), Gauss Siedel Method
- Lecture 29 - Newton Raphson (NR), Load Flow Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fast Decoupled Load Flow
- Lecture 31 - Control of Voltage Profile
- Lecture 32 - Optimal System Operation (Economic Operation)
- Lecture 33 - Optimal Unit Commitment
- Lecture 34 - Optimal Generation Scheduling
- Lecture 35 - Optimal Load Flow (Continued.) and Hydro Thermal Scheduling

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power System Dynamics

Subject Co-ordinator - Dr. M.L. Kothari

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Power System Stability Problem - Part-1
- Lecture 2 - Introduction to Power System Stability Problem - Part-2
- Lecture 3 - Introduction to Power System Stability Problem - Part-3
- Lecture 4 - Solution of Switching Equation
- Lecture 5 - The Equal Area Criterion for Stability - Part-1
- Lecture 6 - The Equal Area Criterion for Stability - Part-2
- Lecture 7 - Transient Stability Analysis of a Multi Machine System
- Lecture 8 - Modeling of Synchronous Machine - Part-1
- Lecture 9 - Modeling of Synchronous Machine - Part-2
- Lecture 10 - Modeling of Synchronous Machine - Part-3
- Lecture 11 - Modeling of Synchronous Machine - Part-4
- Lecture 12 - Synchronous Machine Representation for Stability Studies - Part-1
- Lecture 13 - Synchronous Machine Representation for Stability Studies - Part-2
- Lecture 14 - Excitation Systems - Part-1
- Lecture 15 - Excitation Systems - Part-2
- Lecture 16 - Modeling of Excitation Systems - Part-1
- Lecture 17 - Modeling of Excitation Systems - Part-2
- Lecture 18 - Small Signal Stability of a Single Machine Infinite Bus System - Part-1
- Lecture 19 - Small Signal Stability of a Single Machine Infinite Bus System - Part-2
- Lecture 20 - Small Signal Stability of a Single Machine Infinite Bus System - Part-3
- Lecture 21 - Small Signal Stability of a Single Machine Infinite Bus System - Part-4
- Lecture 22 - Small Signal Stability of a Single Machine Infinite Bus System - Part-5
- Lecture 23 - Dynamic Modeling of Steam turbines and Governors
- Lecture 24 - Dynamic modeling of Hydro Turbines and Governors
- Lecture 25 - Load modeling for Stability Studies
- Lecture 26 - Numerical Integration Methods for Solving a Set of Ordinary Nonlinear Differential Equation
- Lecture 27 - Simulation of Power System Dynamic Response
- Lecture 28 - Dynamic Equivalents for Large Scale Systems - Part-1
- Lecture 29 - Dynamic Equivalents for Large Scale Systems - Part-2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dynamic Equivalents for Large Scale Systems - Part-3
- Lecture 31 - Direct Method of Transient Stability Analysis - Part-1
- Lecture 32 - Direct Method of Transient Stability Analysis - Part-2
- Lecture 33 - Sub Synchronous Oscillations - Part-1
- Lecture 34 - Sub Synchronous Oscillations - Part-2
- Lecture 35 - Voltage Stability - Part-1
- Lecture 36 - Voltage Stability - Part-2
- Lecture 37 - Voltage Stability - Part-3
- Lecture 38 - Voltage Stability - Part-4
- Lecture 39 - Methods of Improving Stability - Part-1
- Lecture 40 - Methods of Improving Stability - Part-2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Analog Electronic Circuits

Subject Co-ordinator - Prof. S.C. Dutta Roy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of DC Models of Diodes & BJT's
- Lecture 2 - Review of DC Models of BJT (Continued...) and FET
- Lecture 3 - FET Characteristics and Models
- Lecture 4 - Problem Session-1 on DC Analysis of BJT Circuits
- Lecture 5 - BJT Biasing and Bias Stability
- Lecture 6 - BJT Bias Stability (Continued...)
- Lecture 7 - FET Biasing, Current Sources
- Lecture 8 - Problem Session-2 on FET and BJT Characteristics and Biasing
- Lecture 9 - Current Mirrors; BJT Small Signal Models
- Lecture 10 - Small Signal Amplifiers
- Lecture 11 - Mid Frequency Analysis of the CE and CB Amplifier
- Lecture 12 - Problem Session-3 on Mid- Frequency Analysis of CE Amplifiers
- Lecture 13 - Midband Analysis of CB and CC Amplifiers
- Lecture 14 - Midband Analysis of FET Amplifiers
- Lecture 15 - Problem Session-4 on Midband Analysis of Amplifiers
- Lecture 16 - High Frequency Response of Small Signal Amplifiers
- Lecture 17 - High Frequency Response of Small Signal Amplifiers (Continued...)
- Lecture 18 - Low Frequency Response of Small Signal Amplifiers
- Lecture 19 - Problem Session-5 on Frequency Response of Small Signal Amplifiers
- Lecture 20 - Differential Amplifiers
- Lecture 21 - Differential Amplifiers (Continued...)
- Lecture 22 - Discussion on Minor-1 Problems and Differential Amplifiers (Continued...)
- Lecture 23 - Problem Session-6 on Frequency Response of Small Signal Amplifiers (Continued...) and Differential
- Lecture 24 - Use of Current Mirrors in Differential Amplifiers
- Lecture 25 - FET Differential Amplifiers and Introduction to Power Amplifiers
- Lecture 26 - Class B, Class AB and Class A Power Amplifiers
- Lecture 27 - Class A Power Amplifiers; Efficiency Considerations
- Lecture 28 - Problem Session-7 on Deferential and Power Amplifiers
- Lecture 29 - Introduction to Feedback Amplifiers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Advantages of Negative Feedback Amplifiers
- Lecture 31 - Analysis of Feedback Amplifiers
- Lecture 32 - Analysis of the Series - Series and Other Feedback Configurations
- Lecture 33 - Problem Session-8 on Feedback Amplifiers
- Lecture 34 - Sinusoidal Oscillators
- Lecture 35 - More on Oscillators
- Lecture 36 - Solutions to Minor-2 Exam and Concluding Discussions on Oscillators
- Lecture 37 - Problem Session-9 on Oscillators
- Lecture 38 - Tuned (or Narrowband) Amplifiers
- Lecture 39 - Widebanding Techniques
- Lecture 40 - Widebanding By Using an Inductance
- Lecture 41 - Problem Session-10 on Tuned Amplifiers
- Lecture 42 - Widebanding by Using Compound Devices
- Lecture 43 - Cascode Configuration as Wideband Amplifier
- Lecture 44 - Widebanding by Local Feedback
- Lecture 45 - Problem Session-11 on Minor-3 Problems & Widebanding by Compound Devices
- Lecture 46 - Widebanding by Local Feedback and Feedback Cascades
- Lecture 47 - Widebanding by Overall Feedback and Dual Loop Feedback
- Lecture 48 - The Differential Pair and the Gilbert Cell as Wideband Amplifiers
- Lecture 49 - Correction to Gilbert Cell Analysis and Operational Amplifier Imperfections
- Lecture 50 - Op-Amp offsets, Compensation and Slew Rate
- Lecture 51 - Op-Amp Compensation, Slew Rate and Some Problems



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Digital Communication

Subject Co-ordinator - Prof. Surendra Prasad

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course
- Lecture 2 - Digital Representation of Analog Signals, Delta Modulation
- Lecture 3 - Digital Representation of Analog Signals, Pulse Code Modulation
- Lecture 4 - Digital Representation of Analog Signals
- Lecture 5 - Quantization Noise in Delta Modulation (Continued...) and Time Division Multiplexing
- Lecture 6 - Introduction to Line Coding
- Lecture 7 - Spectral Properties of Line Codes
- Lecture 8 - Spectral Properties of Line Codes
- Lecture 9 - Spectral Properties of Line Codes
- Lecture 10 - Baseband Pulse Shaping
- Lecture 11 - Baseband Pulse Shaping; Raised Cosine Family of Pulses
- Lecture 12 - Partial Response Signalling
- Lecture 13 - Precoding for Duobinary and Modified Duobinary Systems
- Lecture 14 - Precoding for Modified Duobinary Systems (Continued...) and General Partial Response Signalling
- Lecture 15 - Binary Baseband Digital Modulation Techniques
- Lecture 16 - Mâ ary Baseband Digital Modulation Techniques
- Lecture 17 - Passband Digital Modulations - I
- Lecture 18 - Passband Digital Modulations - II
- Lecture 19 - Passband Digital Modulations - III
- Lecture 20 - Passband Digital Modulations - IV
- Lecture 21 - Passband Modulations for Band Limited Channels
- Lecture 22 - Baseband and Passband Digital Demodulations
- Lecture 23 - Digital Modulation Part - II Matched Filters
- Lecture 24 - Matched Filters and Coherent Demodulation-I
- Lecture 25 - Coherent Demodulation for Binary Wave Form
- Lecture 26 - Demodulators for Binary Waveforms (Continued...)
- Lecture 27 - Performance Analysis of Binary Digital Modulations
- Lecture 28 - Error Rates for Binary Signalling
- Lecture 29 - Performance of Non Coherent FSK and Differential Phase Shift Keying

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Demodulation of DPSK and M<sup>ary</sup> Signals
- Lecture 31 - Performance of M<sup>ary</sup> Digital Modulations
- Lecture 32 - Performance of M<sup>ary</sup> Digital Modulations (Continued...)
- Lecture 33 - Introduction to Information Theory, Part-1
- Lecture 34 - Source Coding
- Lecture 35 - Error Free Communication Over a Noisy Channel
- Lecture 36 - The Concept of Channel Capacity
- Lecture 37 - Error Correcting Codes
- Lecture 38 - Error Correcting Codes (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Introduction To Electronic Circuits

Subject Co-ordinator - Prof. S.C. Dutta Roy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course and Basic Electrical Quantity
- Lecture 2 - R.L.C. Components, Energy Considerations, Sources and Circuit Laws
- Lecture 3 - KCL, KVL and Network Analysis
- Lecture 4 - Networks Theorems ( Thevenin's Norton's )
- Lecture 5 - Source Transformation; Super Position Theorem and Non-Linear One-Ports
- Lecture 6 - Signal Wave Forms
- Lecture 7 - Periodic Wave Forms and Elements of Amplifiers
- Lecture 8 - Operational Amplifiers and Diodes
- Lecture 9 - Rectifiers and Power Supplies
- Lecture 10 - Wave Shaping Circuits
- Lecture 11 - More on Wave Shaping Circuits and Introduction to Natural Response of Circuits
- Lecture 12 - Natural Response (Continued...)
- Lecture 13 - Natural Response of 2nd Order Circuit
- Lecture 14 - Natural Response of 2nd Order Circuit (Continued...)
- Lecture 15 - Impedance Functions, Poles, Zeros and their Applications
- Lecture 16 - Natural Response and Poles and Zeros and Introduction to Forced Response
- Lecture 17 - Phasors and their Applications in AC Ckts, analysis
- Lecture 18 - More About Phasors and Introduction to Complete Response
- Lecture 19 - Complete Response of Electrical Circuits
- Lecture 20 - AC Circuit Analysis
- Lecture 21 - Filter Circuits and Resonance
- Lecture 22 - Resonance (Continued...)
- Lecture 23 - General Network Analysis
- Lecture 24 - Two-Port Networks
- Lecture 25 - Semiconductor Physics
- Lecture 26 - Semiconductor Physics (Continued...)
- Lecture 27 - More About Diodes Including Zener Diodes
- Lecture 28 - Bipolar Junction Transistors
- Lecture 29 - Transistors Characteristics and Biasing

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- Lecture 30 - BJT Biasing and Introduction to Power Amplifiers
- Lecture 31 - BJT Power Amplifiers
- Lecture 32 - Power Amplifier
- Lecture 33 - Power Amplifiers (Continued...) and an Introduction to Small Signal Modelling of BJT
- Lecture 34 - Small Signal Model and Small Signal Amplifiers
- Lecture 35 - Small Signal Amplifiers (Continued...)
- Lecture 36 - Small Signal Amplifier (Continued...)
- Lecture 37 - Small Signal Amplifiers (Continued...)
- Lecture 38 - Negative Feedback
- Lecture 39 - Digital Circuits
- Lecture 40 - Digital Circuits (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Analog Electronic Circuit

Subject Co-ordinator - Dr. Shouribrata Chatterjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Analog Circuits Introduction to the Diode  
Lecture 2 - Diodes, Introduction to The Transistor  
Lecture 3 - MOS Device, Characteristics  
Lecture 4 - DC operating point  
Lecture 5 - DC operating point, amplifier design  
Lecture 6 - Common source amplifier, small signal analysis  
Lecture 7 - Common gate, common drain  
Lecture 8 - Common gate circuit  
Lecture 9 - Source degenerated amplifier  
Lecture 10 - Swing limits  
Lecture 11 - Swing limits (Continued...), multi transistor amplifiers  
Lecture 12 - Multi-transistor amplifiers  
Lecture 13 - Introduction to current sources  
Lecture 14 - Current sources/mirrors (Continued...)  
Lecture 15 - Current sources, biasing  
Lecture 16 - Differential circuits  
Lecture 17 - Differential amplifiers-I  
Lecture 18 - Differential amplifiers-II  
Lecture 19 - Differential amplifiers-III  
Lecture 20 - Self biased active load diff. amp  
Lecture 21 - Diff. Cascode amplifier, two stage amplifiers  
Lecture 22 - Two stage diff. amps, op-amps  
Lecture 23 - Op-amps, OTAs  
Lecture 24 - Circuits with op-amps  
Lecture 25 - Capacitance in MOS devices  
Lecture 26 - Common source, drain, gate-revisited  
Lecture 27 - Common gate, common drain with capacitances  
Lecture 28 - Cascode, cascade-revisit with capacitance  
Lecture 29 - Cascade amplifier (with capacitance)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diversion
- Lecture 31 - Diversion Continued
- Lecture 32 - Compensation
- Lecture 33 - Op-amp Design with Compensation
- Lecture 34 - Unity Gain Bandwidth
- Lecture 35 - Power Amplification
- Lecture 36 - Power Amplifiers-2
- Lecture 37 - Power Amplifiers- Class A,B,AB,C ClassD
- Lecture 38 - Class D Amplifiers, Push-pull Amplifiers
- Lecture 39 - Introduction to Voltage Regulators
- Lecture 40 - Voltage Regulators- line, load; Conclusion Regulation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Nonlinear and Adaptive Control

Subject Co-ordinator - Prof. Shubhendu Bhasin

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Preliminaries

Lecture 3 - Model Reference Adaptive Control - Part 1

Lecture 4 - Model Reference Adaptive Control - Part 2

Lecture 5 - Model Reference Adaptive Control - Part 3

Lecture 6 - Adaptive Command Tracking

Lecture 7 - Robust Model Reference Adaptive Control - Part 1

Lecture 8 - Robust Model Reference Adaptive Control - Part 2

Lecture 9 - Robust Model Reference Adaptive Control - Part 3

Lecture 10 - Robust Model Reference Adaptive Control - Part 4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Information Theory, Coding and Cryptography

Subject Co-ordinator - Prof. Ranjan Bose

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Information Theory
- Lecture 2 - Entropy, Mutual Information, Conditional and Joint Entropy
- Lecture 3 - Measures for Continuous, Random Variable, Relative Entropy
- Lecture 4 - Variable Length Codes, Prefix Codes
- Lecture 5 - Source Coding Theorem
- Lecture 6 - various source coding Techniques
- Lecture 7 - Optimum Quantizer, Practical Application of Source Coding
- Lecture 8 - Introduction to Super Information
- Lecture 9 - Channel Models and Channel Capacity
- Lecture 10 - Noisy Channel Coding Theorem
- Lecture 11 - Gaussian Channel and Information Capacity Theorem
- Lecture 12 - Capacity of MIMO Channels
- Lecture 13 - Introduction to Error Control Coding
- Lecture 14 - Introduction to Galois Field
- Lecture 15 - Equivalent Codes, Generator Matrix and Parity Check Matrix
- Lecture 16 - Systematic Codes, Error Detections and Correction
- Lecture 17 - Erasure and Errors, Standard Array and Syndrome Decoding
- Lecture 18 - Probability of Error, Coding Gain and Hamming Bound
- Lecture 19 - Hamming Codes, LDPC Codes and MDS Codes
- Lecture 20 - Introduction to Cyclic Codes
- Lecture 21 - Generator Polynomial, Syndrome Polynomial and Matrix Representation
- Lecture 22 - Fire Code, Golay Code, CRC Codes and Circuit Implementation of Cyclic Codes
- Lecture 23 - Introduction to BCH Codes
- Lecture 24 - Multiple Error Correcting BCH Codes, Decoding of BCH Codes
- Lecture 25 - Introduction to Reed Solomon (RS) Codes
- Lecture 26 - Introduction to Convolutional Codes
- Lecture 27 - Trellis Codes
- Lecture 28 - Vitrebi Decoding and Known good Convolutional Codes
- Lecture 29 - Introduction to Turbo Codes

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- Lecture 30 - Introduction to Trellis Coded Modulation (TCM)
- Lecture 31 - Ungerboeck's Design Rules and Performance Evaluation of TCM Schemes
- Lecture 32 - TCM for Fading Channel and Space Time Trellis Codes (STTC)
- Lecture 33 - Introduction to Space Time Block Codes (STBC)
- Lecture 34 - Space Time Codes
- Lecture 35 - Space Time Codes (Continued...)
- Lecture 36 - Introduction to Cryptography
- Lecture 37 - Some Well-Known Algorithms
- Lecture 38 - Introduction to Physical Layer Security
- Lecture 39 - Secrecy Outage Capacity, Secrecy Outage Probability, Cooperative Jamming

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Advanced Control Systems

Subject Co-ordinator - Prof. S. Majhi

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Control structures and performance measures
- Lecture 3 - Time and frequency domain performance measures
- Lecture 4 - Design of controller
- Lecture 5 - Design of controller for SISO system
- Lecture 6 - Controller design for TITO processes
- Lecture 7 - Limitations of PID controllers
- Lecture 8 - PI-PD controller for SISO system
- Lecture 9 - PID-P controller for Two Input Two Output system
- Lecture 10 - Effects of measurement noise and load
- Lecture 11 - Identification of dynamic models of plants
- Lecture 12 - Relay control system for identification
- Lecture 13 - Off-line identification of process dynamics
- Lecture 14 - On-line identification of plant dynamics
- Lecture 15 - State space based identification
- Lecture 16 - State space analysis of systems
- Lecture 17 - State space based identification of systems - 1
- Lecture 18 - State space based identification of systems - 2
- Lecture 19 - Identification of simple systems
- Lecture 20 - Identification of FOPDT model
- Lecture 21 - Identification of second order plus dead time model
- Lecture 22 - Identification of SOPDT model
- Lecture 23 - Steady state gain from asymmetrical relay test
- Lecture 24 - Identification of SOPDT model with pole multiplicity
- Lecture 25 - Existence of limit cycle for unstable system
- Lecture 26 - Identification procedures
- Lecture 27 - Identification of underdamped systems
- Lecture 28 - Off-line identification of TITO systems
- Lecture 29 - On-line identification of TITO systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Review of time domain based identification
- Lecture 31 - DF based analytical expressions for on-line identification
- Lecture 32 - Model parameter accuracy and sensitivity
- Lecture 33 - Improved identification using Fourier series and wavelet transform
- Lecture 34 - Reviews of DF based identification
- Lecture 35 - Advanced Smith predictor controller
- Lecture 36 - Design of controllers for the advanced Smith predictor
- Lecture 37 - Model-free controller design
- Lecture 38 - Model Based PID controller Design - I
- Lecture 39 - Model Based PI-PD controller Design - II
- Lecture 40 - Tuning of reconfigurable PID controllers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Optimization Techniques for Digital VLSI Design

Subject Co-ordinator - Dr. Santosh Biswas, Prof. Chandan Karfa

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Digital VLSI Design Flow
- Lecture 2 - High-level Synthesis (HLS) flow with an example
- Lecture 3 - Automation of High-level Synthesis Steps
- Lecture 4 - Impact of Coding Style on HLS Results
- Lecture 5 - Impact of Compiler Optimizations on HLS Results
- Lecture 6 - RTL Optimizations for Timing
- Lecture 7 - Retiming
- Lecture 8 - RTL Optimizations for Area
- Lecture 9 - RTL Optimizations for Power
- Lecture 10 - High Level Synthesis
- Lecture 11 - Overview of FPGA Technology Mapping
- Lecture 12 - Introduction to Physical Synthesis
- Lecture 13 - Introduction to Digital VLSI Testing - I
- Lecture 14 - Introduction to Digital VLSI Testing - II
- Lecture 15 - Optimization Techniques for ATPG - Part I
- Lecture 16 - Optimization Techniques for ATPG - Part II
- Lecture 17 - Optimization Techniques for Design for Testability
- Lecture 18 - High-level fault modeling and RTL level Testing
- Lecture 19 - LTL/CTL based Verification
- Lecture 20 - Verification of Large Scale Systems
- Lecture 21 - BDD based verification
- Lecture 22 - Verification
- Lecture 23 - Verification
- Lecture 24 - Verification

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Advanced Topics in Probability and Random Processes

Subject Co-ordinator - Prof. Prabin K Bora

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Probability Basics
- Lecture 2 - Random Variable - I
- Lecture 3 - Random Variable - II
- Lecture 4 - Random Vectors and Random Processes
- Lecture 5 - Infinite Sequence of Events - I
- Lecture 6 - Infinite Sequence of Events - II
- Lecture 7 - Convergence of Sequence of Random Variables
- Lecture 8 - Weak Convergence - I
- Lecture 9 - Weak Convergence - II
- Lecture 10 - Laws of Large Numbers
- Lecture 11 - Central Limit Theorem
- Lecture 12 - Large Deviation Theory
- Lecture 13 - Crammer's Theorem for Large Deviation
- Lecture 14 - Introduction to Markov Processes
- Lecture 15 - Discrete Time Markov Chain - 1
- Lecture 16 - Discrete Time Markov Chain - 2
- Lecture 17 - Discrete Time Markov Chain - 3
- Lecture 18 - Discrete Time Markov Chain - 4
- Lecture 19 - Discrete Time Markov Chain - 5
- Lecture 20 - Continuous Time Markov Chain - 1
- Lecture 21 - Continuous Time Markov Chain - 2
- Lecture 22 - Continuous Time Markov Chain - 3
- Lecture 23 - Martingale Process - 1
- Lecture 24 - Martingale Process - 2

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Advanced Electric Drives

Subject Co-ordinator - Dr. S.P. Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - High Voltage DC Transmission

Subject Co-ordinator - Dr. S.N. Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - High Voltage DC Transmission  
Lecture 2 - High Voltage DC Transmission  
Lecture 3 - High Voltage DC Transmission  
Lecture 4 - High Voltage DC Transmission  
Lecture 5 - High Voltage DC Transmission  
Lecture 6 - High Voltage DC Transmission  
Lecture 7 - High Voltage DC Transmission  
Lecture 8 - High Voltage DC Transmission  
Lecture 9 - High Voltage DC Transmission  
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Lecture 11 - High Voltage DC Transmission  
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Lecture 22 - High Voltage DC Transmission  
Lecture 23 - High Voltage DC Transmission  
Lecture 24 - High Voltage DC Transmission  
Lecture 25 - High Voltage DC Transmission  
Lecture 26 - High Voltage DC Transmission  
Lecture 27 - High Voltage DC Transmission  
Lecture 28 - High Voltage DC Transmission  
Lecture 29 - High Voltage DC Transmission

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - High Voltage DC Transmission  
Lecture 31 - High Voltage DC Transmission  
Lecture 32 - High Voltage DC Transmission  
Lecture 33 - High Voltage DC Transmission  
Lecture 34 - High Voltage DC Transmission  
Lecture 35 - High Voltage DC Transmission  
Lecture 36 - High Voltage DC Transmission  
Lecture 37 - High Voltage DC Transmission

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Intelligent Systems and Control

Subject Co-ordinator - Prof. Laxmidhar Behera

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Intelligent Systems and Control
- Lecture 2 - Linear Neural networks
- Lecture 3 - Multi layered Neural Networks
- Lecture 4 - Back Propagation Algorithm revisited
- Lecture 5 - Non Linear System Analysis - Part I
- Lecture 6 - Non Linear System Analysis - Part II
- Lecture 7 - Radial Basis Function Networks
- Lecture 8 - Adaptive Learning rate
- Lecture 9 - Weight update rules
- Lecture 10 - Recurrent networks Back propagation through time
- Lecture 11 - Recurrent networks Real time recurrent learning
- Lecture 12 - Self organizing Map - Multidimensional networks
- Lecture 13 - Fuzzy sets - A Primer
- Lecture 14 - Fuzzy Relations
- Lecture 15 - Fuzzy Rule base and Approximate Reasoning
- Lecture 16 - Introduction to Fuzzy Logic Control
- Lecture 17 - Neural Control A review
- Lecture 18 - Network inversion and Control
- Lecture 19 - Neural Model of a Robot manipulator
- Lecture 20 - Indirect Adaptive Control of a Robot manipulator
- Lecture 21 - Adaptive neural control for Affine Systems SISO
- Lecture 22 - Adaptive neural control for Affine systems MIMO
- Lecture 23 - Visual Motor Coordination with KSOM
- Lecture 24 - Visual Motor coordination - quantum clustering
- Lecture 25 - Direct Adaptive control of Manipulators - Intro
- Lecture 26 - NN based back stepping control
- Lecture 27 - Fuzzy Control - a Review
- Lecture 28 - Mamdani type flc and parameter optimization
- Lecture 29 - Fuzzy Control of a pH reactor

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fuzzy Lyapunov controller - Computing with words
- Lecture 31 - Controller Design for a T-S Fuzzy model
- Lecture 32 - Linear controllers using T-S fuzzy model

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power Systems Operation and Control

Subject Co-ordinator - Dr. S.N. Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module 1 - Lecture 1  
Module 1 - Lecture 2  
Module 1 - Lecture 3  
Module 2 - Lecture 1  
Module 2 - Lecture 2  
Module 2 - Lecture 3  
Module 2 - Lecture 4  
Module 2 - Lecture 5  
Module 2 - Lecture 6  
Module 2 - Lecture 7  
Module 2 - Lecture 8  
Module 2 - Lecture 9  
Module 2 - Lecture 10  
Module 2 - Lecture 11  
Module 2 - Lecture 12  
Module 2 - Lecture 13  
Module 2 - Lecture 14  
Module 3 - Lecture 1  
Module 3 - Lecture 2  
Module 3 - Lecture 3  
Module 3 - Lecture 4  
Module 3 - Lecture 5  
Module 3 - Lecture 6  
Module 3 - Lecture 7  
Module 3 - Lecture 8  
Module 3 - Lecture 9  
Module 3 - Lecture 10  
Module 4 - Lecture 1  
Module 4 - Lecture 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Module 4 - Lecture 3  
Module 4 - Lecture 4  
Module 5 - Lecture 1  
Module 5 - Lecture 2  
Module 6 - Lecture 1  
Module 6 - Lecture 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electromagnetic theory

Subject Co-ordinator - Dr. Pradeep Kumar K

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to EMT
- Lecture 2 - Coulombs law
- Lecture 3 - Vector analysis-I and Introduction to coordinate system
- Lecture 4 - Rectangular coordinate system
- Lecture 5 - Vector analysis-II
- Lecture 6 - Introduction to Electric field
- Lecture 7 - Electric field-I
- Lecture 8 - Cylindrical coordinate system
- Lecture 9 - Transformation and Electric field-II
- Lecture 10 - Electric Potential-I
- Lecture 11 - Spherical co-ordinate system and Electric potential-II
- Lecture 12 - Vector Analysis-III and Electric potential-III
- Lecture 13 - Gauss's law and its application-I
- Lecture 14 - Gauss's law and its application-II
- Lecture 15 - Divergence and Poisson's and Laplace's equation
- Lecture 16 - Gauss's law and its application -III
- Lecture 17 - Vector analysis  $\hat{\text{A}}$  III (curl and its significance)
- Lecture 18 - Conductor and dielectric-I
- Lecture 19 - Polarization - I
- Lecture 20 - Polarization - II
- Lecture 21 - Polarization - II (Continued...)
- Lecture 22 - Boundary condition
- Lecture 23 - Continuity equation and Conductors - III
- Lecture 24 - Conductors  $\hat{\text{A}}$  IV
- Lecture 25 - Conductors  $\hat{\text{A}}$  IV (Continued...) and Capacitor - I
- Lecture 26 - Capacitor - II
- Lecture 27 - Capacitor - II (Continued...) and Equipotential Surfaces
- Lecture 28 - Solution of Laplace's equation-I
- Lecture 29 - Solution of Laplace's equation-I I and method of images-I

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Method of images-II
- Lecture 31 - Solution of Laplace's equation-III
- Lecture 32 - Solution of Laplace's equation-IV
- Lecture 33 - Introduction of magnetic field
- Lecture 34 - Biot savart law and its application
- Lecture 35 - Biot savart law and its application-II
- Lecture 36 - Magnetic vector potential
- Lecture 37 - Magnetic force, torque and dipole
- Lecture 38 - Magnetic force, torque and dipole (Continued...)
- Lecture 39 - Magnetic materials-I
- Lecture 40 - Magnetic materials-I (Continued...) and Magnetic moment
- Lecture 41 - Magnetic materials-I (Continued...) and Boundary condition for Magnetic fields
- Lecture 42 - Inductor and calculation of inductance for different shapes
- Lecture 43 - Inductor and calculation of inductance for different shapes (Continued...)
- Lecture 44 - Faradays law and its application-I
- Lecture 45 - Faradays law and its application-II
- Lecture 46 - Displacement current
- Lecture 47 - Maxwell's equation
- Lecture 48 - Wave propagation
- Lecture 49 - Solution of Helmholtz equation
- Lecture 50 - Uniform plane waves
- Lecture 51 - Polarization and Poynting Vector
- Lecture 52 - Wave reflections (Normal incidence)
- Lecture 53 - Waves in imperfect dielectrics and Good conductors
- Lecture 54 - Skin depth/effect
- Lecture 55 - Oblique incidence of waves
- Lecture 56 - Oblique incidence of waves (Continued...)
- Lecture 57 - Transmission line
- Lecture 58 - Transmission line model
- Lecture 59 - Steady state sinusoidal response of T-line-I
- Lecture 60 - Steady state sinusoidal response of T-line-II
- Lecture 61 - Steady state sinusoidal response of T-line-II and Smith chart
- Lecture 62 - Application of smith chart-I
- Lecture 63 - Application of smith chart-II
- Lecture 64 - Impedance matching
- Lecture 65 - Transients on Transmission line-I
- Lecture 66 - Transients on Transmission line-II
- Lecture 67 - Pulse on Transmission line
- Lecture 68 - Capacitive termination in Transmission line

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Waveguide
- Lecture 70 - Waveguide Analysis
- Lecture 71 - TM modes in Waveguide
- Lecture 72 - Rectangular waveguide
- Lecture 73 - Rectangular waveguide
- Lecture 74 - Waveguide
- Lecture 75 - Waveguide losses
- Lecture 76 - Dielectric Waveguide
- Lecture 77 - Dielectric Waveguide (Continued...)
- Lecture 78 - Radiation and Antenna
- Lecture 79 - Hertzian Dipole Antenna
- Lecture 80 - Hertzian Dipole Antenna (Continued...)
- Lecture 81 - Quasi-statistics-I
- Lecture 82 - Quasi-statistics-II
- Lecture 83 - Long wire Antenna
- Lecture 84 - Group velocity and Phase velocity
- Lecture 85 - Numerical solution of Laplace's equation



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Principles of Communication - Part 1

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics - Definition of Energy and Power of Signals
- Lecture 2 - Frequency Domain Representation and Introduction to Discrete Fourier Series
- Lecture 3 - Discrete Fourier Series Example and Parseval's Theorem for Periodic Signals
- Lecture 4 - Fourier Transform (FT), Inverse Fourier Transform (IFT) of Continuous Signals, Example of FT of P
- Lecture 5 - Modulation Property of Fourier Transform, Dirac Delta or Unit Impulse Function - Definition and F
- Lecture 6 - Duality Property of Fourier Transform and Introduction to Linear Time Invariant (LTI) Systems
- Lecture 7 - Transmission of Signal through Linear Time Invariant (LTI) Systems and Cross- Correlation of Sign
- Lecture 8 - Auto-Correlation of Signal and Energy Spectral Density (ESD)
- Lecture 9 - Example for Auto-Correlation of Signal and Energy Spectral Density (ESD)
- Lecture 10 - Introduction to Amplitude Modulation (AM), Modulation Index, Envelope Distortion and Over Modula
- Lecture 11 - Spectrum of Amplitude Modulated(AM) Signals and Introduction to Envelope Detection
- Lecture 12 - Envelope Detection for Amplitude Modulated (AM) Signals and Time Constant for Capacitor in Envel
- Lecture 13 - Power of Amplitude Modulated (AM) Signals and Power Efficiency of AM Signals
- Lecture 14 - Double Sideband (DSB) Suppressed Carrier (SC) Modulation, Spectrum of DSB-SC Signals and Coheren
- Lecture 15 - Double Sideband(DSB) Suppressed Carrier (SC) Demodulation, Non-coherent demodulation, Impact of
- Lecture 16 - Carrier Phase Offset Example for Double Sideband (DSB) Suppressed Carrier (SC) Demodulation- Wir
- Lecture 17 - Phase Synchronization using Costas Receiver for Double Sideband (DSB) Suppressed Carrier (SC) De
- Lecture 18 - Introduction to Quadrature Carrier Multiplexing (QCM) and Demodulation of QCM Signals.
- Lecture 19 - Introduction to Single Sideband (SSB) Modulation
- Lecture 20 - Generation of Single Sideband (SSB) Modulation Signals through Frequency Discrimination
- Lecture 21 - Frequency Domain Description of Hilbert Transform  $\hat{A}$  Fourier Spectrum of the Hilbert Transformer
- Lecture 22 - Time Domain Description of Hilbert Transform  $\hat{A}$  Impulse Response of the Hilbert Transformer
- Lecture 23 - Phase Shifting Method for Generation of Single Sideband (SSB) Modulated Signals based on Hilbert
- Lecture 24 - Complex Pre-Envelope and Complex Envelope of Passband Signals
- Lecture 25 - Complex Pre- Envelope and Complex Envelope of QCM (Quadrature Carrier Modulated) Signals
- Lecture 26 - Introduction to Vestigial Side Band(VSB) Modulation and Non- Ideal Filtering, Spectral Efficiency
- Lecture 27 - Properties of Vestigial Side Band Filter for Reconstruction of Message Signal without Distortion
- Lecture 28 - Introduction to Angle Modulation, Description of Phase Modulation (PM) and Frequency Modulation
- Lecture 29 - Frequency Modulation (FM) with Sinusoidal Modulation Signal and Pictorial Examples, Insights of

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- Lecture 30 - Indirect Method for Generation of FM Signals - Generation of Narrowband FM Signal
- Lecture 31 - Indirect Method for Generation of FM Signals - Generation of Wideband FM Signal through Frequency Modulation
- Lecture 32 - Spectrum of Frequency Modulated (FM) Signals
- Lecture 33 - Bandwidth of Frequency Modulated (FM) Signals - Carson's Rule
- Lecture 34 - Demodulation of Frequency Modulated (FM) Signals, Condition of Envelope Detection
- Lecture 35 - Analog to Digital Conversion of Signals and Introduction to Sampling
- Lecture 36 - Spectrum of Sampled Signal, Aliasing and Nyquist Sampling Theorem
- Lecture 37 - Ideal Impulse Train Sampling, Reconstruction of Original Signal from Samples, Sinc Interpolation
- Lecture 38 - Introduction to Pulse Amplitude Modulation (PAM), Sample and Hold, Flat Top Sampling
- Lecture 39 - Pulse Amplitude Modulation (PAM), Spectrum of PAM Signal, Reconstruction of Original Signal from Samples
- Lecture 40 - Introduction to Quantization, Uniform Quantizer, Mid-Tread Quantizer
- Lecture 41 - Quantization, Mid-Rise Quantizer, PDF and Power of Quantization Noise, Quantization Noise Power
- Lecture 42 - Introduction to Lloyd-Max Quantization Algorithm, Optimal Quantizer Design
- Lecture 43 - Lloyd-Max Quantization Algorithm, Iterative Computation of Optimal Quantization Levels and Integers
- Lecture 44 - Companding for Non-Uniform Quantization,  $\mu$ -law Compressor, A-law Compressor
- Lecture 45 - Introduction to Delta Modulation, One-bit Quantizer
- Lecture 46 - Signal Reconstruction in Delta Modulation, Schematic Diagrams, Slope Overload Distortion and Granular Noise
- Lecture 47 - Differential Pulse Coded Modulation (DPCM), DPCM Signal Reconstruction and Schematic Diagram
- Lecture 48 - Frequency Mixing and Translation in Communication Systems, Heterodyne and Super Heterodyne Receivers
- Lecture 49 - Frequency Translation and Super Heterodyne Receivers, Problem of Image Frequency
- Lecture 50 - Frequency Division Multiplexing (FDM), Carrier Spacing in FDM
- Lecture 51 - Time Division Multiplexing (TDM), Operation of TDM, Sample Spacing in TDM
- Lecture 52 - Bandwidth Requirements for Time Division Multiplexing (TDM), The T1 TDM System

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:An Introduction to Coding Theory

Subject Co-ordinator - Dr. Adrish Banerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Error Control Coding - I  
Lecture 2 - Introduction to Error Control Coding - II  
Lecture 3 - Introduction to Error Control Coding - III  
Lecture 4 - Introduction to Linear Block Codes, Generator Matrix and Parity Check Matrix  
Lecture 5 - Syndrome, Error Correction and Error Detection  
Lecture 6 - Problem Solving Session - I  
Lecture 7 - Decoding of Linear Block Codes  
Lecture 8 - Distance Properties of Linear Block Codes - I  
Lecture 9 - Distance Properties of Linear Block Codes - II  
Lecture 10 - Problem Solving Session - II  
Lecture 11 - Some Simple Linear Block Codes - I  
Lecture 12 - Some Simple Linear Block Codes - II  
Lecture 13 - Bounds on the Size of a Code  
Lecture 14 - Problem Solving Session - III  
Lecture 15 - Introduction to Convolutional Codes - I  
Lecture 16 - Introduction to Convolutional Codes - II  
Lecture 17 - Convolutional Codes  
Lecture 18 - Convolutional Codes  
Lecture 19 - Decoding of Convolutional Codes - I  
Lecture 20 - Decoding of Convolutional Codes - II  
Lecture 21 - Problem solving session - IV  
Lecture 22 - Problem solving session - V  
Lecture 23 - Performance Bounds for Convolutional Codes  
Lecture 24 - Low Density Parity Check Codes  
Lecture 25 - Decoding of Low Density Parity Check Codes - I  
Lecture 26 - Decoding of Low Density Parity Check Codes - II  
Lecture 27 - Turbo Codes  
Lecture 28 - Turbo Decoding  
Lecture 29 - Problem Solving Sessions - VI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Distance Properties of Turbo Codes
- Lecture 31 - Convergence of Turbo Codes
- Lecture 32 - Automatic Repeat reQuest (ARQ) Schemes
- Lecture 33 - Applications of Linear Codes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Principles of Communication Systems - Part II

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Digital Communication Systems
- Lecture 2 - Spectrum of Transmitted Digital Communication Signal and Wide Sense Stationarity
- Lecture 3 - Spectrum of Transmitted Digital Communication Signal, Autocorrelation Function and Power Spectral Density
- Lecture 4 - Spectrum of Transmitted Digital Communication Signal, Relation to Energy Spectral Density and Intensity
- Lecture 5 - Additive White Gaussian Noise (AWGN) Properties, Gaussian Noise and White Noise
- Lecture 6 - Structure of Digital Communication Receiver, Receiver Filter and Signal-to-Noise Power Ratio (SNR)
- Lecture 7 - Digital Communication Receiver, Noise Properties and Output Noise Power
- Lecture 8 - Digital Communication Receiver, Optimal SNR and Matched Filter
- Lecture 9 - Probability of Error in Digital Communication and Probability Density Functions of Output
- Lecture 10 - Probability of Error in Digital Communication, Optimal Decision Rule and Gaussian Q function
- Lecture 11 - Introduction to Binary Phase Shift Keying (BPSK) Modulation, Optimal Decision Rule and Probability of Error
- Lecture 12 - Introduction to Amplitude Shift Keying (ASK) Modulation
- Lecture 13 - Optimal Decision Rule for Amplitude Shift Keying (ASK), Bit Error Rate (BER) and Comparison with BPSK
- Lecture 14 - Introduction to Signal Space Concept and Orthonormal Basis Signals
- Lecture 15 - Introduction to Frequency Shift Keying (FSK)
- Lecture 16 - Optimal Decision Rule for FSK, Bit Error Rate (BER) and Comparison with BPSK, ASK
- Lecture 17 - Introduction to Quadrature Phase Shift Keying (QPSK)
- Lecture 18 - Waveforms of Quadrature Phase Shift Keying (QPSK)
- Lecture 19 - Matched Filtering, Bit Error Rate and Symbol Error Rate for Quadrature Phase Shift Keying (QPSK)
- Lecture 20 - Introduction to M-ary PAM (Pulse Amplitude Modulation), Average Symbol Power and Decision rules
- Lecture 21 - M-ary PAM (Pulse Amplitude Modulation) -Part-II, Optimal Decision Rule and Probability of Error
- Lecture 22 - M-ary QAM (Quadrature Amplitude Modulation) Part-I, Introduction, Transmitted Waveform and Average Symbol Power
- Lecture 23 - M-ary QAM (Quadrature Amplitude Modulation) - Part-II, Optimal Decision Rule, Probability of Error
- Lecture 24 - M-ary PSK (Phase Shift Keying) Part-I, Introduction, Transmitted Waveform and Constellation Diagram
- Lecture 25 - M-ary PSK (Phase Shift Keying) - Part-II, Optimal Decision Rule, Nearest Neighbor Criterion and Probability of Error
- Lecture 26 - Introduction to Information Theory, Relevance of Information Theory and Characterization of Information
- Lecture 27 - Definition of Entropy, Average of Information / Uncertainty of source and Properties of Entropy
- Lecture 28 - Entropy Example- Binary Source Maximum and Minimum Entropy of Binary Source
- Lecture 29 - Maximum Entropy of Source with M-ary Alphabet, Concave/Convex Functions and Jensens Inequality

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Joint Entropy , Definition of Joint Entropy of Two Sources and Simple Examples for Joint Entropy
- Lecture 31 - Properties of Joint Entropy and Relation between Joint Entropy and Marginal Entropies
- Lecture 32 - Conditional Entropy, Example of Conditional Entropy and Properties of Conditional Entropy
- Lecture 33 - Mutual Information, Diagrammatic Representation and Properties of Mutual Information
- Lecture 34 - Simple Example of Mutual Information and Practical Example of Mutual Information-Binary Symmetri
- Lecture 35 - Channel Capacity, Implications of Channel Capacity, Claude E. Shannon- Father of Information The
- Lecture 36 - Differential Entropy and Example for Uniform Probability Density function
- Lecture 37 - Differential Entropy of Gaussian Source and Insights
- Lecture 38 - Joint Conditional/ Differential Entropies and Mutual Information
- Lecture 39 - Capacity of Gaussian channel - Part I
- Lecture 40 - Capacity of Gaussian Channel - Part-II, Practical Implications and Maximum rate in bits\sec
- Lecture 41 - Introduction to Source Coding and Data Compression, Variable Length codes and Unique Decodabilit
- Lecture 42 - Uniquely Decodable Codes, Prefix-free code, Instantaneous Code and Average Code length
- Lecture 43 - Binary Tree Representation of Code, Example and Kraft Inequality
- Lecture 44 - Lower Bound on Average Code Length and Kullback-Leibler Divergence
- Lecture 45 - Optimal Code length, Constrained Optimization and Morse Code Example
- Lecture 46 - Approaching Lower Bound on Average code length and Block Coding
- Lecture 47 - Huffman Code, Algorithm, Example and Average Code Length
- Lecture 48 - Introduction to channel coding, Rate of Code, Repetition Code and Hamming Distance
- Lecture 49 - Introduction to Convolutional Codes, Binary Field Arithmetic and Linear Codes
- Lecture 50 - Example of Convolutional Code Output and Convolution Operation for Code generation
- Lecture 51 - Matrix Representation of Convolutional Codes, Generator Matrix, Transform Domain Representation
- Lecture 52 - State Diagram Representation of Convolutional Code, State transitions and Example of Code Genera
- Lecture 53 - Trellis Representation of Convolutional Code and Valid Code Words
- Lecture 54 - Decoding of the Convolutional Code, Minimum Hamming distance and Maximum Likelihood Codeword Est
- Lecture 55 - Principle of Decoding of Convolutional code
- Lecture 56 - Viterbi Decoder for Maximum Likelihood Decoding of Convolutional Code Using Trellis Representati

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Applied Engineering Electromagnetics

Subject Co-ordinator - Dr. Pradeep Kumar K

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Applied Electromagnetics
- Lecture 2 - Introduction to Transmission lines
- Lecture 3 - Sinusoidal waves on Transmission lines
- Lecture 4 - Terminating T-lines
- Lecture 5 - Circuit parameters of a T-line
- Lecture 6 - Lossy Transmission lines and primary constants
- Lecture 7 - When to apply T-line Theory?
- Lecture 8 - Standing Waves on T-lines
- Lecture 9 - Lumped equivalent circuits of T-lines
- Lecture 10 - Impedance transformation and power flow on T-lines
- Lecture 11 - Graphical aid
- Lecture 12 - Smith chart applications
- Lecture 13 - Further applications of Smith chart - Part 1
- Lecture 14 - Further applications of Smith chart - Part 2
- Lecture 15 - Impedance matching techniques - Part 1
- Lecture 16 - Impedance matching techniques - Part 2
- Lecture 17 - Impedance matching techniques - Part 3
- Lecture 18 - T-lines in time domain
- Lecture 19 - Further examples of use of lattice diagrams
- Lecture 20 - High-speed digital signal propagation on T-lines
- Lecture 21 - Transient analysis with reactive termination and Time-domain reflectometry
- Lecture 22 - Fault detection using TDR
- Lecture 23 - Why Electromagnetics?
- Lecture 24 - Rectangular coordinate systems
- Lecture 25 - Cylindrical coordinate systems
- Lecture 26 - Review of vector fields and Gradient
- Lecture 27 - Divergence, Curl, and Laplacian operations
- Lecture 28 - Towards Maxwells equations - Part 1
- Lecture 29 - Towards Maxwells equations - Part 2

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Faradays law
- Lecture 31 - Completing Maxwells equations and Boundary conditions
- Lecture 32 - Boundary conditions for Electromagnetic fields
- Lecture 33 - Electrostatics-I
- Lecture 34 - Electrostatics-II
- Lecture 35 - Electrostatics-III
- Lecture 36 - Electrostatics-IV
- Lecture 37 - Magnetostatic fields-I
- Lecture 38 - Magnetostatic fields-II
- Lecture 39 - Inductance calculations
- Lecture 40 - From Maxwells equations to uniform plane waves
- Lecture 41 - Plane wave propagation in lossless dielectric media
- Lecture 42 - Polarization of plane waves
- Lecture 43 - Can an Ideal capacitor exist?
- Lecture 44 - Skin effect in conductors
- Lecture 45 - Skin effect in round wires
- Lecture 46 - Finite difference method
- Lecture 47 - Reflection of uniform plane waves
- Lecture 48 - Application
- Lecture 49 - Oblique incidence of plane waves
- Lecture 50 - Total internal reflection
- Lecture 51 - Application
- Lecture 52 - Application
- Lecture 53 - Introduction to waveguides
- Lecture 54 - Rectangular waveguides
- Lecture 55 - Attenuation and Dispersion in rectangular waveguides
- Lecture 56 - Planar optical waveguides
- Lecture 57 - Application
- Lecture 58 - Application
- Lecture 59 - Mach-Zehnder Modulator
- Lecture 60 - Wave Propagation in Anisotropic Medium
- Lecture 61 - Wave Propagation in Ferrites
- Lecture 62 - Magnetic Vector Potential - Part 1
- Lecture 63 - Magnetic Vector Potential - Part 2
- Lecture 64 - Fields of a Dipole Antenna
- Lecture 65 - Antenna Parameters and Long wire Antenna
- Lecture 66 - Friis Transmission Formula



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Principles of Signals and Systems

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Principles of Signals and Systems- Introduction to Signals and Systems, Signal Classification - C  
Lecture 2 - Analog and Digital Signals  
Lecture 3 - Energy and Power Signals  
Lecture 4 - Real Exponential Signals  
Lecture 5 - Memory/Memory-less and Causal/Non-Causal Systems  
Lecture 6 - Properties of Linear Systems  
Lecture 7 - Example Problems - 1  
Lecture 8 - Example Problems - 2  
Lecture 9 - Example Problems - 3  
Lecture 10 - Properties and Analysis of LTI Systems - I  
Lecture 11 - Properties and Analysis of LTI Systems - II  
Lecture 12 - Properties and Analysis of LTI Systems - III  
Lecture 13 - Properties of Discrete Time LTI Systems  
Lecture 14 - Example Problems LTI Systems - I  
Lecture 15 - Example Problems LTI Systems - II  
Lecture 16 - Example Problems DT-LTI Systems  
Lecture 17 - Laplace Transform  
Lecture 18 - Laplace Transform Properties - I  
Lecture 19 - Laplace Transform Properties - II  
Lecture 20 - Laplace Transform of LTI Systems  
Lecture 21 - Laplace Transform Example Problems - I  
Lecture 22 - Laplace Transform Example Problems - II  
Lecture 23 - Laplace Transform of RL, RC Circuit  
Lecture 24 - Z-Transform  
Lecture 25 - Z-Transform Properties - I  
Lecture 26 - Z-Transform Properties - II  
Lecture 27 - Z-Transform of LTI Systems  
Lecture 28 - Z-Transform Examples - I  
Lecture 29 - Z-Transform Examples - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Z-Transform Examples - III
- Lecture 31 - Z-Transform Examples - IV
- Lecture 32 - Inverse Z-Transform
- Lecture 33 - Fourier Analysis Introduction
- Lecture 34 - Complex Exponential and Trigonometric FS
- Lecture 35 - Conditions for Existence of FS
- Lecture 36 - Fourier Transform (FT) Introduction
- Lecture 37 - Properties of Fourier Transform - I
- Lecture 38 - Properties of Fourier Transform - II
- Lecture 39 - Fourier Transform - Parseval's Relation
- Lecture 40 - Fourier Transform of LTI Systems
- Lecture 41 - FT- Ideal and Non-Ideal Filters
- Lecture 42 - Fourier Analysis Examples - I
- Lecture 43 - Fourier Analysis Examples - II
- Lecture 44 - Fourier Analysis Examples - III
- Lecture 45 - Fourier Analysis Examples - IV
- Lecture 46 - Fourier Analysis Examples - V
- Lecture 47 - Fourier Analysis Examples - VI
- Lecture 48 - Fourier Analysis Bode Plot - I
- Lecture 49 - Fourier Analysis Bode Plot - II
- Lecture 50 - Fourier Transform Examples
- Lecture 51 - Fourier Transform Problems
- Lecture 52 - Sampling
- Lecture 53 - Sampling
- Lecture 54 - Fourier Analysis of Discrete Time Signals and Systems - Introduction
- Lecture 55 - Fourier Analysis of Discrete Time Signals - Duality, Parseval's Theorem
- Lecture 56 - Discrete Time Fourier Transform
- Lecture 57 - Discrete Time Fourier Transform
- Lecture 58 - Discrete Time Fourier Transform
- Lecture 59 - DTFT
- Lecture 60 - Discrete Fourier Transform - Definition, Inverse DFT, Relation between DFT and DFS, Relation bet
- Lecture 61 - Discrete Fourier Transform
- Lecture 62 - Example Problems
- Lecture 63 - Example Problems
- Lecture 64 - DTFT Example Problems - III
- Lecture 65 - DTFT Example Problems - IV
- Lecture 66 - DTFT Example Problems - V
- Lecture 67 - DFT Example Problems - I
- Lecture 68 - Example Problems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Group/Phase Delay - Part I
- Lecture 70 - Group/Phase Delay - Part II
- Lecture 71 - IIR Filter Structures
- Lecture 72 - IIR Filter Structures
- Lecture 73 - IIR Filter Structures
- Lecture 74 - IIR Filter Structures
- Lecture 75 - IIR Filter

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Applied Optimization for Wireless, Machine Learning, Big Data

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Vectors and Matrices - Linear Independence and Rank
- Lecture 2 - Eigenvectors and Eigenvalues of Matrices and their Properties
- Lecture 3 - Positive Semidefinite (PSD) and Positive Definite (PD) Matrices and their Properties
- Lecture 4 - Inner Product Space and its Properties
- Lecture 5 - Inner Product Space and its Properties
- Lecture 6 - Properties of Norm, Gaussian Elimination and Echelon form of matrix
- Lecture 7 - Gram Schmidt Orthogonalization Procedure
- Lecture 8 - Null Space and Trace of Matrices
- Lecture 9 - Eigenvalue Decomposition of Hermitian Matrices and Properties
- Lecture 10 - Matrix Inversion Lemma (Woodbury identity)
- Lecture 11 - Introduction to Convex Sets and Properties
- Lecture 12 - Affine Set Examples and Application
- Lecture 13 - Norm Ball and its Practical Applications
- Lecture 14 - Ellipsoid and its Practical Applications
- Lecture 15 - Norm Cone, Polyhedron and its Applications
- Lecture 16 - Applications
- Lecture 17 - Positive Semi Definite Cone And Positive Semi Definite (PSD) Matrices
- Lecture 18 - Introduction to Affine functions and examples
- Lecture 19 - norm balls and Matrix properties
- Lecture 20 - Inverse of a Positive Definite Matrix
- Lecture 21 - Example Problems
- Lecture 22 - Problems on Convex Sets (Continued...)
- Lecture 23 - Introduction to Convex and Concave Functions
- Lecture 24 - Properties of Convex Functions with examples
- Lecture 25 - Test for Convexity
- Lecture 26 - Application
- Lecture 27 - Jensen's Inequality and Practical Application
- Lecture 28 - Jensen's Inequality application
- Lecture 29 - Properties of Convex Functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Conjugate Function and Examples to prove Convexity of various Functions
- Lecture 31 - Examples on Operations Preserving Convexity
- Lecture 32 - Examples on Test for Convexity, Quasi-Convexity
- Lecture 33 - Examples on Convex Functions
- Lecture 34 - Practical Application
- Lecture 35 - Practical Application
- Lecture 36 - Practical Application
- Lecture 37 - Practical Application
- Lecture 38 - Practical Application
- Lecture 39 - Practical Application
- Lecture 40 - Practical Application
- Lecture 41 - Linear modeling and Approximation Problems
- Lecture 42 - Geometric Intuition for Least Squares
- Lecture 43 - Practical Application
- Lecture 44 - Practical Application
- Lecture 45 - Least Norm Signal Estimation
- Lecture 46 - Regularization
- Lecture 47 - Convex Optimization Problem representation
- Lecture 48 - Linear Program Practical Application
- Lecture 49 - Stochastic Linear Program, Gaussian Uncertainty
- Lecture 50 - Practical Application
- Lecture 51 - Practical Application
- Lecture 52 - Practical Application
- Lecture 53 - Practical Application
- Lecture 54 - Practical Application
- Lecture 55 - Practical Application
- Lecture 56 - Practical Application
- Lecture 57 - Practical Application- Orthogonal Matching Pursuit (OMP) algorithm for Compressive Sensing
- Lecture 58 - Example Problem
- Lecture 59 - Practical Application
- Lecture 60 - Practical Application of Machine Learning and Artificial Intelligence
- Lecture 61 - Practical Application
- Lecture 62 - Practical Application
- Lecture 63 - Concept of Duality
- Lecture 64 - Relation between optimal value of Primal and Dual Problems, concepts of Duality gap and Strong D
- Lecture 65 - Example problem on Strong Duality
- Lecture 66 - Karush-Kuhn-Tucker (KKT) conditions
- Lecture 67 - Application of KKT condition
- Lecture 68 - Optimal MIMO Power allocation (Waterfilling)-II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Example problem on Optimal MIMO Power allocation (Waterfilling)
- Lecture 70 - Linear objective with box constraints, Linear Programming
- Lecture 71 - Example Problems II
- Lecture 72 - Examples on Quadratic Optimization
- Lecture 73 - Examples on Duality
- Lecture 74 - Examples on Duality
- Lecture 75 - Semi Definite Program (SDP) and its application
- Lecture 76 - Application
- Lecture 77 - Introduction to big Data
- Lecture 78 - Matrix Completion Problem in Big Data
- Lecture 79 - Matrix Completion Problem in Big Data

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fiber-Optic Communication Systems and Techniques

Subject Co-ordinator - Dr. Pradeep Kumar K

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of fiber-optic communication systems
- Lecture 2 - Review of Maxwell's equations
- Lecture 3 - Uniform plane waves (UWPs) in free-space
- Lecture 4 - Properties of UWPs (propagation constant, polarization, and Poynting vector)
- Lecture 5 - Boundary conditions and reflection from a PEC
- Lecture 6 - Obliquely incident waves-I (TE and TM waves, Snell's laws)
- Lecture 7 - Obliquely incident waves-II (Reflection and transmission coefficients, Brewster angle)
- Lecture 8 - Total internal reflection
- Lecture 9 - Ray theory of dielectric slab waveguides
- Lecture 10 - Transverse resonance condition for slab waveguides
- Lecture 11 - Introduction to optical fibers
- Lecture 12 - Ray theory of light propagation in optical fibers
- Lecture 13 - Concept of waveguide modes
- Lecture 14 - Systematic procedure to obtain modes of a waveguide
- Lecture 15 - Systematic analysis of parallel plate metallic waveguide
- Lecture 16 - Systematic analysis of dielectric slab waveguides
- Lecture 17 - Further discussion on slab waveguides
- Lecture 18 - Modal analysis of step index optical fiber
- Lecture 19 - Properties of modes of step-index optical fiber - I
- Lecture 20 - Properties of modes of step-index optical fiber - II
- Lecture 21 - Linearly polarized modes
- Lecture 22 - Attenuation and power loss in fibers
- Lecture 23 - Introduction to dispersion in fibers
- Lecture 24 - Mathematical modelling of dispersion
- Lecture 25 - Pulse propagation equation and its solution
- Lecture 26 - Pre-chirped pulses and Inter and Intra-modal dispersion in optical fibers
- Lecture 27 - Beam Propagation Method
- Lecture 28 - Polarization Effects on Pulse Propagation
- Lecture 29 - Modes in Optical Fibres and Pulse Propagation in Optical Fibres

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Graded Index Fibers
- Lecture 31 - Light Sources, Detectors and Amplifiers
- Lecture 32 - Basics of Lasers-I (Structure of Lasers, Process of Photon Emission)
- Lecture 33 - Basics of Lasers-II (Einstein's Theory of Radiation)
- Lecture 34 - Basics of Lasers-III (Population Inversion and Rate Equation for Lasers)
- Lecture 35 - Basic Properties of Semiconductor Laser-I (Energy Gap, Intrinsic and Extrinsic Semiconductors)
- Lecture 36 - Basic Properties of Semiconductor Laser-II (Fermi Level)
- Lecture 37 - Optical Properties of Semiconductors-I (Direct Bandgap and Indirect Bandgap, Density of States)
- Lecture 38 - Optical Properties of Semiconductors-II (Gain, Absorption, Recombination rate) Homojunction Laser
- Lecture 39 - Double Heterostructure Lasers, Introduction to Quantum Well Lasers
- Lecture 40 - Semiconductor Optical Amplifier
- Lecture 41 - Erbium-doped fiber amplifier
- Lecture 42 - Photodetectors
- Lecture 43 - Noise in Photodetectors
- Lecture 44 - Introduction to WDM components
- Lecture 45 - Couplers, Circulators, FRM and Filters
- Lecture 46 - Filter, MUX/DEMUX, Diffraction grating (FBG and Long period grating)
- Lecture 47 - Optical Modulators-I (Current modulation)
- Lecture 48 - Optical Modulators-II (Electro-optic modulators)
- Lecture 49 - Review of Communication Concepts-I (Deterministic and Random Signals, Baseband and Passband Signals)
- Lecture 50 - Review of Communication Concepts-II (Signal and vectors, Signal energy, Orthonormal basis functions)
- Lecture 51 - Intensity modulation/ Direct Detection
- Lecture 52 - BER discussion for OOK systems
- Lecture 53 - Higher order modulation and Coherent Receiver
- Lecture 54 - Coherent receiver for BPSK systems and BER calculation
- Lecture 55 - Recovering Polarization
- Lecture 56 - DSP algorithms for Chromatic dispersion mitigation
- Lecture 57 - DSP algorithms for Carrier phase estimation - I
- Lecture 58 - DSP algorithms for Carrier phase estimation - II
- Lecture 59 - Nonlinear effects in fiber
- Lecture 60 - Four wave mixing, Loss measurement, Dispersion measurement
- Lecture 61 - Lab Demonstration (Laser diode characteristics, Loss measurement, Optical Intensity Modulation)



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Electrical Machines I

Subject Co-ordinator - Dr. D. Kastha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Operating Principles and Construction of Single Phase Transformers
- Lecture 3 - Modeling of Single Phase Transformers
- Lecture 4 - Equivalent Circuits of Single Phase Transformers
- Lecture 5 - Testing of Single Phase Transformers
- Lecture 6 - Efficiency of Single Phase Transformers
- Lecture 7 - Voltage Regulation of Single Phase Transformers
- Lecture 8 - Parallel Operation of Single Phase Transformers
- Lecture 9 - Harmonics and Switching Transients in Single Phase Transformers
- Lecture 10 - Introduction to Three Phase Transformer
- Lecture 11 - Construction of Three Phase Transformers
- Lecture 12 - Three Phase Transformer Connections
- Lecture 13 - Three Phase Transformer Phase Groups Part - I
- Lecture 14 - Three Phase Transformer Phase Groups Part - II
- Lecture 15 - Analysis and Testing of Three Phase Transformers
- Lecture 16 - Operation of Three Phase Transformers
- Lecture 17 - Auto Transformers
- Lecture 18 - Three Winding Transformers
- Lecture 19 - Scott Connected Transformers
- Lecture 20 - Potential and Current Transformers
- Lecture 21 - Operating Principles of DC Machines
- Lecture 22 - Constructional Features of DC Machines
- Lecture 23 - Generated EMF and Torque in DC Machines
- Lecture 24 - Armature Reaction
- Lecture 25 - Commutation in DC Machines
- Lecture 26 - Separately Excited DC Generators
- Lecture 27 - DC Shunt Generators
- Lecture 28 - Compound DC Generators
- Lecture 29 - Interconnected DC Generators

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Characteristics of DC Shunt Motors
- Lecture 31 - Starting of DC Shunt Motors
- Lecture 32 - Speed Control of DC Shunt Motors
- Lecture 33 - Braking of DC Shunt Motors
- Lecture 34 - Electronic Control of DC Shunt Motors
- Lecture 35 - Testing of DC Shunt Motors
- Lecture 36 - Characteristics of DC Series Motors
- Lecture 37 - Starting and Braking of DC Series Motors
- Lecture 38 - Speed Control and of DC Series Motors
- Lecture 39 - Testing of DC Series Motors
- Lecture 40 - Characteristics of Compound DC Series Motors

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Optimal Control

Subject Co-ordinator - Prof. G.D. Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Optimization Problem
- Lecture 2 - Introduction to Optimization Problem
- Lecture 3 - Optimality Conditions for Function of Several Variables
- Lecture 4 - Optimality Conditions for Function of Several Variables (Continued.)
- Lecture 5 - Unconstrained Optimization Problem (Numerical Techniques)
- Lecture 6 - Solution of Unconstrained Optimization Problem Using Conjugate Gradient Method and Networks Method
- Lecture 7 - Solution of Unconstrained Optimization Problem Using Conjugate Gradient Method and Networks Method
- Lecture 8 - Solution of Constraint Optimization Problem-Karush-Kuhn Tucker (KKT) Conditions
- Lecture 9 - Solution of Constraint Optimization Problem-Karush-Kuhn Tucker (KKT) Conditions (Continued.)
- Lecture 10 - Problem and Solution Session
- Lecture 11 - Post Optimality Analysis, Convex Function and its Properties
- Lecture 12 - Post Optimality Analysis, Convex Function and its Properties (Continued.)
- Lecture 13 - Quadratic Optimization Problem Using Linear Programming
- Lecture 14 - Matrix form of the Simplex Method
- Lecture 15 - Matrix form of the Simplex Method (Continued.)
- Lecture 16 - Solution of Linear Programming Using Simplex Method
- Lecture 17 - Solution of Linear Programming Using Simplex Method
- Lecture 18 - Solution of LP Problems with Two Phase Method
- Lecture 19 - Solution of LP Problems with Two Phase Method (Continued.)
- Lecture 20 - Standard Primal and Dual Problems
- Lecture 21 - Relationship Between Primal and Dual Variables
- Lecture 22 - Solution of Quadratic Programming Problem Using Simplex Method
- Lecture 23 - Interior Point Method for Solving Optimization Problems
- Lecture 24 - Interior Point Method for Solving Optimization Problems (Continued.)
- Lecture 25 - Solution of Nonlinear Programming Problem Using Exterior Penalty Function Method
- Lecture 26 - Solution of Nonlinear Programming Problem Using Exterior Penalty Function Method (Continued.)
- Lecture 27 - Solution of Nonlinear Programming Problem Using Interior Penalty Function Method
- Lecture 28 - Solution of Nonlinear Programming Problem Using Interior Penalty Function Method (Continued.)
- Lecture 29 - Multiobjective Optimization Problem

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dynamic Optimization Problem
- Lecture 31 - Dynamic Optimization Problem
- Lecture 32 - Dynamic Optimization Problem
- Lecture 33 - Numerical Example and Solution of Optimal Control Problem using Calculus of Variation principle
- Lecture 34 - Numerical Example and Solution of Optimal Control Problem using Calculus of Variation principle
- Lecture 35 - Hamiltonian Formulation for solution of optimal Control problem and numerical example
- Lecture 36 - Hamiltonian Formulation for solution of optimal Control problem and numerical example (Continued)
- Lecture 37 - Performance Indices and Linear Quadratic Regulator Problem
- Lecture 38 - Performance Indices and Linear Quadratic Regulator Problem (Continued.)
- Lecture 39 - Solution and Stability Analysis of Finite - time LQR Problem
- Lecture 40 - Solution and Infinite - time LQR Problem and Stability Analysis
- Lecture 41 - Numerical Example and Methods for Solution of A.R.E.
- Lecture 42 - Numerical Example and Methods for Solution of A.R.E. (Continued.)
- Lecture 43 - Frequency Domain Interpretation of LQR Controlled System
- Lecture 44 - Gain and Phase Margin of LQR Controlled System
- Lecture 45 - The Linear Quadratic Gaussian Problem
- Lecture 46 - Loop-Transfer Recovery
- Lecture 47 - Dynamic Programming for Discrete Time Systems
- Lecture 48 - Minimum  $\hat{a}$  Time Control of a Linear Time Invariant System
- Lecture 49 - Solution of Minimum  $\hat{a}$  Time Control Problem with an Example
- Lecture 50 - Constraint in Control Inputs and State Variables
- Lecture 51 - Constraint in Control Inputs and State Variables (Continued...)
- Lecture 52 - Norms for Vectors, Matrices, Signals and Linear Systems
- Lecture 53 - Signal and System Norms
- Lecture 54 - Internal Stability, Sensitivity and Complementary Sensitivity Functions
- Lecture 55 - Internal Stability, Sensitivity and Complementary Sensitivity Functions (Continued...)
- Lecture 56 - Plant Uncertainty and Standard form for Robust Stability Analysis
- Lecture 57 - Plant Uncertainty and Standard form for Robust Stability Analysis (Continued...)
- Lecture 58 - Frequency Response of Linear System and Singular Value Decomposition of System
- Lecture 59 - Control Problem Statement in H-  $\alpha$  Framework
- Lecture 60 - Control Problem Statement in H -  $\alpha$  Framework (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Chaos, Fractals and Dynamic Systems

Subject Co-ordinator - Prof. S. Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Representations of Dynamical Systems
- Lecture 2 - Vector Fields of Nonlinear Systems
- Lecture 3 - Limit Cycles
- Lecture 4 - The Lorenz Equation - I
- Lecture 5 - The Lorenz Equation - II
- Lecture 6 - The Rossler Equation and Forced Pendulum
- Lecture 7 - The Chua's Circuit
- Lecture 8 - Discrete Time Dynamical Systems
- Lecture 9 - The Logistic Map and Period doubling
- Lecture 10 - Flip and Tangent Bifurcations
- Lecture 11 - Intermittency Transcritical and pitchfork
- Lecture 12 - Two Dimensional Maps
- Lecture 13 - Bifurcations in Two Dimensional Maps
- Lecture 14 - Introduction to Fractals
- Lecture 15 - Mandelbrot Sets and Julia Sets
- Lecture 16 - The Space Where Fractals Live
- Lecture 17 - Interactive Function Systems
- Lecture 18 - IFS Algorithms
- Lecture 19 - Fractal Image Compression
- Lecture 20 - Stable and Unstable Manifolds
- Lecture 21 - Boundary Crisis and Interior Crisis
- Lecture 22 - Statistics of Chaotic Attractors
- Lecture 23 - Matrix Times Circle
- Lecture 24 - Lyapunov Exponent
- Lecture 25 - Frequency Spectra of Orbits
- Lecture 26 - Dynamics on a Torus
- Lecture 27 - Dynamics on a Torus
- Lecture 28 - Analysis of Chaotic Time Series
- Lecture 29 - Analysis of Chaotic Time Series

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lyapunou Function and Centre Manifold Theory
- Lecture 31 - Non-Smooth Bifurcations
- Lecture 32 - Non-Smooth Bifurcations
- Lecture 33 - Normal form for Piecewise Smooth 2D Maps
- Lecture 34 - Bifurcations in Piecewise Linear 2D Maps
- Lecture 35 - Bifurcations in Piecewise Linear 2D Maps
- Lecture 36 - Multiple Attractor Bifurcation and Dangerous
- Lecture 37 - Dynamics of Discontinuous Maps
- Lecture 38 - Introduction to Floquet Theory
- Lecture 39 - The Monodromy Matrix and the Saltation Matrix
- Lecture 40 - Control of Chaos

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Digital Signal Processing

Subject Co-ordinator - Prof. T.K. Basu

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Discrete Time Signal and System  
Lecture 2 - Discrete Time Signal and System (Continued...)  
Lecture 3 - Discrete Time Signal and System (Continued...)  
Lecture 4 - Frequency Domain Representation of Discrete Signals  
Lecture 5 - Z-Transform  
Lecture 6 - Z-Transform (Continued...)  
Lecture 7 - Solution of Difference Equation  
Lecture 8 - Tutorial on Discrete Time Signals & Their Transforms  
Lecture 9 - Relation Between Discrete Time and Continuous Signals  
Lecture 10 - Discrete Fourier Transform (DFT)  
Lecture 11 - Discrete Fourier Transform (DFT) (Continued...)  
Lecture 12 - Discrete Fourier Transform (DFT) (Continued...)  
Lecture 13 - State Space Representation  
Lecture 14 - Filters Introduction  
Lecture 15 - FIR Filters  
Lecture 16 - FIR Filters (Continued...) Introduction to IIR Filters  
Lecture 17 - IIR Filters (Continued...)  
Lecture 18 - IIR Filters (Continued...)  
Lecture 19 - IIR Filters (Continued...)  
Lecture 20 - Tutorial & Introduction to Computer Aided Design of Filters  
Lecture 21 - Computer Aided Design of Filters  
Lecture 22 - FFT and Computer Aided Design of Filters  
Lecture 23 - Introduction to Lattice Filter  
Lecture 24 - Lattice Filter (Continued...)  
Lecture 25 - Effects of Quantization  
Lecture 26 - Effects of Quantization (Continued...)  
Lecture 27 - Effects of Quantization (Continued...)  
Lecture 28 - Effects of Quantization (Continued...)  
Lecture 29 - Random Signals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Relationship Between Real and Imaginary Parts of DTFT
- Lecture 31 - Relationship Between Real and Imaginary Parts of DTFT
- Lecture 32 - Relationship Between Real and Imaginary Parts of DTFT
- Lecture 33 - Multi rate Signal Processing
- Lecture 34 - Multi rate Signal Processing (Continued...)
- Lecture 35 - Polyphase Decomposition



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Dynamics of Physical Systems

Subject Co-ordinator - Prof. S. Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to System Elements
- Lecture 2 - Newton's Method and Constraints
- Lecture 3 - Derivation of the Lagrangian Equation
- Lecture 4 - Using the lagrangian Equation to Obtain Differential Equations (Part-I)
- Lecture 5 - Using the lagrangian Equation to Obtain Differential Equations (Part-II)
- Lecture 6 - Using the lagrangian Equation to Obtain Differential Equations (Part-III)
- Lecture 7 - Using the lagrangian Equation to Obtain Differential Equations (Part-IV)
- Lecture 8 - Obtaining First Order Equations
- Lecture 9 - Application of the Hamiltonian Method
- Lecture 10 - Obtaining Differential Equations Using Kirchoff's Laws
- Lecture 11 - The Graph Theory Approach for Electrical Circuits (Part-I)
- Lecture 12 - The Graph Theory Approach for Electrical Circuits (Part-II)
- Lecture 13 - The Bond Graph Approach - I
- Lecture 14 - The Bond Graph Approach - II
- Lecture 15 - The Bond Graph Approach - III
- Lecture 16 - The Bond Graph Approach - IV
- Lecture 17 - The Bond Graph Approach - V
- Lecture 18 - The Bond Graph Approach - VI
- Lecture 19 - The Bond Graph Approach - VII
- Lecture 20 - Numerical Solution of Differential Equations
- Lecture 21 - Dynamics in the State Space
- Lecture 22 - Vector Field Around Equilibrium Points - I
- Lecture 23 - Vector Field Around Equilibrium Points - II
- Lecture 24 - Vector Field Around Equilibrium Points - III
- Lecture 25 - Vector Field Around Equilibrium Points - IV
- Lecture 26 - High Dimensional Linear Systems
- Lecture 27 - Linear Systems with External Input - I
- Lecture 28 - Linear Systems with External Input - II
- Lecture 29 - Linear Systems with External Input - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dynamics of Nonlinear Systems - I
- Lecture 31 - Dynamics of Nonlinear Systems - II
- Lecture 32 - Dynamics of Nonlinear Systems - III
- Lecture 33 - Discrete-Time Dynamical Systems - I
- Lecture 34 - Discrete-Time Dynamical Systems - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Energy Resources and Technology

Subject Co-ordinator - Prof. S. Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Thermodynamics  
Lecture 2 - Quality of Energy  
Lecture 3 - Complete Cycle Analysis of Fossil Fuels  
Lecture 4 - Energy in Transportation  
Lecture 5 - Other Fossil Fuels  
Lecture 6 - Energy Economics  
Lecture 7 - Energy Economics  
Lecture 8 - Thermal Power Plants  
Lecture 9 - Thermal Power Plants  
Lecture 10 - Hydroelectric Power  
Lecture 11 - Hydroelectric Power  
Lecture 12 - Nuclear Power Generation  
Lecture 13 - Nuclear Fusion Reactors  
Lecture 14 - Environmental Effects of Conventional Power  
Lecture 15 - Solar Thermal Energy Conversion  
Lecture 16 - Solar Concentrating Collectors  
Lecture 17 - Photovoltaic Power Generation  
Lecture 18 - Photovoltaic Power Generation (Continued.)  
Lecture 19 - Photovoltaic Power Generation (Continued.)  
Lecture 20 - Photovoltaic Power Generation (Continued.)  
Lecture 21 - Wind Energy - I  
Lecture 22 - Wind Energy - II  
Lecture 23 - Wind Energy - III  
Lecture 24 - Wind Energy - IV  
Lecture 25 - Wind Energy - V  
Lecture 26 - Wind Energy - VI  
Lecture 27 - Wind Electrical Conversion - I  
Lecture 28 - Wind Electrical Conversion - II  
Lecture 29 - Wind Electrical Conversion - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tidal Energy
- Lecture 31 - Tidal Energy
- Lecture 32 - Tidal Energy
- Lecture 33 - Ocean Thermal Energy Conversion
- Lecture 34 - Solar Pond and Wave Power
- Lecture 35 - Geothermal Energy
- Lecture 36 - Solar Distillation and Biomass Energy
- Lecture 37 - Energy Storage
- Lecture 38 - Magneto hydrodynamic Power Generation
- Lecture 39 - Magneto hydrodynamic Power Generation
- Lecture 40 - Hydrogen Economy

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Estimation of Signals and Systems

Subject Co-ordinator - Prof. S. Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Probability Theory
- Lecture 3 - Random Variables
- Lecture 4 - Function of Random Variable Joint Density
- Lecture 5 - Mean and Variance
- Lecture 6 - Random Vectors Random Processes
- Lecture 7 - Random Processes and Linear Systems
- Lecture 8 - Some Numerical Problems
- Lecture 9 - Miscellaneous Topics on Random Process
- Lecture 10 - Linear Signal Models
- Lecture 11 - Linear Mean Sq. Error Estimation
- Lecture 12 - Auto Correlation and Power Spectrum Estimation
- Lecture 13 - Z-Transform Revisited Eigen Vectors/Values
- Lecture 14 - The Concept of Innovation
- Lecture 15 - Least Squares Estimation Optimal IIR Filters
- Lecture 16 - Introduction to Adaptive Filters
- Lecture 17 - State Estimation
- Lecture 18 - Kalman Filter-Model and Derivation
- Lecture 19 - Kalman Filter-Derivation (Continued...)
- Lecture 20 - Estimator Properties
- Lecture 21 - The Time-Invariant Kalman Filter
- Lecture 22 - Kalman Filter-Case Study
- Lecture 23 - System identification Introductory Concepts
- Lecture 24 - Linear Regression-Recursive Least Squares
- Lecture 25 - Variants of LSE
- Lecture 26 - Least Square Estimation
- Lecture 27 - Model Order Selection Residual Tests
- Lecture 28 - Practical Issues in Identification
- Lecture 29 - Estimation Problems in Instrumentation and Control

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Illumination Engineering

Subject Co-ordinator - Prof. N.K. Kishore

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Illumination Engineering
- Lecture 2 - Instructional Objectives
- Lecture 3 - Eye and Vision - I
- Lecture 4 - Eye and Vision - II
- Lecture 5 - Laws of Illumination
- Lecture 6 - Photometry
- Lecture 7 - Incandescent Lamps
- Lecture 8 - Discharge Lamps - I
- Lecture 9 - Discharge Lamps - II
- Lecture 10 - Discharge Lamps - III
- Lecture 11 - Illumination Systems - I
- Lecture 12 - Illumination Systems - II
- Lecture 13 - Glare
- Lecture 14 - Color
- Lecture 15 - Interior Lighting
- Lecture 16 - Sports Lighting
- Lecture 17 - Road Lighting
- Lecture 18 - Lighting Calculations
- Lecture 19 - Lighting Applications
- Lecture 20 - Conclusions on Illumination Engineering

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Industrial Automation and Control

Subject Co-ordinator - Prof. S. Sen, Prof. S. Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Architecture of Industrial Automation Systems
- Lecture 3 - Measurement Systems Characteristics
- Lecture 4 - Temperature Measurement
- Lecture 5 - Pressure, Force and Torque Sensors
- Lecture 6 - Motion Sensing
- Lecture 7 - Flow Measurement
- Lecture 8 - Signal Conditioning
- Lecture 9 - Signal Conditioning (Continued.)
- Lecture 10 - Data Acquisition Systems
- Lecture 11 - Introduction to Automatic Control
- Lecture 12 - P-I-D Control
- Lecture 13 - PID Control Tuning
- Lecture 14 - Feedforward Control Ratio Control
- Lecture 15 - Time Delay Systems and Inverse Response Systems
- Lecture 16 - Special Control Structures
- Lecture 17 - Concluding Lesson on Process Control
- Lecture 18 - Introduction to Sequence Control, PLC, RLL
- Lecture 19 - Sequence Control. Scan Cycle, Simple RLL Programs
- Lecture 20 - Sequence Control. More RLL Elements, RLL Syntax
- Lecture 21 - A Structured Design Approach to Sequence
- Lecture 22 - PLC Hardware Environment
- Lecture 23 - Introduction To CNC Machines
- Lecture 24 - Contour generation and Motion Control
- Lecture 25 - Flow Control Valves
- Lecture 26 - Hydraulic Control Systems - I
- Lecture 27 - Hydraulic Control Systems - II
- Lecture 28 - Industrial Hydraulic Circuit
- Lecture 29 - Pneumatic Control Systems - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pneumatic Systems - II
- Lecture 31 - Energy Savings with Variable Speed Drives
- Lecture 32 - DC Motor Drives
- Lecture 33 - DC and BLDC Servo Drives
- Lecture 34 - Induction Motor Drives
- Lecture 35 - Step Motor Drives BLDC Drives
- Lecture 36 - Embedded Systems
- Lecture 37 - The Fieldbus Network - I
- Lecture 38 - The Fieldbus Network - II
- Lecture 39 - Higher Level Automation Systems
- Lecture 40 - Course Review and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Industrial Instrumentation

Subject Co-ordinator - Prof. Alok Barua

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Industrial Instrumentation  
Lecture 2 - Dynamic Characteristics  
Lecture 3 - Dynamic Characteristics (Continued.)  
Lecture 4 - Strain gauge  
Lecture 5 - Load cell  
Lecture 6 - Torque Measurement  
Lecture 7 - Thermistor  
Lecture 8 - Thermocouples  
Lecture 9 - Resistance Temperature Detector  
Lecture 10 - LVDT  
Lecture 11 - Capacitance Transducers  
Lecture 12 - Flowmeter - I  
Lecture 13 - Flowmeter - II  
Lecture 14 - Flowmeter - III  
Lecture 15 - Flowmeter - IV  
Lecture 16 - Flowmeter - V  
Lecture 17 - Problems on Temperature Sensors  
Lecture 18 - Pressure Sensors  
Lecture 19 - Low Pressure Measurement  
Lecture 20 - pH and Viscosity Measurement  
Lecture 21 - Problem and Solutions On Industrial Instrumentation  
Lecture 22 - Signal Conditioning Circuits - I  
Lecture 23 - Signal Conditioning Circuits - II  
Lecture 24 - Piezoelectric Sensors  
Lecture 25 - Ultrasonic Sensors  
Lecture 26 - Nucleonic Instrumentation  
Lecture 27 - Measurement Of Magnetic Field  
Lecture 28 - Optoelectronic Sensor - I  
Lecture 29 - Optoelectronic Sensor - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Synchro
- Lecture 31 - Dissolved Oxygen Sensors - I
- Lecture 32 - Dissolved Oxygen Sensors - II
- Lecture 33 - Flapper - Nozzle
- Lecture 34 - Smart Sensors
- Lecture 35 - Chromatography - I
- Lecture 36 - Chromatography - II
- Lecture 37 - Pollution Measurement
- Lecture 38 - Control Valve - I
- Lecture 39 - Control Valve - II
- Lecture 40 - Signal Conditioning Integrated Circuits

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Networks Signals and Systems

Subject Co-ordinator - Prof. T.K. Basu

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Network Elements and Sources
- Lecture 2 - Introduction to Linearity and Nonlinearity
- Lecture 3 - Distributed & Lumped Parameters 2-port Networks
- Lecture 4 - Two-port Parameters Short Circuit, Open Circuit
- Lecture 5 - Tutorial
- Lecture 6 - Locus Diagram - Introduction to Signals
- Lecture 7 - Signals (Continued.) Laplace Transforms
- Lecture 8 - Laplace Transform (Continued.)
- Lecture 9 - Tutorial on Laplace Transform
- Lecture 10 - Frequency Response Bode Plot
- Lecture 11 - Bode Plot (Continued.)
- Lecture 12 - Bode Plot (Continued.) - Poles & Zeros
- Lecture 13 - Driving Point Immittance Functions - Realisability Conditions
- Lecture 14 - Two - Element Synthesis
- Lecture 15 - Two - Element Synthesis (Continued.)
- Lecture 16 - Tutorial
- Lecture 17 - Tutorial
- Lecture 18 - Graph Theory
- Lecture 19 - Graph Theory (Continued.)
- Lecture 20 - Graph Theory (Continued.)
- Lecture 21 - Graph Theory (Continued.)
- Lecture 22 - Image Impedance, Iterative Impedance
- Lecture 23 - Image Impedance, Iterative Impedance
- Lecture 24 - Characteristic Impedance and Design of Filters
- Lecture 25 - Analysis of Resistive Networks Computer Aided
- Lecture 26 - R-L-C Two-Terminal Network
- Lecture 27 - Parts of Network Functions
- Lecture 28 - Parts of Network Functions (Continued.)
- Lecture 29 - Tutorial

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial (Continued.)
- Lecture 31 - Tutorial
- Lecture 32 - Synthesis of 2-port Network
- Lecture 33 - Synthesis of 2-port Network (Continued.)
- Lecture 34 - Synthesis of 2-port Network (Continued.)
- Lecture 35 - Fourier Series
- Lecture 36 - Fourier Series (Continued.)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power System Analysis

Subject Co-ordinator - Prof. A.K. Sinha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Power system analysis  
Lecture 2 - Introduction to Single Line Diagram  
Lecture 3 - Transmission Line Parameters  
Lecture 4 - Inductance Calculation (Three Phase)  
Lecture 5 - Transmission Line Capacitance  
Lecture 6 - Transmission Line Capacitance (Continued..)  
Lecture 7 - Transmission Line Modeling  
Lecture 8 - Transmission Line Modeling Long Line  
Lecture 9 - Transmission Line Steady State Operation  
Lecture 10 - Transmission Line Steady State Control Voltage  
Lecture 11 - Transmission System A Review  
Lecture 12 - Transformer Model  
Lecture 13 - Synchronous Machine Model  
Lecture 14 - Synchronous Machine Model  
Lecture 15 - Load Model  
Lecture 16 - Power Flow - I  
Lecture 17 - Power Flow - II  
Lecture 18 - Power Flow - III  
Lecture 19 - Power Flow - IV  
Lecture 20 - Power Flow - V  
Lecture 21 - Power Flow - VI  
Lecture 22 - Power Flow - VII  
Lecture 23 - Review of Power System Component Models  
Lecture 24 - Review of Power Flow Study  
Lecture 25 - Short Circuit Analysis  
Lecture 26 - Symmetrical Component Analysis  
Lecture 27 - Sequence Networks  
Lecture 28 - Unbalanced Fault Analysis  
Lecture 29 - Unbalanced Fault Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fault Analysis for Large power Systems
- Lecture 31 - Bus Impedance Matrix
- Lecture 32 - Asymmetrical Fault Analysis Using Z - Bus
- Lecture 33 - Power System Stability - I
- Lecture 34 - Power System Stability - II
- Lecture 35 - Power System Stability - III
- Lecture 36 - Power System Stability - IV
- Lecture 37 - Power System Stability - V
- Lecture 38 - Power System Stability - VI
- Lecture 39 - Power System Stability - VII
- Lecture 40 - Power System Stability - VIII

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Industrial Automation and Control

Subject Co-ordinator - Prof. S. Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Architecture of Industrial Automation Systems
- Lecture 4 - Architecture of Industrial Automation Systems (Continued...)
- Lecture 5 - Measurement Systems Characteristics
- Lecture 6 - Measurement Systems Characteristics (Continued...)
- Lecture 7 - Data Acquisition Systems
- Lecture 8 - Data Acquisition Systems (Continued...)
- Lecture 9 - Introduction to Automatic Control
- Lecture 10 - Introduction to Automatic Control (Continued...)
- Lecture 11 - P-I-D Control
- Lecture 12 - P-I-D Control (Continued...)
- Lecture 13 - PID Control Tuning
- Lecture 14 - PID Control Tuning (Continued...)
- Lecture 15 - Feedforward Control Ratio Control
- Lecture 16 - Feedforward Control Ratio Control (Continued...)
- Lecture 17 - Time Delay Systems and Inverse Response Systems
- Lecture 18 - Time Delay Systems and Inverse Response Systems (Continued...)
- Lecture 19 - Special Control Structures
- Lecture 20 - Special Control Structures (Continued...)
- Lecture 21 - Concluding Lesson on Process Control (Self-study)
- Lecture 22 - Introduction to Sequence Control, PLC, RLL
- Lecture 23 - Introduction to Sequence Control, PLC, RLL (Continued...)
- Lecture 24 - Sequence Control. Scan Cycle, Simple RLL Programs
- Lecture 25 - Sequence Control, Scan Cycle, Simple RLL Programs (Continued...)
- Lecture 26 - Sequence Control. More RLL Elements, RLL Syntax
- Lecture 27 - Sequence Control. More RLL Elements, RLL Syntax (Continued...)
- Lecture 28 - A Structured Design Approach to Sequence Control
- Lecture 29 - A Structured Design Approach to Sequence Control (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - PLC Hardware Environment
- Lecture 31 - PLC Hardware Environment (Continued...)
- Lecture 32 - Flow Control Valves
- Lecture 33 - Flow Control Valves (Continued...)
- Lecture 34 - Hydraulic Control Systems - I
- Lecture 35 - Hydraulic Control Systems - I (Continued...)
- Lecture 36 - Hydraulic Control Systems - II
- Lecture 37 - Hydraulic Control Systems - II (Continued...)
- Lecture 38 - Industrial Hydraulic Circuit
- Lecture 39 - Industrial Hydraulic Circuit (Continued...)
- Lecture 40 - Pneumatic Control Systems - I
- Lecture 41 - Pneumatic Control Systems - I (Continued...)
- Lecture 42 - Pneumatic Systems - II
- Lecture 43 - Pneumatic Systems - II (Continued...)
- Lecture 44 - Energy Savings with Variable Speed Drives
- Lecture 45 - Energy Savings with Variable Speed Drives (Continued...)
- Lecture 46 - Introduction To CNC Machines
- Lecture 47 - Introduction To CNC Machines
- Lecture 48 - The Fieldbus Network - I
- Lecture 49 - The Fieldbus Network - I (Continued...)
- Lecture 50 - Higher Level Automation Systems
- Lecture 51 - Higher Level Automation Systems (Continued...)
- Lecture 52 - Course Review and Conclusion (Self Study)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Medical Image Analysis

Subject Co-ordinator - Prof. Debdoot Sheet

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Medical Image Analysis
- Lecture 2 - X Ray and CT Imaging
- Lecture 3 - Magnetic Resonance Imaging
- Lecture 4 - Ultrasound Imaging
- Lecture 5 - Optical Microscopy and Molecular Imaging
- Lecture 6 - Texture in Medical Images
- Lecture 7 - Region Growing and Clustering
- Lecture 8 - Random Walks for Segmentation
- Lecture 9 - Active Contours for Segmentation
- Lecture 10 - Systematic Evaluation and Validation
- Lecture 11 - Decision Trees for Segmentation and Classification
- Lecture 12 - Random Forests for Segmentation and Classification
- Lecture 13 - Neural Networks for Segmentation and Classification
- Lecture 14 - Deep Learning for Medical Image Analysis
- Lecture 15 - Deep Learning for Medical Image Analysis (Continued...)
- Lecture 16 - Retinal Vessel Segmentation
- Lecture 17 - Vessel Segmentation in Computed Tomography Scan of Lungs
- Lecture 18
- Lecture 19 - Tissue Characterization in Ultrasound
- Lecture 20

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Biomedical Signal Processing

Subject Co-ordinator - Prof. Sudipta Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation
- Lecture 2 - Preliminaries
- Lecture 3 - Biomedical Signal Origin and Dynamics
- Lecture 4 - Biomedical Signal Origin and Dynamics (Continued...)
- Lecture 5 - Biomedical Signal Origin and Dynamics (Continued...)
- Lecture 6 - Biomedical Signal Origin and Dynamics (Continued...)
- Lecture 7 - Artifact Removal
- Lecture 8 - Artifact Removal (Continued...)
- Lecture 9 - Artifact Removal (Continued...)
- Lecture 10 - Artifact Removal (Continued...)
- Lecture 11 - Artifact Removal (Continued...)
- Lecture 12 - Artifact Removal (Continued...)
- Lecture 13 - Artifact Removal (Continued...)
- Lecture 14 - Artifact Removal (Continued...)
- Lecture 15 - Artifact Removal (Continued...)
- Lecture 16 - Artifact Removal (Continued...)
- Lecture 17 - Artifact Removal (Continued...)
- Lecture 18 - Event Detection
- Lecture 19 - Event Detection (Continued...)
- Lecture 20 - Event Detection (Continued...)
- Lecture 21 - Event Detection (Continued...)
- Lecture 22 - Event Detection (Continued...)
- Lecture 23 - Event Detection (Continued...)
- Lecture 24 - Event Detection (Continued...)
- Lecture 25 - Homomorphic Processing
- Lecture 26 - Homomorphic Processing (Continued...)
- Lecture 27 - Waveform Analysis
- Lecture 28 - Waveform Analysis (Continued...)
- Lecture 29 - Waveform Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Waveform Analysis (Continued...)
- Lecture 31 - Waveform Analysis (Continued...)
- Lecture 32 - Waveform Analysis (Continued...)
- Lecture 33 - Waveform Analysis (Continued...)
- Lecture 34 - Frequency Domain Characterisation
- Lecture 35 - Frequency Domain Characterisation (Continued...)
- Lecture 36 - Frequency Domain Characterisation (Continued...)
- Lecture 37 - Frequency Domain Characterisation (Continued...)
- Lecture 38 - Frequency Domain Characterisation (Continued...)
- Lecture 39 - Frequency Domain Characterisation (Continued...)
- Lecture 40 - Modelling of Biomedical Systems
- Lecture 41 - Modelling of Biomedical Systems (Continued...)
- Lecture 42 - Modelling of Biomedical Systems (Continued...)
- Lecture 43 - Modelling of Biomedical Systems (Continued...)
- Lecture 44 - Modelling of Biomedical Systems (Continued...)
- Lecture 45 - Modelling of Biomedical Systems (Continued...)
- Lecture 46 - Modelling of Biomedical Systems (Continued...)
- Lecture 47 - Tutorial - I
- Lecture 48 - Tutorial - I (Continued...)
- Lecture 49 - Tutorial - I (Continued...)
- Lecture 50 - Tutorial - II
- Lecture 51 - Tutorial - II (Continued...)
- Lecture 52 - Tutorial - II (Continued...)
- Lecture 53 - Tutorial - III
- Lecture 54 - Tutorial - III (Continued...)
- Lecture 55 - Tutorial - III (Continued...)
- Lecture 56 - Tutorial - III (Continued...)
- Lecture 57 - Tutorial - IV
- Lecture 58 - Tutorial - IV (Continued...)
- Lecture 59 - Tutorial - IV (Continued...)
- Lecture 60 - Tutorial - IV (Continued...)
- Lecture 61 - Tutorial - IV (Continued...)
- Lecture 62 - Tutorial - IV (Continued...)
- Lecture 63 - Tutorial - V
- Lecture 64 - Tutorial - V (Continued...)
- Lecture 65 - Tutorial - V (Continued...)
- Lecture 66 - Tutorial - V (Continued...)
- Lecture 67 - Tutorial - V (Continued...)
- Lecture 68 - Live Session

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Microprocessors and Microcontrollers

Subject Co-ordinator - Prof. Santanu Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Basic Computer Organization  
Lecture 5 - Basic computer organization  
Lecture 6 - Basic Computer Organization  
Lecture 7 - 8085 Microprocessors  
Lecture 8 - 8085 Microprocessors (Continued...)  
Lecture 9 - 8085 Microprocessors (Continued...)  
Lecture 10 - 8085 Microprocessors (Continued...)  
Lecture 11 - 8085 Microprocessors (Continued...)  
Lecture 12 - 8085 Microprocessors (Continued...)  
Lecture 13 - 8085 Microprocessors (Continued...)  
Lecture 14 - 8085 Microprocessors (Continued...)  
Lecture 15 - 8085 Microprocessors (Continued...)  
Lecture 16 - 8085 Microprocessors (Continued...)  
Lecture 17 - 8085 Microprocessors (Continued...)  
Lecture 18 - 8085 Microprocessors (Continued...)  
Lecture 19 - 8085 Microprocessors (Continued...)  
Lecture 20 - 8085 Microprocessors (Continued...)  
Lecture 21 - 8085 Microprocessors (Continued...)  
Lecture 22 - 8085 Microprocessors (Continued...)  
Lecture 23 - 8051 Microcontroller  
Lecture 24 - 8051 Microcontroller (Continued...)  
Lecture 25 - 8051Microcontroller (Continued...)  
Lecture 26 - 8051 Microcontroller (Continued...)  
Lecture 27 - 8051 Microcontroller (Continued...)  
Lecture 28 - 8051 Microcontroller (Continued...)  
Lecture 29 - 8051 Microcontroller (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - 8051 Microcontroller (Continued...)  
Lecture 31 - 8051 Microcontroller (Continued...)  
Lecture 32 - 8051 Microcontroller (Continued...)  
Lecture 33 - 8051 Microcontroller (Continued...)  
Lecture 34 - 8051 Microcontroller (Continued...)  
Lecture 35 - 8051 Microcontroller (Continued...)  
Lecture 36 - 8051 Programming Examples  
Lecture 37 - 8051 Programming Examples (Continued...)  
Lecture 38 - 8051 Programming Examples (Continued...)  
Lecture 39 - 8051 Programming Examples (Continued...)  
Lecture 40 - 8051 Programming Examples (Continued...)  
Lecture 41 - ARM  
Lecture 42 - ARM (Continued...)  
Lecture 43 - ARM (Continued...)  
Lecture 44 - ARM (Continued...)  
Lecture 45 - ARM (Continued...)  
Lecture 46 - ARM (Continued...)  
Lecture 47 - ARM (Continued...)  
Lecture 48 - ARM (Continued...)  
Lecture 49 - PIC  
Lecture 50 - PIC, AVR  
Lecture 51 - AVR (Continued...)  
Lecture 52 - AVR (Continued...)  
Lecture 53 - Interfacing  
Lecture 54 - Interfacing (Continued...)  
Lecture 55 - Interfacing (Continued...)  
Lecture 56 - Interfacing (Continued...)  
Lecture 57 - Interfacing (Continued...)  
Lecture 58 - Interfacing (Continued...)  
Lecture 59 - 8086  
Lecture 60 - 8086 (Continued...)  
Lecture 61 - 8086 (Continued...)  
Lecture 62 - 8086 (Continued...)  
Lecture 63 - 8086 (Continued...)  
Lecture 64 - 8087

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Deep Learning For Visual Computing

Subject Co-ordinator - Prof. Debdoot Sheet

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Visual Computing
- Lecture 2 - Feature Extraction for Visual Computing
- Lecture 3 - Feature Extraction with Python
- Lecture 4 - Neural Networks for Visual Computing
- Lecture 5 - Classification with Perceptron Model
- Lecture 6 - Introduction to Deep Learning with Neural Networks
- Lecture 7 - Introduction to Deep Learning with Neural Networks
- Lecture 8 - Multilayer Perceptron and Deep Neural Networks
- Lecture 9 - Multilayer Perceptron and Deep Neural Networks
- Lecture 10 - Classification with Multilayer Perceptron
- Lecture 11 - Autoencoder for Representation Learning and MLP Initialization
- Lecture 12 - MNIST handwritten digits classification using autoencoders
- Lecture 13 - Fashion MNIST classification using autoencoders
- Lecture 14 - ALL-IDB Classification using autoencoders
- Lecture 15 - Retinal Vessel Detection using autoencoders
- Lecture 16 - Stacked Autoencoders
- Lecture 17 - MNIST and Fashion MNIST with Stacked Autoencoders
- Lecture 18 - Denoising and Sparse Autoencoders
- Lecture 19 - Sparse Autoencoders for MNIST classification
- Lecture 20 - Denoising Autoencoders for MNIST classification
- Lecture 21 - Cost Function
- Lecture 22 - Classification cost functions
- Lecture 23 - Optimization Techniques and Learning Rules
- Lecture 24 - Gradient Descent Learning Rule
- Lecture 25 - SGD and ADAM Learning Rules
- Lecture 26 - Convolutional Neural Network Building Blocks
- Lecture 27 - Simple CNN Model
- Lecture 28 - LeNet Definition
- Lecture 29 - Training a LeNet for MNIST Classification

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Modifying a LeNet for CIFAR
- Lecture 31 - Convolutional Autoencoder and Deep CNN
- Lecture 32 - Convolutional Autoencoder for Representation Learning
- Lecture 33 - AlexNet
- Lecture 34 - VGGNet
- Lecture 35 - Revisiting AlexNet and VGGNet for Computational Complexity
- Lecture 36 - GoogLeNet - Going very deep with convolutions
- Lecture 37 - GoogLeNet
- Lecture 38 - ResNet - Residual Connections within Very Deep Networks and DenseNet - Densely connected networks
- Lecture 39 - ResNet
- Lecture 40 - DenseNet
- Lecture 41 - Space and Computational Complexity in DNN
- Lecture 42 - Assessing the space and computational complexity of very deep CNNs
- Lecture 43 - Domain Adaptation and Transfer Learning in Deep Neural Networks
- Lecture 44 - Transfer Learning a GoogLeNet
- Lecture 45 - Transfer Learning a ResNet
- Lecture 46 - Activation pooling for object localization
- Lecture 47 - Region Proposal Networks (rCNN and Faster rCNN)
- Lecture 48 - GAP + rCNN
- Lecture 49 - Semantic Segmentation with CNN
- Lecture 50 - UNet and SegNet for Semantic Segmentation
- Lecture 51 - Autoencoders and Latent Spaces
- Lecture 52 - Principle of Generative Modeling
- Lecture 53 - Adversarial Autoencoders
- Lecture 54 - Adversarial Autoencoder for Synthetic Sample Generation
- Lecture 55 - Adversarial Autoencoder for Classification
- Lecture 56 - Understanding Video Analysis
- Lecture 57 - Recurrent Neural Networks and Long Short-Term Memory
- Lecture 58 - Spatio-Temporal Deep Learning for Video Analysis
- Lecture 59 - Activity recognition using 3D-CNN
- Lecture 60 - Activity recognition using CNN-LSTM



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Power System Engineering

Subject Co-ordinator - Prof. Debapriya Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11 - Cables (Continued...)

Lecture 12 - Transient over voltages and Insulation coordination

Lecture 13 - Transient over voltages and Insulation coordination (Continued...)

Lecture 14 - Transient over voltages and Insulation coordination (Continued...)

Lecture 15 - Transient over voltages and Insulation coordination (Continued...)

Lecture 16 - Transient over voltages and Insulation coordination (Continued...)

Lecture 17 - Transient over voltages and Insulation coordination (Continued...)

Lecture 18 - Transient over voltages and Insulation coordination (Continued...)

Lecture 19 - Transient over voltages and Insulation coordination (Continued...)

Lecture 20 - Corona

Lecture 21 - Corona (Continued...)

Lecture 22 - Corona (Continued...)

Lecture 23 - Corona (Continued...), Sag and Tension Analysis

Lecture 24 - Sag and Tension Analysis (Continued...)

Lecture 25 - Sag and Tension Analysis (Continued...)

Lecture 26 - Sag and Tension Analysis (Continued...)

Lecture 27 - Sag and Tension Analysis (Continued...)

Lecture 28 - Sag and Tension Analysis (Continued...)

Lecture 29 - Load flow of radial distribution networks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Load flow of radial distribution networks (Continued...)
- Lecture 31 - Load flow of radial distribution networks (Continued...)
- Lecture 32 - Load flow of radial distribution networks (Continued...)
- Lecture 33 - Load flow of radial distribution networks (Continued...)
- Lecture 34 - Load flow of radial distribution networks (Continued...)
- Lecture 35 - Load flow of radial distribution networks (Continued...)
- Lecture 36 - Load flow of radial distribution networks (Continued...)
- Lecture 37 - Load flow of radial distribution networks (Continued...), Voltage stability of distribution network
- Lecture 38 - Voltage stability of distribution network, Approximate method
- Lecture 39 - Application of capacitors in distribution system
- Lecture 40 - Application of capacitors in distribution system (Continued...)
- Lecture 41 - Application of capacitors in distribution system (Continued...)
- Lecture 42 - Application of capacitors in distribution system (Continued...)
- Lecture 43 - Application of capacitors in distribution system (Continued...)
- Lecture 44 - Application of capacitors in distribution system (Continued...), Load frequency control
- Lecture 45 - Load frequency control (Continued...)
- Lecture 46 - Load frequency control (Continued...)
- Lecture 47 - Load frequency control (Continued...)
- Lecture 48 - Load frequency control (Continued...)
- Lecture 49 - Load frequency control (Continued...)
- Lecture 50 - Load frequency control (Continued...)
- Lecture 51 - Load frequency control (Continued...)
- Lecture 52 - Load frequency control (Continued...)
- Lecture 53 - Load frequency control (Continued...)
- Lecture 54 - Load frequency control (Continued...)
- Lecture 55 - Load frequency control (Continued...)
- Lecture 56 - Load frequency control (Continued...)
- Lecture 57 - Automatic generation control
- Lecture 58 - Automatic generation control (Continued...)
- Lecture 59 - Automatic generation control (Continued...), Unit commitment
- Lecture 60 - Unit commitment (Continued...)
- Lecture 61 - Live Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Electrical Engineering

Subject Co-ordinator - Prof. Debapriya Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Concepts, Examples  
Lecture 2 - Basic Concepts, Examples (Continued...)  
Lecture 3 - Basic Concepts, Examples (Continued...)  
Lecture 4 - Basic Concepts, Examples (Continued...)  
Lecture 5 - Basic Laws  
Lecture 6 - Basic Laws (Continued...)  
Lecture 7 - Basic Laws (Continued...)  
Lecture 8 - Basic Laws (Continued...)  
Lecture 9 - Basic Laws (Continued...)  
Lecture 10 - Basic Laws (Continued...)  
Lecture 11 - Methods of Circuit Analysis  
Lecture 12 - Methods of Circuit Analysis (Continued...)  
Lecture 13 - Methods of Circuit Analysis (Continued...)  
Lecture 14 - Methods of Circuit Analysis (Continued...)  
Lecture 15 - Methods of Circuit Analysis (Continued...)  
Lecture 16 - Methods of Circuit Analysis (Continued...)  
Lecture 17 - Mesh analysis with current sources, Examples  
Lecture 18 - Methods of Circuit Analysis (Continued...) and Circuit Theorems  
Lecture 19 - Circuit Theorems (Continued...)  
Lecture 20 - Circuit Theorems (Continued...)  
Lecture 21 - Circuit Theorems (Continued...)  
Lecture 22 - Circuit Theorems (Continued...)  
Lecture 23 - Circuit Theorems (Continued...)  
Lecture 24 - Circuit Theorems (Continued...)  
Lecture 25 - Circuit Theorems (Continued...) and Capacitors and Inductors  
Lecture 26 - Capacitors and Inductors (Continued...)  
Lecture 27 - Capacitors and Inductors (Continued...)  
Lecture 28 - Capacitors and Inductors (Continued...)  
Lecture 29 - First Order Circuits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - First Order Circuits (Continued...)
- Lecture 31 - First Order Circuits (Continued...)
- Lecture 32 - First Order Circuits (Continued...)
- Lecture 33 - First Order Circuits (Continued...)
- Lecture 34 - First Order Circuits (Continued...)
- Lecture 35 - First Order Circuits (Continued...)
- Lecture 36 - First Order Circuits (Continued...)
- Lecture 37 - Single phase AC circuits
- Lecture 38 - Single phase AC circuits (Continued...)
- Lecture 39 - Single phase AC circuits (Continued...)
- Lecture 40 - Single phase AC circuits (Continued...)
- Lecture 41 - Single phase AC circuits (Continued...)
- Lecture 42 - Single phase AC circuits (Continued...)
- Lecture 43 - Single phase AC circuits (Continued...)
- Lecture 44 - Resonance and Maximum Power Transfer Theorem
- Lecture 45 - Resonance and Maximum Power Transfer Theorem (Continued...)
- Lecture 46 - Resonance and Maximum Power Transfer Theorem (Continued...)
- Lecture 47 - Three phase circuits
- Lecture 48 - Three phase circuits (Continued...)
- Lecture 49 - Three phase circuits (Continued...)
- Lecture 50 - Three phase circuits (Continued...)
- Lecture 51 - Magnetic Circuits
- Lecture 52 - Magnetic Circuits (Continued...)
- Lecture 53 - Magnetic Circuits (Continued...)
- Lecture 54 - Single Phase Transformer
- Lecture 55 - Single Phase Transformer (Continued...)
- Lecture 56 - Single Phase Transformer (Continued...)
- Lecture 57 - Single Phase Transformer (Continued...)
- Lecture 58 - Three phase Induction Motors
- Lecture 59 - Three phase Induction Motors (Continued...)
- Lecture 60 - Three phase Induction Motors (Continued...)
- Lecture 61 - Three phase Induction Motors (Continued...)
- Lecture 62 - DC Motors
- Lecture 63 - DC Motors (Continued...)
- Lecture 64 - DC Motors (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Digital Circuits

Subject Co-ordinator - Prof. Santanu Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Number System  
Lecture 4 - Number System (Continued...)  
Lecture 5 - Number System (Continued...)  
Lecture 6 - Number System (Continued...)  
Lecture 7 - Number System (Continued...)  
Lecture 8 - Boolean Algebra  
Lecture 9 - Boolean Algebra (Continued...)  
Lecture 10 - Boolean Algebra (Continued...)  
Lecture 11 - Boolean Algebra (Continued...)  
Lecture 12 - Boolean Algebra (Continued...)  
Lecture 13 - Boolean Algebra (Continued...)  
Lecture 14 - Logic Gates  
Lecture 15 - Logic Gates (Continued...)  
Lecture 16 - Logic Gates (Continued...)  
Lecture 17 - Logic Gates (Continued...)  
Lecture 18 - Logic Gates (Continued...)  
Lecture 19 - Logic Gates (Continued...)  
Lecture 20 - Arithmetic Circuits  
Lecture 21 - Arithmetic Circuits (Continued...)  
Lecture 22 - Arithmetic Circuits (Continued...)  
Lecture 23 - Decoders, Multiplexers, PLA  
Lecture 24 - Decoders, Multiplexers, PLA (Continued...)  
Lecture 25 - Decoders, Multiplexers, PLA (Continued...)  
Lecture 26 - Decoders, Multiplexers, PLA (Continued...)  
Lecture 27 - Decoders, Multiplexers, PLA (Continued...)  
Lecture 28 - Sequential Circuits  
Lecture 29 - Sequential Circuits (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sequential Circuits (Continued...)
- Lecture 31 - Sequential Circuits (Continued...)
- Lecture 32 - Sequential Circuits (Continued...)
- Lecture 33 - Sequential Circuits (Continued...)
- Lecture 34 - Sequential Circuits (Continued...)
- Lecture 35 - Finite State Machine
- Lecture 36 - Finite State Machine (Continued...)
- Lecture 37 - Data Converters
- Lecture 38 - Data Converters (Continued...)
- Lecture 39 - Data Converters (Continued...)
- Lecture 40 - Data Converters (Continued...)
- Lecture 41 - Memory
- Lecture 42 - Memory (Continued...)
- Lecture 43 - Memory (Continued...)
- Lecture 44 - FPGA
- Lecture 45 - FPGA (Continued...)
- Lecture 46 - VHDL
- Lecture 47 - VHDL(Continued...)
- Lecture 48 - 8085 Microprocessor
- Lecture 49 - 8085 Microprocessor (Continued...)
- Lecture 50 - 8085 Microprocessor (Continued...)
- Lecture 51 - 8085 Microprocessor (Continued...)
- Lecture 52 - 8085 Microprocessor (Continued...)
- Lecture 53 - 8085 Microprocessor (Continued...)
- Lecture 54 - 8085 Microprocessor (Continued...)
- Lecture 55 - 8085 Microprocessor (Continued...)
- Lecture 56 - 8085 Microprocessor (Continued...)
- Lecture 57 - 8085 Microprocessor (Continued...)
- Lecture 58 - 8085 Microprocessor (Continued...)
- Lecture 59 - 8085 Microprocessor (Continued...)
- Lecture 60 - 8085 Microprocessor (Continued...)
- Lecture 61 - 8085 Microprocessor (Continued...)
- Lecture 62 - 8085 Microprocessor (Continued...)
- Lecture 63 - 8086 Microprocessor
- Lecture 64 - 8086 Microprocessor (Continued...)
- Lecture 65 - 8086 Microprocessor (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Analysis and Design Principles of Microwave Antennas

Subject Co-ordinator - Dr. Amitabha Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concept of Scalar and Vector Potentials
- Lecture 2 - Radiation From a Current Element (Hertzian Dipole)
- Lecture 3 - Specific Properties of the Radiated Fields from a Current Element
- Lecture 4 - General Properties of Radiated Fields from an Antenna
- Lecture 5 - Farfield and Radiation Pattern of an Antenna
- Lecture 6 - Directivity and Gain of an Antenna
- Lecture 7 - Idea of Efficiency, Beamwidth, Polarisation and Bandwidth
- Lecture 8 - Polarization of Antenna
- Lecture 9 - Impedance of Antenna
- Lecture 10 - Effective Aperture of an Antenna
- Lecture 11 - Friss Transmission Equation and Antenna Temperature
- Lecture 12 - Dipole And Monopole Antena
- Lecture 13 - Dipole And Monopole Antena (Continued...)
- Lecture 14 - BALUN
- Lecture 15 - Loop Antenna
- Lecture 16 - Folded Dipole Antenna
- Lecture 17 - Introduction to Antenna Array
- Lecture 18 - Antenna Array Theory
- Lecture 19 - Broadside Uniform Linear Array
- Lecture 20 - Endfire Linear Uniform Array
- Lecture 21 - Parasitic Array and Log Periodic Antenna
- Lecture 22 - Analysis Procedures of Aperture Antennas
- Lecture 23 - Analysis Procedures of Aperture Antenna (Continued...)
- Lecture 24 - Horn Antenna
- Lecture 25 - Horn Antenna (Continued...)
- Lecture 26 - Reflector Antennas
- Lecture 27 - Paraboloid Reflector Antenna (Continued...)
- Lecture 28 - Paraboloid Reflector Antenna (Continued...)
- Lecture 29 - Dual Reflector Antenna

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Generalised Analysis of Antenna
- Lecture 31 - Solution of Wave Equation for Electric and Magnetic Current Densities
- Lecture 32 - Farfield Evaluation of Spherical Wave Radiation by Generalised Antenna
- Lecture 33 - Slot Antenna
- Lecture 34 - Open Ended Waveguide Antenna and Microstrip Antenna
- Lecture 35 - Numerical Evaluation of Wire Antenna Currents
- Lecture 36 - Solution of Intregal Equation by Moment Method
- Lecture 37 - Array Pattern Synthesis
- Lecture 38 - Array Pattern Synthesis (Continued...)
- Lecture 39 - Ultra Wideband Antennas
- Lecture 40 - Antenna Measurements



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Architectural Design of Digital Integrated Circuits

Subject Co-ordinator - Prof. Indranil Hatai

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to VLSI Design Flow  
Lecture 2 - Introduction to VLSI Design Flow  
Lecture 3 - Introduction to VLSI Design Flow  
Lecture 4 - Algorithm to Efficient Architecture Mapping  
Lecture 5 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 6 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 7 - Tutorial on Algorithm to Efficient Architecture Mapping  
Lecture 8 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 9 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 10 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 11 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 12 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 13 - Algorithm to Efficient Architecture Mapping  
Lecture 14 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 15 - Efficient Adder Architecture  
Lecture 16 - Efficient Adder Architecture (Continued...)  
Lecture 17 - Efficient Adder Architecture (Continued...)  
Lecture 18 - Efficient Adder Architecture  
Lecture 19 - Efficient Adder Architecture  
Lecture 20 - Efficient Adder Architecture  
Lecture 21 - Efficient Adder Architecture  
Lecture 22 - Efficient Adder Architecture  
Lecture 23 - Efficient Adder Architecture  
Lecture 24 - Efficient Adder Architecture  
Lecture 25 - Pipelining and Parallel Processing  
Lecture 26 - Pipelining and Parallel Processing  
Lecture 27 - Multiplier Architecture  
Lecture 28 - Multiplier Architecture  
Lecture 29 - Multiplier Architecture

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multiplier Architecture
- Lecture 31 - Multiplier Architecture
- Lecture 32 - Multiplier Architecture
- Lecture 33 - Multiplier Architecture
- Lecture 34 - Multiplier Architecture
- Lecture 35 - Squaring Circuit Design
- Lecture 36 - Reconfigurable Constant Multiplier Design
- Lecture 37 - Reconfigurable Constant Multiplier Design
- Lecture 38 - Reconfigurable Constant Multiplier Design
- Lecture 39 - Fixed Point Number Representation
- Lecture 40 - Fixed Point Number Representation
- Lecture 41 - CORDIC Architecture
- Lecture 42 - CORDIC Architecture
- Lecture 43 - CORDIC Architecture
- Lecture 44 - CORDIC Architecture
- Lecture 45 - Timing Analysis
- Lecture 46 - Timing Analysis
- Lecture 47 - Timing Analysis
- Lecture 48 - Logic Hazard

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Modelling and Analysis of Electric Machines

Subject Co-ordinator - Dr. Krishna Vasudevan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Magnetic Fields

Lecture 3 - Magnetic Circuit

Lecture 4 - Singly Excited Linear Motion System

Lecture 5 - Linear and Cylindrical Motion Systems

Lecture 6 - Systems with Multiple Excitations

Lecture 7 - Non-linear Magnetic Systems

Lecture 8 - Inductances in Constant Air gap Machines

Lecture 9 - Inductance in Salient Pole Machine - I

Lecture 10 - Inductance in Salient Pole Machine - II

Lecture 11 - Inductance in Salient Pole Machine - III

Lecture 12 - Inductance in Salient Pole Machine - IV

Lecture 13 - Inductance in Salient Pole Machine - V

Lecture 14 - Inductances of Distributed Winding - I

Lecture 15 - Inductances of Distributed Winding - II

Lecture 16 - Inductances of Distributed Winding - III

Lecture 17 - Dynamic Equations of Induction Machines

Lecture 18 - Dynamic Equations of Salient Pole Synchronous Machine

Lecture 19 - Three-to-Two Phase Transformation

Lecture 20 - Induction Machine in Two-Phase Reference Frame

Lecture 21 - The Pseudo-Stationary Reference Frame

Lecture 22 - Induction Machine in Pseudo-Stationary Reference Frame

Lecture 23 - The Primitive Machine Equations

Lecture 24 - Dynamic Equations of DC Machines

Lecture 25 - Small Signal Model of DC Machine

Lecture 26 - Small Signal Behaviour of DC Machine

Lecture 27 - The Arbitrary Reference Frame

Lecture 28 - Induction Machine Equations in Arbitrary, Synchronous Reference Frames and Small Signal Modelling

Lecture 29 - Introduction to Field Oriented Control of Induction Machines

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Space Vector Formulation of Induction Machine Equations
- Lecture 31 - Modelling of Salient Pole Synchronous Machines - I
- Lecture 32 - Modelling of Salient Pole Synchronous Machines - II
- Lecture 33 - Modelling of Salient Pole Synchronous Machines - III
- Lecture 34 - Steady State Models - Induction Machine
- Lecture 35 - Steady State Models - Salient Pole Synchronous Machine
- Lecture 36 - Solution of Dynamic Equations of Induction Machine - I
- Lecture 37 - Solution of Dynamic Equations of Induction Machine - II
- Lecture 38 - Reactances of Salient Pole Synchronous Machines - I
- Lecture 39 - Reactances of Salient Pole Synchronous Machines - II
- Lecture 40 - Reactances of Salient Pole Synchronous Machines - III
- Lecture 41 - Sudden Short Circuit of Three Phase Alternator - Analytical Solution
- Lecture 42 - Sudden Short Circuit of Three Phase Alternator - Numerical Simulation
- Lecture 43 - Course Recapitulation and Assignments

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Analog ICs

Subject Co-ordinator - Prof. K. Radhakrishna Rao

Co-ordinating Institute - IIT - Madras | Texas Instruments - India

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Building Blocks In Analog ICs
- Lecture 2 - Current Mirrors
- Lecture 3 - Translinear Networks
- Lecture 4 - Differential Amplifier
- Lecture 5 - Differential Amplifier Characteristics
- Lecture 6 - Video Amplifier and RF/IF Amplifiers
- Lecture 7 - Cascade Amplifier
- Lecture 8 - IC Negative Feedback Wide Band Amplifiers
- Lecture 9 - IC Negative Feedback Amplifiers
- Lecture 10 - Voltage Sources And References
- Lecture 11 - IC Voltage Regulator
- Lecture 12 - Characteristics and Parameters Of Voltage
- Lecture 13 - Protection Circuitry For Voltage Regulator
- Lecture 14 - Switched Mode Regulator And Operational
- Lecture 15 - IC Operational Voltage Amplifier
- Lecture 16 - General Purpose Operational Amplifier-747
- Lecture 17 - Transconductance Operational Amplifier
- Lecture 18 - Audio Power Amplifier and Norton's Amplifier
- Lecture 19 - Analog Multipliers
- Lecture 20 - Analog Multipliers
- Lecture 21 - Voltage Controlled Oscillator
- Lecture 22 - Voltage Controlled Oscillator
- Lecture 23 - Self Tuned Filter
- Lecture 24 - Phase Locked Loop<sup>24</sup> Phase Locked Loop
- Lecture 25 - Phase Locked Loop
- Lecture 26 - Phase Locked Loop
- Lecture 27 - Phase Locked Loop
- Lecture 28 - Current Mode ICs

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Digital Integrated Circuits

Subject Co-ordinator - Prof. Amitava Dasgupta

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Semiconductors
- Lecture 2 - Modelling of PN Junction Diodes
- Lecture 3 - Modelling of BJTs
- Lecture 4 - Diode and BJT Model Parameter Extraction
- Lecture 5 - BJT Inverters DC and Switching Characteristics
- Lecture 6 - Schottky Transistor
- Lecture 7 - Specifications of Logic Circuits
- Lecture 8 - Qualitative discussion on TTL Circuits
- Lecture 9 - Standard TTL Circuits
- Lecture 10 - Schottky (74s..) and Low power Schottky (74ls)
- Lecture 11 - Advanced TTL Circuits
- Lecture 12 - I<sup>2</sup> L Technology
- Lecture 13 - Edge triggered D-F/F
- Lecture 14 - I<sup>2</sup> L - Condition for Proper Operation
- Lecture 15 - I<sup>2</sup> L - Propagation delay Self aligned
- Lecture 16 - Schottky Transistor Logic
- Lecture 17 - Stacked I<sup>2</sup> L
- Lecture 18 - ECL Basic Operation
- Lecture 19 - Quantitative analysis of ECL 10k Series gates
- Lecture 20 - ECL 100k series; Stacked ECL gates; D-F/F
- Lecture 21 - Emitter Function Logic; Low Power ECL
- Lecture 22 - Polyemitter Bipolar Transistor In ECL; Propagation
- Lecture 23 - Heterojunction Bipolar Transistor Based ECL; ECL
- Lecture 24 - nMOS Logic Circuits
- Lecture 25 - nMOS Logic Circuits(contd); CMOS
- Lecture 26 - CMOS Inverter
- Lecture 27 - CMOS NAND, NOR and Other Gates
- Lecture 28 - Dynamic CMOS ; Transmission Gates; Realization Of MUX, decoder, D-F/F
- Lecture 29 - BiCMOS Gates

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- Lecture 30 - BiCMOS Driver;BiCMOS 32-bit Adder
- Lecture 31 - Digital Integrated Circuits
- Lecture 32 - Digital Integrated Circuits
- Lecture 33 - CMOS SRAM
- Lecture 34 - BiCMOS SRAM
- Lecture 35 - DRAM-CMOS and BiCMOS
- Lecture 36 - ROM-EPROM,EEPROM and Flash EPROM
- Lecture 37 - GaAs MESFET Characteristics and Equivalent Circuits
- Lecture 38 - Direct Coupled FET Logic; Superbuffer FET Logic
- Lecture 39 - Buffered FET Logic; Schottky Diode FET Logic
- Lecture 40 - Transmission Line Effects

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Electromagnetic Fields

Subject Co-ordinator - Prof. Harishankar Ramachandran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction To Vector
- Lecture 2 - Introduction To Vector (Continued...)
- Lecture 3 - Coulomb's Law
- Lecture 4 - Electric Field
- Lecture 5 - Electro Static Potential
- Lecture 6 - The Gradient
- Lecture 7 - Gauss's Law
- Lecture 8 - Poisson's Equation
- Lecture 9 - Energy In The Field
- Lecture 10 - Sample Problems In Electrostatics
- Lecture 11 - Fields In Materials
- Lecture 12 - Fields In Material Bodies
- Lecture 13 - Displacement Vectors
- Lecture 14 - Capacitors
- Lecture 15 - Method Of Images
- Lecture 16 - Poisson's Equation 2 Dimensions
- Lecture 17 - Field Near Sharp Edges And Points
- Lecture 18 - Magnetic Field 1
- Lecture 19 - Magnetic Field 2
- Lecture 20 - Stokes Theorems
- Lecture 21 - The curl
- Lecture 22 - Field due to current loop
- Lecture 23 - Ampere's law
- Lecture 24 - Examples of Ampere's law
- Lecture 25 - Inductance
- Lecture 26 - Mutual Inductance
- Lecture 27 - Faraday's law
- Lecture 28 - Magnetic Energy
- Lecture 29 - Magnetic Energy (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Magnetic Energy (Continued...)
- Lecture 31 - Generalised Ampere's Law
- Lecture 32 - The Wave Equation
- Lecture 33 - The Wave Equation
- Lecture 34 - Poynting Theorem
- Lecture 35 - Skin Effect
- Lecture 36 - Skin Effect (Continued...)
- Lecture 37 - Radiation And Circuits
- Lecture 38 - Phasor Form Of Poynting Theorem
- Lecture 39 - Reflection At Dielectric Boundaries
- Lecture 40 - Reflection At Dielectric Boundaries (Continued...)
- Lecture 41 - Transmission Lines
- Lecture 42 - Transmission Lines (Continued...) and Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Networks and Systems

Subject Co-ordinator - Prof. V.G.K. Murti

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introductory Concepts - 1  
Lecture 2 - Introductory Concepts - 2  
Lecture 3 - Introductory Concepts - 3  
Lecture 4 - Introductory Concepts - 4  
Lecture 5 - Introductory Concepts - 5  
Lecture 6 - Introductory Concepts - 6  
Lecture 7 - Fourier Series - 1  
Lecture 8 - Fourier Series - 2  
Lecture 9 - Fourier Series - 3  
Lecture 10 - Fourier Series - 4  
Lecture 11 - Fourier Series - 5  
Lecture 12 - Fourier Series - 6  
Lecture 13 - Fourier Transforms - 1  
Lecture 14 - Fourier Transforms - 2  
Lecture 15 - Fourier Transforms - 3  
Lecture 16 - Fourier Transforms - 4  
Lecture 17 - Fourier Transforms - 5  
Lecture 18 - Fourier Transforms - 6  
Lecture 19 - Fourier Transforms - 7  
Lecture 20 - Laplace Transforms - 1  
Lecture 21 - Laplace Transforms - 2  
Lecture 22 - Laplace Transforms - 3  
Lecture 23 - Laplace Transforms - 4  
Lecture 24 - Laplace Transforms - 5  
Lecture 25 - Laplace Transforms - 6  
Lecture 26 - Application of Laplace Transforms - 1  
Lecture 27 - Application of Laplace Transforms - 2  
Lecture 28 - Application of Laplace Transforms - 3  
Lecture 29 - Application of Laplace Transforms - 4

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Lecture 30	- Network Functions	- 1
Lecture 31	- Network Functions	- 2
Lecture 32	- Network Functions	- 3
Lecture 33	- Network Functions	- 4
Lecture 34	- Network Theorems	- 1
Lecture 35	- Network Theorems	- 2
Lecture 36	- Network Theorems	- 3
Lecture 37	- Network Theorems	- 4
Lecture 38	- Discrete - Time Systems	- 1
Lecture 39	- Discrete - Time Systems	- 2
Lecture 40	- Discrete - Time Systems	- 3
Lecture 41	- Discrete - Time Systems	- 4
Lecture 42	- Discrete - Time Systems	- 5
Lecture 43	- Discrete - Time Systems	- 6
Lecture 44	- Discrete - Time Systems	- 7
Lecture 45	- State-Variable Methods	- 1
Lecture 46	- State-Variable Methods	- 2
Lecture 47	- State Variable Methods	- 3
Lecture 48	- State Variable Methods	- 4
Lecture 49	- State Variable Methods	- 5
Lecture 50	- State Variable Methods	- 6

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Probability Foundation for Electrical Engineers

Subject Co-ordinator - Dr. Krishna Jagannathan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Cardinality and Countability - 1

Lecture 3 - Cardinality and Countability - 2

Lecture 4 - Probability Spaces - 1

Lecture 5 - Probability Spaces - 2

Lecture 6 - Properties of Probability Measures

Lecture 7 - Discrete Probability Spaces

Lecture 8 - Generated  $\sigma$ -Algebra, Borel Sets

Lecture 9 - Borel Sets and Lebesgue Measure - 1

Lecture 10 - Borel Sets and Lebesgue Measure - 2

Lecture 11 - The Infinite Coin Toss Model

Lecture 12 - Conditional Probability and Independence

Lecture 13 - Independence (Continued...)

Lecture 14 - The Borel-Cantelli Lemmas

Lecture 15 - Random Variables

Lecture 16 - Cumulative Distribution Function

Lecture 17 - Types of Random Variables

Lecture 18 - Continuous Random Variables

Lecture 19 - Continuous Random Variables (Continued...) And Singular Random Variables

Lecture 20 - Several Random Variables

Lecture 21 - Independent Random Variables - 1

Lecture 22 - Independent Random Variables - 2

Lecture 23 - Jointly Continuous Random Variables

Lecture 24 - Transformation of Random Variables - 1

Lecture 25 - Transformation of Random Variables - 2

Lecture 26 - Transformation of Random Variables - 3

Lecture 27 - Transformation of Random Variables - 4

Lecture 28 - Integration And Expectation - 1

Lecture 29 - Integration And Expectation - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Properties of Integrals
- Lecture 31 - Monotone Convergence Theorem
- Lecture 32 - Expectation of Discrete Random Variables, Expectation Over Different Spaces
- Lecture 33 - Expectation of Discrete Random Variables
- Lecture 34 - Fatou's Lemma and Dominated Convergence Theorem
- Lecture 35 - Variance and Covariance
- Lecture 36 - Covariance, Correlation Coefficient
- Lecture 37 - Conditional Expectation
- Lecture 38 - MMSE Estimator, Transforms
- Lecture 39 - Moment Generating Function
- Lecture 40 - Characteristic Function - 1
- Lecture 41 - Characteristic Function - 2
- Lecture 42 - Concentration Inequalities
- Lecture 43 - Convergence of Random Variables - 1
- Lecture 44 - Convergence of Random Variables - 2
- Lecture 45 - Convergence of Random Variables - 3
- Lecture 46 - Convergence of Characteristic Functions, Limit Theorems
- Lecture 47 - The Laws of Large Numbers
- Lecture 48 - The Central Limit Theorem
- Lecture 49 - A Brief Overview of Multivariate Gaussians

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Analog Circuits

Subject Co-ordinator - Dr. Nagendra Krishnapura

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Obtaining power gain
- Lecture 3 - Obtaining power gain using a linear two port?
- Lecture 4 - One port (two terminal) nonlinear element
- Lecture 5 - Nonlinear circuit analysis
- Lecture 6 - Small signal incremental analysis-graphical view
- Lecture 7 - Small signal incremental analysis
- Lecture 8 - Incremental equivalent circuit
- Lecture 9 - Large signal characteristics of a diode
- Lecture 10 - Analysis of diode circuits
- Lecture 11 - Small signal model of a diode
- Lecture 12 - Two port nonlinearity
- Lecture 13 - Small signal equivalent of a two port network
- Lecture 14 - Small signal equivalent circuit of a two port network
- Lecture 15 - Gain of a two port network
- Lecture 16 - Constraints on small signal parameters to maximize the gain
- Lecture 17 - Constraints on large signal characteristics to maximize the gain
- Lecture 18 - Implications of constraints in terms of the circuit equivalent
- Lecture 19 - MOS transistor-description
- Lecture 20 - MOS transistor large signal characteristics
- Lecture 21 - MOS transistor large signal characteristics-graphical view
- Lecture 22 - MOS transistor small signal characteristics
- Lecture 23 - Linear (Triode) region of the MOS transistor
- Lecture 24 - Small signal amplifier using the MOS transistor
- Lecture 25 - Basic amplifier structure
- Lecture 26 - Problems with the basic structure
- Lecture 27 - Adding bias and signal-ac coupling
- Lecture 28 - Common source amplifier with biasing
- Lecture 29 - Common source amplifier

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Common source amplifier analysis
- Lecture 31 - Constraint on the input coupling capacitor
- Lecture 32 - Constraint on the output coupling capacitor
- Lecture 33 - Dependence of  $I_d$  on  $V_{ds}$
- Lecture 34 - Small signal output conductance of a MOS TRANSISTOR
- Lecture 35 - Effect of  $g_{ds}$  on a common source amplifier, Inherent gain limit of a Transistor
- Lecture 36 - Variation of  $g_m$  with transistors parameters
- Lecture 37 - Variation of  $g_m$  with constant  $V_{gs}$  and constant drain current bias
- Lecture 38 - Negative feedback control for constant drain current bias
- Lecture 39 - Types of feedback for constant drain current bias
- Lecture 40 - Sense at the drain and feedback to the gate-Drain feedback
- Lecture 41 - Intuitive explanation of low sensitivity with drain feedback
- Lecture 42 - Common source amplifier with drain feedback bias
- Lecture 43 - Constraint on the gate bias resistor
- Lecture 44 - Constraint on the input coupling capacitor.
- Lecture 45 - Constraint on the output coupling capacitor.
- Lecture 46 - Input and output resistances of the common source amplifier with constant VGS bias
- Lecture 47 - Current mirror
- Lecture 48 - Common source amplifier with current mirror bias
- Lecture 49 - Constraint on coupling capacitors and bias resistance
- Lecture 50 - Diode connected transistor
- Lecture 51 - Source feedback biasing
- Lecture 52 - Common source amplifier with source feedback bias
- Lecture 53 - Constraints on capacitor values
- Lecture 54 - Sensing at the drain and feeding back to the source
- Lecture 55 - Sensing at the source and feeding back to the gate
- Lecture 56 - Ensuring that transistor is in saturation
- Lecture 57 - Using a resistor instead of current source for biasing
- Lecture 58 - Quick tour of amplifying devices
- Lecture 59 - Controlled sources using a MOS transistor-Introduction
- Lecture 60 - Voltage controlled voltage source
- Lecture 61 - VCVS using a MOS transistor
- Lecture 62 - VCVS using a MOS transistor-Small signal picture
- Lecture 63 - VCVS using a MOS transistor-Complete circuit
- Lecture 64 - Source follower
- Lecture 65 - VCCS using a MOS transistor
- Lecture 66 - VCCS using a MOS transistor
- Lecture 67 - VCCS using a MOS transistor
- Lecture 68 - VCCS using a MOS transistor

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Source degenerated CS amplifier
- Lecture 70 - CCCS using a MOS transistor
- Lecture 71 - CCCS using a MOS transistor
- Lecture 72 - CCCS using a MOS transistor
- Lecture 73 - C CVS using a MOS transistor
- Lecture 74 - C CVS using a MOS transistor
- Lecture 75 - C CVS using a MOS transistor
- Lecture 76 - C CVS using a MOS transistor
- Lecture 77 - V CVS using an opamp
- Lecture 78 - C CVS using an opamp
- Lecture 79 - Negative feedback and virtual short in an opamp
- Lecture 80 - Negative feedback and virtual short in a transistor
- Lecture 81 - Constraints on controlled sources using opamps and transistors
- Lecture 82 - Summary of basic amplifiers
- Lecture 83 - Signal swing limits in amplifiers
- Lecture 84 - Swing limit due to transistor entering triode region
- Lecture 85 - Swing limit due to transistor entering cutoff region
- Lecture 86 - Swing limit calculation example
- Lecture 87 - Swing limits - more calculations
- Lecture 88 - pMOS transistor
- Lecture 89 - Small signal model of the pMOS transistor
- Lecture 90 - Common source amplifier using the pMOS transistor
- Lecture 91 - Swing limits of the pMOS common source amplifier
- Lecture 92 - Biasing a pMOS transistor at a constant current; pMOS current mirror
- Lecture 93 - Converting nMOS transistor circuits to pMOS
- Lecture 94 - Bias current generation
- Lecture 95 - Examples of more than one transistor in feedback



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Non Linear Dynamics

Subject Co-ordinator - Prof. Gaurav Raina

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - A brief introduction to modelling  
Lecture 2 - Dynamics and Nonlinear systems  
Lecture 3 - 1-Dimensional Flows, Flows on the Line, Lecture 1  
Lecture 4 - 1-Dimensional Flows, Flows on the Line, Lecture 2  
Lecture 5 - 1-Dimensional Flows, Flows on the Line, Lecture 3  
Lecture 6 - 1-Dimensional Flows, Flows on the Line, Lecture 4  
Lecture 7 - 1-Dimensional Flows, Flows on the Line, Lecture 5  
Lecture 8 - 1-Dimensional Flows, Flows on the Line, Lecture 6  
Lecture 9 - 1-Dimensional Flows, Bifurcations, Lecture 1  
Lecture 10 - 1-Dimensional Flows, Bifurcations, Lecture 2  
Lecture 11 - 1-Dimensional Flows, Bifurcations, Lecture 3  
Lecture 12 - 1-Dimensional Flows, Bifurcations, Lecture 4  
Lecture 13 - 1-Dimensional Flows, Bifurcations, Lecture 5  
Lecture 14 - 1-Dimensional Flows, Bifurcations, Lecture 6  
Lecture 15 - 1-Dimensional Flows, Flows on the Circle, Lecture 1  
Lecture 16 - 1-Dimensional Flows, Flows on the Circle, Lecture 2  
Lecture 17 - 2-Dimensional Flows, Linear Systems, Lecture 1  
Lecture 18 - 2-Dimensional Flows, Linear Systems, Lecture 2  
Lecture 19 - 2-Dimensional Flows, Linear Systems, Lecture 3  
Lecture 20 - 2-Dimensional Flows, Linear Systems, Lecture 4  
Lecture 21 - 2-Dimensional Flows, Phase Plane, Lecture 1  
Lecture 22 - 2-Dimensional Flows, Phase Plane, Lecture 2  
Lecture 23 - 2-Dimensional Flows, Phase Plane, Lecture 3  
Lecture 24 - 2-Dimensional Flows, Limit Cycles, Lecture 1  
Lecture 25 - 2-Dimensional Flows, Limit Cycles, Lecture 2  
Lecture 26 - 2-Dimensional Flows, Limit Cycles, Lecture 3  
Lecture 27 - 2-Dimensional Flows, Bifurcations, Lecture 1  
Lecture 28 - 2-Dimensional Flows, Bifurcations, Lecture 2  
Lecture 29 - 2-Dimensional Flows, Bifurcations, Lecture 3

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Control Engineering

Subject Co-ordinator - Prof. Ramkrishna.P

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Systems and Control

Lecture 2 - Modelling of Systems

Lecture 3 - Elements of Modelling

Lecture 4 - Examples of Modelling

Lecture 5 - Solving Problems in Modelling of Systems

Lecture 6 - Laplace Transforms

Lecture 7 - Inverse Laplace Transforms

Lecture 8 - Transfer Function of Modelling Block Diagram Representation

Lecture 9 - Solving Problems on Laplace Transforms and Transfer Functions

Lecture 10 - Block Diagram Reduction, Signal Flow Graphs

Lecture 11 - Solving Problems on Block Diagram Reduction, Signal Flow Graphs

Lecture 12 - Time Response Analyzsis of systems

Lecture 13 - Time Response specifications

Lecture 14 - Solving Problems on Time Response Analyzsis ans specifications

Lecture 15 - Stability

Lecture 16 - Routh Hurwitz Criterion

Lecture 17 - Routh Hurwitz Criterion T 1

Lecture 18 - Closed loop System and Stability

Lecture 19 - Root Locus Technique

Lecture 20 - Root Locus Plots

Lecture 21 - Root Locus Plots (Continued...)

Lecture 22 - Root Locus Plots (Continued...)

Lecture 23 - Root Locus Plots (Continued...)

Lecture 24 - Introduction to Frequency Response

Lecture 25 - Frequency Response Plots

Lecture 26 - Relative Stability

Lecture 27 - Bode plots

Lecture 28 - Basics of Control design Proportional, Integral and Derivative Actions

Lecture 29 - Basics of Control design Proportional, Integral and Derivative Actions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problems on PID Controllers
- Lecture 31 - Basics of Control design Proportional, Integral and Derivative Actions
- Lecture 32 - Control design in time domain and discusses the lead compensator
- Lecture 33 - Improvement of the Transient Response using lead compensation
- Lecture 34 - Design of control using lag compensators
- Lecture 35 - The design of Lead-Lag compensators using root locus
- Lecture 36 - Introduction design of control in frequency domain
- Lecture 37 - Design of Lead Compensator using Bode Plots
- Lecture 38 - Design of Lag Compensators using Bode Plots
- Lecture 39 - Design of Lead-Lag Compensators using Bode plots
- Lecture 40 - Experimental Determination of Transfer Function
- Lecture 41 - Effect of Zeros on System Response
- Lecture 42 - Navigation - Stories and Some Basics
- Lecture 43 - Navigation - Dead Reckoning and Reference Frames
- Lecture 44 - Inertial Sensors and Their Characteristics
- Lecture 45 - Filter Design to Attenuate Inertial Sensor Noise
- Lecture 46 - Complementary Filter
- Lecture 47 - Complementary Filter - 1
- Lecture 48 - Introduction to State Space Systems
- Lecture 49 - Linearization of State Space Dynamics
- Lecture 50 - Linearization of State Space Dynamics - 1
- Lecture 51 - Controllability and Observability

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Analog IC Design

Subject Co-ordinator - Prof. S. Aniruddhan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to MOSFETs  
Lecture 2 - Simple MOSFET Circuits  
Lecture 3 - MOSFET Current Mirrors  
Lecture 4 - Cascode Amplifiers  
Lecture 5 - MOSFET in Integrated Circuits  
Lecture 6 - MOSFET Capacitances  
Lecture 7 - Noise  
Lecture 8 - Noise of Simple Circuits  
Lecture 9 - Systematic Mismatch  
Lecture 10 - Random Mismatch  
Lecture 11 - Differential Amplifiers  
Lecture 12 - Negative Feedback  
Lecture 13 - Stability of Negative Feedback Systems  
Lecture 14 - Dominant Pole Compensation  
Lecture 15 - Active Load  
Lecture 16 - One Stage OpAmps - 1  
Lecture 17 - One Stage OpAmps - 2  
Lecture 18 - One Stage OpAmps - 3  
Lecture 19 - Differential Amplifiers Offset  
Lecture 20 - One Stage OpAmps - Noise and Offset  
Lecture 21 - One Stage OpAmps - Slew Rate  
Lecture 22 - One Stage OpAmps - Datasheet  
Lecture 23 - One Stage OpAmps - Example 1  
Lecture 24 - One Stage OpAmps - Example 2  
Lecture 25 - Telescopic OpAmp - 1  
Lecture 26 - Telescopic OpAmp - 2  
Lecture 27 - Telescopic OpAmp - 3  
Lecture 28 - Telescopic OpAmp - 4  
Lecture 29 - Telescopic OpAmp - 5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Telescopic OpAmp - Datasheet
- Lecture 31 - Telescopic OpAmp - Design Example
- Lecture 32 - Folded-Cascode OpAmp - 1
- Lecture 33 - Folded-Cascode OpAmp - 2
- Lecture 34 - Folded-Cascode OpAmp - 3
- Lecture 35 - Folded-Cascode OpAmp - 4
- Lecture 36 - Folded-Cascode OpAmp - 5
- Lecture 37 - Negative feedback amplifier
- Lecture 38 - Step response, sinusoidal steady state response
- Lecture 39 - Loop gain and unity loop gain frequency; Opamp
- Lecture 40 - Opamp realization using controlled sources; Delay in the loop
- Lecture 41 - Negative feedback amplifier with ideal delay-small delays
- Lecture 42 - Negative feedback amplifier with ideal delay-large delays
- Lecture 43 - Negative feedback amplifier with parasitic poles and zeros
- Lecture 44 - Negative feedback amplifier with parasitic poles and zeros; Nyquist criterion
- Lecture 45 - Nyquist criterion; Phase margin
- Lecture 46 - Phase margin
- Lecture 47 - Single stage opamp realization
- Lecture 48 - Two stage miller compensated opamp
- Lecture 49 - Two stage miller compensated opamp.
- Lecture 50 - Two and three stage miller compensated opamps; Feedforward compensated opamp
- Lecture 51 - Two Stage Opamp
- Lecture 52 - Two Stage Opamp ; Three Stage and Triple Cascade Opamps
- Lecture 53 - Common Mode Rejection Ratio ; Example
- Lecture 54 - Fully differential single stage opamp
- Lecture 55 - Common mode feedback
- Lecture 56 - Fully differential single stage opamp-2
- Lecture 57 - Fully differential two stage opamp; Fully differential versus pseudo-differential

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Probability Foundations for Electrical Engineers

Subject Co-ordinator - Prof. R.Aravind, Dr. Andrew Thangaraj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Experiments, Outcomes and Events

Lecture 2 - Examples

Lecture 3 - Operations on Events

Lecture 4 - Examples

Lecture 5 - Sigma Fields and Probability

Lecture 6 - Discrete Sample Spaces

Lecture 7 - Union and Partition

Lecture 8 - Examples

Lecture 9 - Definition and Basic Properties

Lecture 10 - Bayes' Rule for Partitions

Lecture 11 - Examples

Lecture 12 - Example of Detection

Lecture 13 - Example

Lecture 14 - Independence of Events

Lecture 15 - Examples

Lecture 16 - Combining Independent Experiments

Lecture 17 - Conditional Independence

Lecture 18 - Examples and Computations with Conditional Independence

Lecture 19 - Binomial and Geometric Models

Lecture 20 - Examples

Lecture 21 - Definition and Discrete Setting

Lecture 22 - Random Variables and Events

Lecture 23 - Examples

Lecture 24 - Important distributions

Lecture 25 - Examples

Lecture 26 - Real-life modeling example

Lecture 27 - More Distributions

Lecture 28 - Conditional PMFs, Conditioning on an event, Indicator random variables

Lecture 29 - Example

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multiple random variables and joint distribution
- Lecture 31 - Example
- Lecture 32 - Marginal PMF
- Lecture 33 - Trinomial joint PMF
- Lecture 34 - Events and Conditioning with Two Random Variables
- Lecture 35 - Example
- Lecture 36 - Independent random variables
- Lecture 37 - More on independence
- Lecture 38 - Example
- Lecture 39 - Addition of Random Variables
- Lecture 40 - Sum, Difference and Max of Two Random Variables
- Lecture 41 - More Computations
- Lecture 42 - Example
- Lecture 43 - Real line as sample space
- Lecture 44 - Probability density function (pdf)
- Lecture 45 - Cumulative distribution function (CDF)
- Lecture 46 - Continuous random variables
- Lecture 47 - pdf and CDF of continuous random variables
- Lecture 48 - Spinning pointer example
- Lecture 49 - Important continuous distributions
- Lecture 50 - More continuous distributions
- Lecture 51 - Two-dimensional real sample space
- Lecture 52 - Joint pdf and joint CDF
- Lecture 53 - More on assigning probability to regions of x-y plain
- Lecture 54 - Darts example and marginal pdfs
- Lecture 55 - Independence to two continuous random variables
- Lecture 56 - Examples
- Lecture 57 - Prob[  $X > Y$  ]
- Lecture 58 - Transformations of random variables
- Lecture 59 - CDF method
- Lecture 60 - pdf method
- Lecture 61 - Examples
- Lecture 62 - One-to-one transformations
- Lecture 63 - Expected Value or Mean of a Random Variable
- Lecture 64 - Properties of Expectation
- Lecture 65 - Expectation Computations for Important Distributions
- Lecture 66 - Variance
- Lecture 67 - Examples of Variance
- Lecture 68 - Expectations with Two Random Variables

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Correlation and Covariance
- Lecture 70 - Examples
- Lecture 71 - Examples
- Lecture 72 - Examples
- Lecture 73 - Live Session



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Optimal Control

Subject Co-ordinator - Prof. Barjeev Tyagi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Performance Index
- Lecture 2 - Basic Concepts of Calculus of Variation
- Lecture 3 - The Basic Variational Problem
- Lecture 4 - Fixed End Point Problem
- Lecture 5 - Free End Point Problem
- Lecture 6 - Free End Point Problem (Continued...)
- Lecture 7 - Free End Point Problem (Continued...)
- Lecture 8 - Free End Point Problem (Continued...)
- Lecture 9 - Optimum of Functions with Conditions
- Lecture 10 - Optimum of Functions with Conditions (Lagrange Multiplier Method)
- Lecture 11 - Optimum of Functional with Conditions
- Lecture 12 - Variational Approach to Optimal Control Systems
- Lecture 13 - Variational Approach to Optimal Control Systems (Continued...)
- Lecture 14 - Linear Quadratic Optimal Control Systems
- Lecture 15 - Linear Quadratic Optimal Control Systems (Continued...)
- Lecture 16 - Linear Quadratic Optimal Control Systems (Continued...)
- Lecture 17 - Linear Quadratic Optimal Control Systems (Continued...)
- Lecture 18 - Linear Quadratic Optimal Control Systems (Continued...)
- Lecture 19 - Linear Quadratic Optimal Control Systems (Optimal Value of Performance Index)
- Lecture 20 - Infinite Horizon Regulator Problem
- Lecture 21 - Infinite Horizon Regulator Problem (Continued...)
- Lecture 22 - Analytical Solution of MDRE - State Transition Matrix Approach
- Lecture 23 - Analytical Solution of MDRE - Similarity Transformation Approach
- Lecture 24 - Analytical Solution of MDRE - Similarity Transformation Approach (Continued...)
- Lecture 25 - Frequency Domain Interpretation of LQR - Linear Time Invariant System
- Lecture 26 - Frequency Domain Interpretation of LQR - Linear Time Invariant System (Continued...)
- Lecture 27 - LQR with a Specified Degree of Stability
- Lecture 28 - Inverse Matrix Riccati Equation
- Lecture 29 - Linear Quadratic Tracking System

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discrete-Time Optimal Control Systems
- Lecture 31 - Discrete-Time Optimal Control Systems (Continued...)
- Lecture 32 - Discrete-Time Optimal Control Systems (Continued...)
- Lecture 33 - Matrix Discrete Riccati Equation
- Lecture 34 - Analytical Solution of Matrix Difference Riccati Equation
- Lecture 35 - Analytical Solution of Matrix Difference Riccati Equation (Continued...)
- Lecture 36 - Optimal Control using Dynamic Programming
- Lecture 37 - The Hamilton-Jacobi-Bellman (HJB) Equation
- Lecture 38 - LQR System Using HJB Equation
- Lecture 39 - Time Optimal Control System - Constrained Input
- Lecture 40 - Time Optimal Control System (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Basics of Software Defined Radios and Pr

Subject Co-ordinator - Dr. Meenakshi Rawat

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Foundation for software defined radio

Lecture 2 - Components of a software defined radio

Lecture 3 - Software defined radio architectures - Part I

Lecture 4 - Software defined radio architectures - Part II

Lecture 5 - Software defined radio architectures - Part III

Lecture 6 - Software defined radio architectures - Part IV

Lecture 7 - Distortion Parameters - Part I

Lecture 8 - Distortion Parameters - Part II

Lecture 9 - Distortion Parameters

Lecture 10 - Distortion Parameters

Lecture 11 - Power Amplifiers

Lecture 12 - Power Amplifiers

Lecture 13 - Case study-I

Lecture 14 - Case study-II

Lecture 15 - Behavioral models for representing nonlinear distortions

Lecture 16 - Linearization Techniques for nonlinear distortion

Lecture 17 - Predistortion Techniques for nonlinearity distortion in SDR

Lecture 18 - Basic Digital Predistortion Techniques for nonlinear distortion in SDR

Lecture 19 - State-of-the-art Digital Predistortion Techniques for Nonlinear Distortion in SDR

Lecture 20 - Digital Predistortion Techniques for Linear as well as Nonlinear Distortion in SDR

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electrical Distribution System Analysis

Subject Co-ordinator - Prof. G. B. Kumbhar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Electrical Distribution System
- Lecture 2 - Components of Distribution System Substation and Busbar Layouts
- Lecture 3 - Components of Distribution System and Feeder Configurations
- Lecture 4 - Nature of Loads in a Distribution System
- Lecture 5 - Load Allocation in a Distribution System
- Lecture 6 - K Factors and Their Applications
- Lecture 7 - Analysis of Uniformly Distributed
- Lecture 8 - Lumping Loads in Geometric Configurations Rectangular
- Lecture 9 - Lumping Loads in Geometric Configurations Triangular
- Lecture 10 - Impedance of Distribution Lines and Feeders - Part I
- Lecture 11 - Series Impedance of Distribution Lines and Feeders - Part II
- Lecture 12 - Models of Distribution Lines and Cables
- Lecture 13 - Modelling of Single-Phase and Three-Phase Transformers
- Lecture 14 - Modelling of Three-Phase Transformers - Part I
- Lecture 15 - Modelling of Three-Phase Transformers - Part II
- Lecture 16 - Modelling of Three-Phase Transformers - Part III
- Lecture 17 - Modelling of Three-Phase Transformers - Part IV
- Lecture 18 - Modelling of Step Voltage Regulators - Part I
- Lecture 19 - Modelling of Step Voltage Regulators - Part II
- Lecture 20 - Modelling of Step Voltage Regulators - Part III
- Lecture 21 - Modelling of Step Voltage Regulators - Part IV
- Lecture 22 - Load Models in Distribution System - Part I
- Lecture 23 - Load Models in Distribution System - Part II
- Lecture 24 - Modelling of Distributed Generation
- Lecture 25 - Applications and Modeling of Capacitor Banks
- Lecture 26 - Summary of Modelling of Distribution System Components
- Lecture 27 - Backward/Forward Sweep Load Flow Analysis - Part I
- Lecture 28 - Backward/Forward Sweep Load Flow Analysis - Part II
- Lecture 29 - Direct Approach Based Load Flow Analysis - Part I

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- Lecture 30 - Direct Approach Based Load Flow Analysis - Part II
- Lecture 31 - Direct Approach Based Load Flow Analysis - Part III
- Lecture 32 - Direct Approach Based Load Flow Analysis
- Lecture 33 - Gauss Implicit Z-matrix Method
- Lecture 34 - Sequence Component Based Short Circuit Analysis
- Lecture 35 - Thevenin's Equivalent and Phase Variable Based Short Circuit Analysis
- Lecture 36 - Direct Approach for Short-Circuit Analysis
- Lecture 37 - Direct Approach for Short-Circuit Analysis
- Lecture 38 - Direct Approach for Short-Circuit Analysis
- Lecture 39 - Direct Approach for Short-Circuit Analysis
- Lecture 40 - Applications of Distribution System Analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Smart Grid

Subject Co-ordinator - Prof. Premalata Jena, Prof. N.P. Padhy

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Smart Grid - I  
Lecture 2 - Introduction to Smart Grid - II  
Lecture 3 - Architecture of smart grid system  
Lecture 4 - Standards for smart grid system  
Lecture 5 - Elements and Technologies of smart grid system - I  
Lecture 6 - Elements and Technologies of smart grid system - II  
Lecture 7 - Distributed Generation Resources - I  
Lecture 8 - Distributed Generation Resources - II  
Lecture 9 - Distributed Generation Resources - III  
Lecture 10 - Distributed Generation Resources - IV  
Lecture 11 - Wide Area Monitoring System - I  
Lecture 12 - Wide Area Monitoring System - II  
Lecture 13 - Phasor Estimation - I  
Lecture 14 - Phasor Estimation - II  
Lecture 15 - Digital Relays for Smart Grid Protection  
Lecture 16 - Islanding Detection Techniques - I  
Lecture 17 - Islanding Detection Techniques - II  
Lecture 18 - Islanding Detection Techniques - III  
Lecture 19 - Smart Grid Protection - I  
Lecture 20 - Smart Grid Protection - II  
Lecture 21 - Smart Grid Protection - III  
Lecture 22 - Smart Grid Protection - IV  
Lecture 23 - Modelling of Storage Devices  
Lecture 24 - Modelling of DC Smart Grid Components  
Lecture 25 - Operation and Control of AC Microgrid - I  
Lecture 26 - Operation and Control of AC Microgrid - II  
Lecture 27 - Operation and Control of DC Microgrid - I  
Lecture 28 - Operation and Control of DC Microgrid - II  
Lecture 29 - Operation and Control of AC-DC hybrid Microgrid - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Operation and Control of AC-DC hybrid Microgrid - II
- Lecture 31 - Simulation and Case Study of AC Microgrid
- Lecture 32 - Simulation and Case Study of DC Microgrid
- Lecture 33 - Simulation and Case Study of AC-DC Hybrid Microgrid
- Lecture 34 - Demand Side Management in Smart Grid
- Lecture 35 - Demand Response Analysis of Smart Grid
- Lecture 36 - Energy Management
- Lecture 37 - Design of Smart Grid and Practical Smart Grid Case Study - I
- Lecture 38 - Design of Smart Grid and Practical Smart Grid Case Study - II
- Lecture 39 - System Analysis of AC/DC Smart Grid
- Lecture 40 - Conclusions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Facts Devices

Subject Co-ordinator - Prof. Avik Bhattacharya

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - I  
Lecture 2 - Introduction - II  
Lecture 3 - Switch Realization  
Lecture 4 - PWM - I  
Lecture 5 - PWM - II  
Lecture 6 - Closed Loop Control  
Lecture 7 - Multi Level Inverter - I  
Lecture 8 - Multi Level Inverter - II  
Lecture 9 - Multi Level Inverter - III  
Lecture 10 - Shunt Compensator Analysis  
Lecture 11 - Shunt Compensator TCR and TSC - I  
Lecture 12 - Shunt Compensator TCR and TSC - II  
Lecture 13 - Static Var Compensator - I  
Lecture 14 - Static Var Compensator - II  
Lecture 15 - STATCOM - I  
Lecture 16 - STATCOM - II  
Lecture 17 - STATCOM/SVC Comparisons  
Lecture 18 - External Control Design of Static Var Compensator  
Lecture 19 - DSTATCOM  
Lecture 20 - Design of DSTATCOM  
Lecture 21 - Series Compensator - I  
Lecture 22 - Series Compensator - II  
Lecture 23 - GCSC and SSSC  
Lecture 24 - SSSC - II  
Lecture 25 - SSSC - III and TSSC  
Lecture 26 - TSSC - II and TCSC  
Lecture 27 - TCSC Characteristics and Control  
Lecture 28 - Voltage and Phase Angle Regulation  
Lecture 29 - Voltage and Phase Angle Regulator Device - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Voltage and Phase Angle Regulator Device - II
- Lecture 31 - UPQC Introduction and Classification
- Lecture 32 - UPQC Classification - I
- Lecture 33 - Operation and Control of UPQC - II
- Lecture 34 - Operation and Control of UPQC - III
- Lecture 35 - UPFC
- Lecture 36 - Control Structure of UPFC
- Lecture 37 - Comparison of UPFC with PAR and Series Compensators
- Lecture 38 - Interline Power Flow Controller (IPFC) - I
- Lecture 39 - Interline Power Flow Controller (IPFC) - II
- Lecture 40 - Practical Application and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Advanced Linear Continuous Control Systems: Applications wi

Subject Co-ordinator - Prof. Yogesh Vijay Hote

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to State Space
- Lecture 2 - State Space Representation
- Lecture 3 - State Space Representation
- Lecture 4 - State Space Representation
- Lecture 5 - State Space Representation
- Lecture 6 - State Space Representation
- Lecture 7 - State Space Representation
- Lecture 8 - State Space Representation
- Lecture 9 - State Space Representation
- Lecture 10 - State Space Representation
- Lecture 11 - Modelling of Mechanical Systems in State Space
- Lecture 12 - Modelling of DC Servo Motor - Part I
- Lecture 13 - Modelling of DC Servo Motor - Part II
- Lecture 14 - Determination of Transfer Function from State Space Model - Part I
- Lecture 15 - Determination of Transfer Function from State Space Model - Part II
- Lecture 16 - Stability Analysis in State Space
- Lecture 17 - Stability Analysis in State Space - Part II
- Lecture 18 - Stability Analysis in State Space
- Lecture 19 - Stability Analysis in State Space
- Lecture 20 - Stability Analysis in State Space
- Lecture 21 - Concept of Diagonalization
- Lecture 22 - Solution of State Equation
- Lecture 23 - Solution of State Equation (Forced System)
- Lecture 24 - Steady State Error for State Space System
- Lecture 25 - State Transition Matrix - Part I
- Lecture 26 - State Transition Matrix - Part II
- Lecture 27 - State Transition Matrix using Cayley-Hamilton Theorem - Part III
- Lecture 28 - MATLAB Programming with State Space
- Lecture 29 - Controllability in State Space - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Controllability in State Space - Part II
- Lecture 31 - Observability in State Space - Part I
- Lecture 32 - Observability in State Space - Part II
- Lecture 33 - Pole Placement by State Feedback - Part I
- Lecture 34 - Pole Placement by State Feedback - Part II
- Lecture 35 - Pole Placement by State Feedback - Part III
- Lecture 36 - Tracking Problem in State Feedback Design - Part I
- Lecture 37 - Tracking Problem in State Feedback Design - Part II
- Lecture 38 - State Observer Design - Part I
- Lecture 39 - State Observer Design - Part II
- Lecture 40 - State Observer Design - Part III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - An Introduction to Electronics Systems Packaging

Subject Co-ordinator - Prof. G.V. Mahesh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Objectives of the course
- Lecture 2 - Definition of a system and history of semiconductors
- Lecture 3 - Products and levels of packaging
- Lecture 4 - Packaging aspects of handheld products; Case studies in applications
- Lecture 5 - Case Study (continued); Definition of PWB, summary and Questions for review
- Lecture 6 - Basics of Semiconductor and Process flowchart; Video on "Sand-to-Silicon"
- Lecture 7 - Wafer fabrication, inspection and testing
- Lecture 8 - Wafer packaging; Packaging evolution; Chip connection choices
- Lecture 9 - Wire bonding, TAB and flipchip-1
- Lecture 10 - Wire bonding, TAB and flipchip-2; Tutorials
- Lecture 11 - Why packaging? & Single chip packages or modules (SCM)
- Lecture 12 - Commonly used packages and advanced packages; Materials in packages
- Lecture 13 - Advances packages (continued); Thermal mismatch in packages; Current trends in packaging
- Lecture 14 - Multichip modules (MCM)-types; System-in-package (SIP); Packaging roadmaps; Hybrid circuits; Quid
- Lecture 15 - Electrical Issues I; Resistive Parasitic
- Lecture 16 - Electrical Issues II; Capacitive and Inductive Parasitic
- Lecture 17 - Electrical Issues III; Layout guidelines and the Reflection problem
- Lecture 18 - Electrical Issues IV; Interconnection
- Lecture 19 - Quick Tutorial on packages; Benefits from CAD; Introduction to DFM, DFR & DFT
- Lecture 20 - Components of a CAD package and its highlights
- Lecture 21 - Design Flow considerations; Beginning a circuit design with schematic work and component layout
- Lecture 22 - Demo and examples of layout and routing; Technology file generation from CAD; DFM check list and
- Lecture 23 - Review of CAD output files for PCB fabrication; Photo plotting and mask generation
- Lecture 24 - Process flow-chart; Vias; PWB substrates
- Lecture 25 - Substrates continued; Video highlights; Surface preparation
- Lecture 26 - Photoresist and application methods; UV exposure and developing; Printing technologies for PWBs
- Lecture 27 - PWB etching; Resist stripping; Screen-printing technology
- Lecture 28 - Through-hole manufacture process steps; Panel and pattern plating methods
- Lecture 29 - Video highlights on manufacturing; Solder mask for PWBs; Multilayer PWBs; Introduction to microv

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Microvia technology and Sequential build-up technology process flow for high-density interconnect
- Lecture 31 - Conventional Vs HDI technologies; Flexible circuits; Tutorial session
- Lecture 32 - SMD benefits; Design issues; Introduction to soldering
- Lecture 33 - Reflow and Wave Soldering methods to attach SMDs
- Lecture 34 - Solders; Wetting of solders; Flux and its properties; Defects in wave soldering
- Lecture 35 - Vapour phase soldering, BGA soldering and Desoldering/Repair; SMT failures
- Lecture 36 - SMT failure library and Tin Whiskers
- Lecture 37 - Tin-lead and lead-free solders; Phase diagrams; Thermal profiles for reflow soldering; Lead-free
- Lecture 38 - Lead-free solder considerations; Green electronics; RoHS compliance and e-waste recycling issues
- Lecture 39 - Thermal Design considerations in systems packaging
- Lecture 40 - Introduction to embedded passives; Need for embedded passives; Design Library; Embedded resistor
- Lecture 41 - Embedded capacitors; Processes for embedding capacitors; Case study examples; Summary of materia
- Lecture 42 - Chapter-wise summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power Electronics and Distributed Generation

Subject Co-ordinator - Dr. Vinod John

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course introduction and overview
- Lecture 2 - Distributed generation technologies
- Lecture 3 - Distributed storage technologies
- Lecture 4 - Distribution system protection
- Lecture 5 - Circuit breaker coordination
- Lecture 6 - Symmetrical component analysis and sequence excitation
- Lecture 7 - Modeling of distribution system components
- Lecture 8 - Protection components
- Lecture 9 - Impact of distributed generation on distribution protection
- Lecture 10 - Consumption and distribution grounding
- Lecture 11 - Islanding of distribution systems
- Lecture 12 - Modeling of islanded distribution systems
- Lecture 13 - Distribution system problems and examples
- Lecture 14 - Distribution system problems and examples continued
- Lecture 15 - Anti-islanding methods
- Lecture 16 - Solid state circuit switching
- Lecture 17 - Relaying for distributed generation
- Lecture 18 - Feeder voltage regulation
- Lecture 19 - Grounding, distribution protection coordination problems and examples
- Lecture 20 - Ring and network distribution
- Lecture 21 - Economic evaluation of DG systems
- Lecture 22 - Design for effective initial cost
- Lecture 23 - Single phase inverters
- Lecture 24 - DC bus design in voltage source inverter
- Lecture 25 - Electrolytic capacitor reliability and lifetime
- Lecture 26 - Inverter switching and average model
- Lecture 27 - Common mode and differential mode model of inverters
- Lecture 28 - Two leg single phase inverter
- Lecture 29 - Distribution system problems, and examples

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - DG evaluation problems and examples
- Lecture 31 - Switch selection in two level voltage source inverters and loss evaluation
- Lecture 32 - Thermal model, management and cycling failure of IGBT modules
- Lecture 33 - Semiconductor switch design reliability considerations
- Lecture 34 - AC filters for grid connected inverters
- Lecture 35 - AC inductor design and need for LCL filter
- Lecture 36 - LCL filter design
- Lecture 37 - Examples in power electronic design for DG systems
- Lecture 38 - Examples in power electronic design for DG systems continued
- Lecture 39 - Higher order passive damping design for LCL filters
- Lecture 40 - Balance of hardware component for inverters in DG systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Pulse width Modulation for Power Electronic Converters

Subject Co-ordinator - Dr. G. Narayanan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Electronic switches
- Lecture 2 - DC - DC converters
- Lecture 3 - DC - AC converters
- Lecture 4 - Multilevel converters - I
- Lecture 5 - Multilevel converters - II
- Lecture 6 - Applications of voltage source converter - I
- Lecture 7 - Applications of voltage source converter - II
- Lecture 8 - Applications of voltage source converter - III
- Lecture 9 - Purpose of PWM - I
- Lecture 10 - Purpose of PWM - II
- Lecture 11 - Low switching frequency PWM - I
- Lecture 12 - Low switching frequency PWM - II
- Lecture 13 - Selective harmonic elimination
- Lecture 14 - Off-line optimized pulsewidth modulation
- Lecture 15 - Sine-triangle pulsewidth modulation
- Lecture 16 - Harmonic injection pulsewidth modulation
- Lecture 17 - Bus-clamping pulsewidth modulation
- Lecture 18 - Triangle-comparison based PWM for three-phase inverter
- Lecture 19 - Concept of space vector
- Lecture 20 - Conventional space vector PWM
- Lecture 21 - Space vector based bus-clamping PWM
- Lecture 22 - Space vector based advanced bus-clamping PWM
- Lecture 23 - Harmonic analysis of PWM techniques
- Lecture 24 - Analysis of RMS line current ripple using the notion of stator flux ripple
- Lecture 25 - Evaluation of RMS line current ripple using the notion of stator flux ripple
- Lecture 26 - Analysis and design of PWM techniques from line current ripple perspective
- Lecture 27 - Instantaneous and average dc link current in a voltage source inverter
- Lecture 28 - DC link current and DC capacitor current in a voltage source inverter
- Lecture 29 - Analysis of torque ripple in induction motor drives - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of torque ripple in induction motor drives - II
- Lecture 31 - Evaluation of conduction loss in three-phase inverter
- Lecture 32 - Evaluation of switching loss in three-phase inverter
- Lecture 33 - Design of PWM for reduced switching loss in three-phase inverter
- Lecture 34 - Effect of dead-time on inverter output voltage for continuous PWM schemes
- Lecture 35 - Effect of dead-time on inverter output voltage for bus-clamping PWM schemes
- Lecture 36 - Analysis of overmodulation in sine-triangle PWM from space vector perspective
- Lecture 37 - Overmodulation in space vector modulated inverter
- Lecture 38 - PWM for three-level neutral-point-clamped inverter - I
- Lecture 39 - PWM for three-level neutral-point-clamped inverter - II
- Lecture 40 - PWM for three-level neutral-point-clamped inverter - III

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Switched Mode Power Conversion

Subject Co-ordinator - Prof. L. Umanand, Prof. V. Ramanarayanan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to DC-DC converter  
Lecture 2 - Diode  
Lecture 3 - Controlled Switches  
Lecture 4 - Prior Art  
Lecture 5 - Inductor  
Lecture 6 - Transformer  
Lecture 7 - Capacitor  
Lecture 8 - Issues related to switches  
Lecture 9 - Energy storage - Capacitor  
Lecture 10 - Energy storage - Inductor  
Lecture 11 - Primitive Converter  
Lecture 12 - Non-Isolated converter - I  
Lecture 13 - Non-Isolated converter - II  
Lecture 14 - Isolated Converters - I  
Lecture 15 - Isolated Converters - II  
Lecture 16 - Conduction Mode  
Lecture 17 - Problem set - I  
Lecture 18 - Problem set - II  
Lecture 19 - Modeling DC-DC converters  
Lecture 20 - State space representation - I  
Lecture 21 - State Space representation - II  
Lecture 22 - Circuit Averaging - I  
Lecture 23 - Circuit Averaging - II  
Lecture 24 - State Space Model of Boost Converter  
Lecture 25 - DC-DC converter controller  
Lecture 26 - Controller Structure  
Lecture 27 - PID Controller - I  
Lecture 28 - PID Controller - II  
Lecture 29 - PID Controller - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Implementation of PID controller
- Lecture 31 - Pulse Width Modulator
- Lecture 32 - Controller Design - I
- Lecture 33 - Controller Design - II
- Lecture 34 - Controllers and Sensing Circuit
- Lecture 35 - Regulation of Multiple outputs - I
- Lecture 36 - Regulation of Multiple outputs - II
- Lecture 37 - Current Control
- Lecture 38 - Unity Power Factor Converter
- Lecture 39 - Magnetic Design
- Lecture 40 - DC-DC Converter Design

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Basic Electrical Technology

Subject Co-ordinator - Prof. L. Umanand

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Electrical Technology  
Lecture 2 - Passive Components  
Lecture 3 - Sources  
Lecture 4 - Kirchoff's Law  
Lecture 5 - Modelling of Circuit - Part 1  
Lecture 6 - Modelling of Circuit - Part 2  
Lecture 7 - Analysis Using MatLab  
Lecture 8 - Sinusoidal steady state  
Lecture 9 - Transfer Function and Pole Zero domain  
Lecture 10 - Transfer function & pole zero  
Lecture 11 - The Sinusoid  
Lecture 12 - Phasor Analysis - Part 1  
Lecture 13 - Phasor Analysis - Part 2  
Lecture 14 - Power Factor  
Lecture 15 - Power ports  
Lecture 16 - Transformer Basics - Part 1  
Lecture 17 - Transformer Basics - Part 2  
Lecture 18 - Transformer Basics - Part 3  
Lecture 19 - The Practical Transformer - Part 1  
Lecture 20 - The Practical Transformer - Part 2  
Lecture 21 - The Practical Transformer - Part 3  
Lecture 22 - DC Machines - Part 1  
Lecture 23 - DC Machines - Part 2  
Lecture 24 - DC Generators - Part 1  
Lecture 25 - DC Generators - Part 2  
Lecture 26 - DC Motors - Part 1  
Lecture 27 - DC Motors - Part 2  
Lecture 28 - DC Motors - Part 3  
Lecture 29 - Three Phase System - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Three Phase System - Part 2
- Lecture 31 - Three Phase System - Part 3
- Lecture 32 - Three Phase System - Part 4
- Lecture 33 - Three Phase Transformer - Part 1
- Lecture 34 - Three Phase Transformer - Part 2
- Lecture 35 - Induction Motor - Part 1
- Lecture 36 - Induction Motor - Part 2
- Lecture 37 - Induction Motor - Part 3
- Lecture 38 - Induction Motor - Part 4
- Lecture 39 - Synchronous Machine

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Industrial Drives - Power Electronics

Subject Co-ordinator - Prof. K. Gopakumar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Electric Drive
- Lecture 2 - Controlled Rectifier - Part-1
- Lecture 3 - Controlled Rectifier - Part-2 (Three phase)
- Lecture 4 - Controlled Rectifier - Part-3 (Three phase)
- Lecture 5 - Controlled Rectifier - Part-4 (Three Phase)
- Lecture 6 - Controlled Rectifier - Part-5 (Three Phase)
- Lecture 7 - Power Electronics Improvements
- Lecture 8 - Four Quadrant Dc to Dc Converter
- Lecture 9 - Sine Triangle PWM Control of Converter
- Lecture 10 - Front-end Ac-Dc Converter with harmonic control
- Lecture 11 - Ac to Dc Converter Close Loop Control Schematic
- Lecture 12 - Ac-Dc Converter Close loop Control Block Diagram
- Lecture 13 - Design of the Converter Controller & AC to DC
- Lecture 14 - Front-End Ac to Dc Converter-Design
- Lecture 15 - Front-End Ac to Dc Converter - Simulation study
- Lecture 16 - Dc Motor Speed Control - Introduction
- Lecture 17 - Dc Motor Speed Control - Block Diagram
- Lecture 18 - Dc Motor Speed Control Current Control & S C L
- Lecture 19 - Dc-Motor Speed Control Controller Design - Part-1
- Lecture 20 - Dc Motor Speed Control Controller Design - Part-2
- Lecture 21 - Dc Motor Speed Control Controller Design - Part-3
- Lecture 22 - Basics of DC to AC Converter - Part-1
- Lecture 23 - Basics of DC to AC Converter - Part-2
- Lecture 24 - Inverter Sine Triangle PWM
- Lecture 25 - Inverter - Current Hysteresis Controlled PWM
- Lecture 26 - C H controlled & Basics of space vector PWM
- Lecture 27 - Space Vector PWM - Part-2
- Lecture 28 - Space Vector PWM - Part-3
- Lecture 29 - Space Vector PWM Signal Generation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Speed Control of Induction Motor - Part-1
- Lecture 31 - Speed Control of Induction Motor - Part-2
- Lecture 32 - High dynamic performance of I M Drive
- Lecture 33 - Dynamic Model of Induction Motor - Part-1
- Lecture 34 - Dynamic Model of Induction Motor - Part-2
- Lecture 35 - Vector Control of Induction Motor
- Lecture 36 - Effect of Switching Time lag in Inverter
- Lecture 37 - Power Switch Protection - Snubbers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Design for Internet of Things

Subject Co-ordinator - Prof. T.V. Prabhakar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to IOTs - Part I
- Lecture 2 - Introduction to IOTs - Part II
- Lecture 3 - Introduction to IOTs - Examples
- Lecture 4 - IOT applications - I
- Lecture 5 - IOT applications - II
- Lecture 6 - Power management in IOT device
- Lecture 7 - Introduction to LDO
- Lecture 8 - Design with an LDO
- Lecture 9 - Introduction to switching regulators
- Lecture 10 - Designing with LDO's, switching regulators and case studies - Part I
- Lecture 11 - Designing with LDO's, switching regulators and case studies - Part II
- Lecture 12 - Designing with LDO's, switching regulators and case studies - Part II
- Lecture 13 - Designing with LDO's, switching regulators and case studies - Part IV
- Lecture 14 - Power Conditioning with Energy Harvesters - I
- Lecture 15 - Power Conditioning with Energy Harvesters - II
- Lecture 16 - Power Conditioning with Energy Harvesters - III
- Lecture 17 - Battery less power supply and battery life calculation for embedded devices - I
- Lecture 18 - Battery less power supply and battery life calculation for embedded devices - II
- Lecture 19 - Battery less power supply and battery life calculation for embedded devices - III
- Lecture 20 - Introduction to MQTT
- Lecture 21 - Quality of Service in MQTT
- Lecture 22 - Standards and Security in MQTT
- Lecture 23 - Introduction and Implementation of AMQP
- Lecture 24 - Implementation of CoAP and MDNS
- Lecture 25 - Basics of RFID
- Lecture 26 - RFID protocol and applications
- Lecture 27 - BLE Security
- Lecture 28 - LPWAN technologies
- Lecture 29 - Choice of Microcontrollers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Case Study 1 - Joule Jotter  
Lecture 31 - Case Study 2 - Cloud Based Systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Advances in UHV Transmission and Distribution

Subject Co-ordinator - Prof Subba Reddy B

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Advantages of HVAC/DC Transmission, Introduction to Grid Management
- Lecture 2 - Transmission system development, Important components of transmission system
- Lecture 3 - Insulation coordination, over voltage in power systems
- Lecture 4 - Design/selection of insulators, Importance of grading/cc rings
- Lecture 5 - Non ceramic insulators performance-service experience
- Lecture 6 - Failure of apparatus in the field, importance of reliability and testing
- Lecture 7 - Pollution flashover phenomena, modeling etc
- Lecture 8 - Planning of High Voltage laboratories
- Lecture 9 - Importance of High Voltage testing and techniques employed
- Lecture 10 - Basic philosophy of HV testing, tests for various HV apparatus
- Lecture 11 - HV testing techniques for various apparatus
- Lecture 12 - HV testing on Composite Insulators
- Lecture 13 - Surface degradation studies on composite insulators
- Lecture 14 - Surface morphological techniques for composite insulators
- Lecture 15 - Conductors used for EHV/UHV transmission
- Lecture 16 - Corona and interference on transmission lines
- Lecture 17 - Introduction of HTLS conductors and their advantages
- Lecture 18 - Mechanical considerations for HV conductors
- Lecture 19 - Introduction to Towers and importance of foundations
- Lecture 20 - Selection/Design of clearances for HV towers
- Lecture 21 - Design Optimization for UHV towers
- Lecture 22 - Introduction to 1100kV HVDC
- Lecture 23 - Introduction to HV Substations
- Lecture 24 - Types of Substations, comparison
- Lecture 25 - Insulation coordination, Components in a typical substation
- Lecture 26 - Preventive maintenance of Substation
- Lecture 27 - Electric and magnetic fields, mitigations techniques
- Lecture 28 - Importance of Grounding, reducing Earthing resistance
- Lecture 29 - Introduction to the use of Fiber optic cables, OPGW

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to communication and SCADA
- Lecture 31 - Precautions and safety measures in substation
- Lecture 32 - Electrical hazards, minimum clearances in substation
- Lecture 33 - Importance of Generation of HVDC in the laboratory
- Lecture 34 - Importance of Generation of HVAC, Impulse Voltage and Currents in the laboratory
- Lecture 35 - Measurements of High Voltages
- Lecture 36 - Measurements of High Voltages (Continued...)
- Lecture 37 - Introduction to digital recorders, measurement
- Lecture 38 - Upgradation/uprating of transmission lines- advantages
- Lecture 39 - Upgradation/uprating of transmission lines- advantages (Continued...)
- Lecture 40 - Summary of the course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Mathematical Methods and Techniques in Signal Processing

Subject Co-ordinator - Prof. Shayan Srinivasa Garani

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to signal processing
- Lecture 2 - Basics of signals and systems
- Lecture 3 - Linear time-invariant systems
- Lecture 4 - Modes in a linear system
- Lecture 5 - Introduction to state space representation
- Lecture 6 - State space representation
- Lecture 7 - Non-uniqueness of state space representation
- Lecture 8 - Introduction to vector space
- Lecture 9 - Linear independence and spanning set
- Lecture 10 - Unique representation theorem
- Lecture 11 - Basis and cardinality of basis
- Lecture 12 - Norms and inner product spaces
- Lecture 13 - Inner products and induced norm
- Lecture 14 - Cauchy Schwartz inequality
- Lecture 15 - Orthonormality
- Lecture 16 - Problem on sum of subspaces
- Lecture 17 - Linear independence of orthogonal vectors
- Lecture 18 - Hilbert space and linear transformation
- Lecture 19 - Gram Schmidt orthonormalization
- Lecture 20 - Linear approximation of signal space
- Lecture 21 - Gram Schmidt orthogonalization of signals
- Lecture 22 - Problem on orthogonal complement
- Lecture 23 - Problem on signal geometry (4-QAM)
- Lecture 24 - Basics of probability and random variables
- Lecture 25 - Mean and variance of a random variable
- Lecture 26 - Introduction to random process
- Lecture 27 - Statistical specification of random processes
- Lecture 28 - Stationarity of random processes
- Lecture 29 - Problem on mean and variance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problem on MAP Detection
- Lecture 31 - Fourier transform of dirac comb sequence
- Lecture 32 - Sampling theorem
- Lecture 33 - Basics of multirate systems
- Lecture 34 - Frequency representation of expanders and decimators
- Lecture 35 - Decimation and interpolation filters
- Lecture 36 - Fractional sampling rate alterations
- Lecture 37 - Digital filter banks
- Lecture 38 - DFT as filter bank
- Lecture 39 - Noble Identities
- Lecture 40 - Polyphase representation
- Lecture 41 - Efficient architectures for interpolation and decimation filters
- Lecture 42 - Problems on simplifying multirate systems using noble identities
- Lecture 43 - Problem on designing synthesis bank filters
- Lecture 44 - Efficient architecture for fractional decimator
- Lecture 45 - Multistage filter design
- Lecture 46 - Two-channel filter banks
- Lecture 47 - Amplitude and phase distortion in signals
- Lecture 48 - Polyphase representation of 2-channel filter banks, signal flow graphs and perfect reconstruction
- Lecture 49 - M-channel filter banks
- Lecture 50 - Polyphase representation of M-channel filter bank
- Lecture 51 - Perfect reconstruction of signals
- Lecture 52 - Nyquist and half band filters
- Lecture 53 - Special filter banks for perfect reconstruction
- Lecture 54 - Introduction to wavelets
- Lecture 55 - Multiresolution analysis and properties
- Lecture 56 - The Haar wavelet
- Lecture 57 - Structure of subspaces in MRA
- Lecture 58 - Haar decomposition - 1
- Lecture 59 - Haar decomposition - 2
- Lecture 60 - Wavelet Reconstruction
- Lecture 61 - Haar wavelet and link to filter banks
- Lecture 62 - Demo on wavelet decomposition
- Lecture 63 - Problem on circular convolution
- Lecture 64 - Time frequency localization
- Lecture 65 - Basic analysis
- Lecture 66 - Basic Analysis
- Lecture 67 - Fourier series and notions of convergence
- Lecture 68 - Convergence of Fourier series at a point of continuity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Convergence of Fourier series for piecewise differentiable periodic functions
- Lecture 70 - Uniform convergence of Fourier series of piecewise smooth periodic function
- Lecture 71 - Convergence in norm of Fourier series
- Lecture 72 - Convergence of Fourier series for all square integrable periodic functions
- Lecture 73 - Problem on limits of integration of periodic functions
- Lecture 74 - Matrix Calculus
- Lecture 75 - KL transform
- Lecture 76 - Applications of KL transform
- Lecture 77 - Demo on KL Transform
- Lecture 78 - Live Session
- Lecture 79 - Live Session 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electronics Enclosures Thermal Issues

Subject Co-ordinator - Prof. N. V Chalapathi Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Electronic Equipment Thermal issues

Lecture 2 - Practical Examples - 1

Lecture 3 - Practical Examples - 2

Lecture 4 - CEDT worked examples - 1

Lecture 5 - CEDT worked examples - 2

Lecture 6 - Text book theory

Lecture 7 - Sample heat sinks

Lecture 8 - Published correlations - 1

Lecture 9 - Published correlations - 2

Lecture 10 - Parallel combined effects

Lecture 11 - Mounting of packages

Lecture 12 - Combined Rth of devices

Lecture 13 - Schonholzer moduls

Lecture 14 - 1972 model paper

Lecture 15 - Jensen model

Lecture 16 - Thermal management - 1

Lecture 17 - Thermal management - 2

Lecture 18 - Round up of full model

Lecture 19 - Fan cooling

Lecture 20 - Thermo-electric cooling

Lecture 21 - On-the-net DIY work

Lecture 22 - Practical video

Lecture 23 - Lecture 23

Lecture 24 - Lecture 24

Lecture 25 - Lecture 25

Lecture 26 - Lecture 26

Lecture 27 - Real packages

Lecture 28 - Prior art

Lecture 29 - OTS standard profiles

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - CAD detailed design of profiles
- Lecture 31 - Round up
- Lecture 32 - 4X Peltier Cooler
- Lecture 33 - Manufacturing Video
- Lecture 34 - Peltier heat sink



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC: Integrated Circuits, MOSFETs, Op-Amps and their Application

Subject Co-ordinator - Prof. Hardik Jeetendra Pandya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Integrated Circuits (IC) Technology
- Lecture 2 - Introduction to fabrication of IC
- Lecture 3 - Introduction to IC fabrication
- Lecture 4 - Introduction to IC fabrication (Continued...)
- Lecture 5 - Introduction to the fabrication of sensors
- Lecture 6 - Introduction to fabrication technology
- Lecture 7 - Introduction to fabrication technology (Continued...)
- Lecture 8 - Introduction to fabrication technology (Continued...)
- Lecture 9 - Introduction to fabrication technology (Continued...)
- Lecture 10 - Introduction to fabrication technology (Continued...)
- Lecture 11 - Process flow for Fabrication of MOSFETs
- Lecture 12 - Operation of Enhancement type MOSFET
- Lecture 13 - Operation of Depletion type MOSFET
- Lecture 14 - MOSFETs Characteristics and Applications (Current Mirrors)
- Lecture 15 - Introduction to Operational Amplifiers
- Lecture 16 - Operational Amplifier Characteristics
- Lecture 17 - Operational Amplifier Characteristics (Continued...)
- Lecture 18 - Characteristics of an op-amp (Continued...)
- Lecture 19 - Operational Amplifier Configurations
- Lecture 20 - Operational Amplifier Configurations (Continued...)
- Lecture 21 - Applications of Operational Amplifier
- Lecture 22 - Applications of Operational Amplifier
- Lecture 23 - Applications of Operational Amplifier
- Lecture 24 - Introduction to Passive and Active Filters and op-amp as Low Pass Filter
- Lecture 25 - Operational Amplifier as a High Pass Filter
- Lecture 26 - Operational Amplifier as a Band Pass and Band Reject Filter
- Lecture 27 - Introduction to Oscillator
- Lecture 28 - RC Phase Shift Oscillator using Op-amp
- Lecture 29 - Wein Bridge Oscillator using Op-amp

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hartley and Colpitts Oscillator using Op-amp
- Lecture 31 - Working of Crystal Oscillators
- Lecture 32 - Construction and Operation of UJT Relaxation Oscillators
- Lecture 33 - Introduction to Noise and its Types
- Lecture 34 - Analysis of Data Sheets of an Op-Amp
- Lecture 35 - Analysis of Data Sheets of an Op-Amp (Continued...)
- Lecture 36 - Analysis of Data Sheets of an Op-Amp (Continued...)
- Lecture 37 - Experiment - Introduction to Laboratory Equipment
- Lecture 38 - Experiment - Measurement of Active and Passive elements using Multimeter
- Lecture 39 - Experiment - Working with Laboratory Equipment
- Lecture 40 - Experiment - Working with Laboratory Equipment
- Lecture 41 - Experiment - Op-Amp Characteristics
- Lecture 42 - Experiment - Op-Amp Characteristics
- Lecture 43 - Experiment - Op-Amp Characteristics
- Lecture 44 - Experiment - Op-Amp as Inverting Amplifier
- Lecture 45 - Experiment - Op-Amp as Non-Inverting Amplifier
- Lecture 46 - Experiment - To study input and output voltage range of an Op-Amp
- Lecture 47 - Experiment - Differential amplifier using op-amp
- Lecture 48 - Experiment - To study the gain of instrumentation amplifier
- Lecture 49 - Experiment - Summing amplifier using op-amp
- Lecture 50 - Experiment - To study op-amp based comparator
- Lecture 51 - Experiment - To study op-amp based integrator and differentiator
- Lecture 52 - Experiment - Study of passive low pass filter
- Lecture 53 - Experiment - Op-amp based active low pass filter
- Lecture 54 - Experiment - Passive and active high pass filter
- Lecture 55 - Experiment - Introduction to experimental set-up of band pass filter
- Lecture 56 - Experiment - Passive and active band pass filter
- Lecture 57 - Experiment - Introduction to experimental set-up for band reject filter
- Lecture 58 - Experiment - Active band reject filter
- Lecture 59 - Experiment - Peak detector circuit using Op-Amp

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Semiconductor Devices and Circuits

Subject Co-ordinator - Prof. Sanjiv Sambandan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Quantum Mechanics  
Lecture 2 - Quantum Mechanics  
Lecture 3 - Quantum Mechanics  
Lecture 4 - Solids  
Lecture 5 - Solids  
Lecture 6 - Solids  
Lecture 7 - Solids  
Lecture 8 - Solids  
Lecture 9 - Density of States  
Lecture 10 - Density of States (Continued...), Fermi Function  
Lecture 11 - Fermi Function - Carrier Concentration  
Lecture 12 - Doping  
Lecture 13 - Doping (Continued...)  
Lecture 14 - Recombination and Generation  
Lecture 15 - Recombination and Generation (Continued...)  
Lecture 16 - Recombination and Generation (Continued...), Charge Transport  
Lecture 17 - Charge Transport (Continued...)  
Lecture 18 - Continuity Equation  
Lecture 19 - Junctions  
Lecture 20 - Metal Semiconductor Junctions  
Lecture 21 - Schottky Contact  
Lecture 22 - Schottky Contact  
Lecture 23 - Schottky Contact  
Lecture 24 - Schottky Contact  
Lecture 25 - PN Junctions  
Lecture 26 - PN Junctions  
Lecture 27 - PN Junctions  
Lecture 28 - PN Junctions  
Lecture 29 - Bipolar Junction Transistors (BJT)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - BJT
- Lecture 31 - BJT
- Lecture 32 - Metal Oxide Semiconductor Capacitor (MOSCAP)
- Lecture 33 - MOSCAP (Continued...)
- Lecture 34 - MOSCAP
- Lecture 35 - MOSCAP
- Lecture 36 - MOSFET
- Lecture 37 - MOSFET
- Lecture 38 - MOSFET
- Lecture 39 - MOSFET
- Lecture 40 - Subthreshold swing, Additional concepts
- Lecture 41 - Trapped charge, Body-bias
- Lecture 42 - Scaling of MOSFETs
- Lecture 43 - Scaling of MOSFETs (Continued...), Leakage currents in MOSFETs
- Lecture 44 - MOSFET characterization
- Lecture 45 - MOSFET characterization
- Lecture 46 - MOSFET as a switch
- Lecture 47 - MOSFET as a switch (Continued...)
- Lecture 48 - Amplifiers using MOSFET
- Lecture 49 - Amplifiers using MOSFET (Continued...)
- Lecture 50 - Circuits
- Lecture 51 - Introduction
- Lecture 52 - Thin Film Transistors
- Lecture 53 - Tutorials Session - 1
- Lecture 54 - Tutorials Session - 2
- Lecture 55 - Tutorials Session - 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fabrication Techniques for MEMs-based Sensors: Clinical Per

Subject Co-ordinator - Prof. Hardik Jeetendra Pandya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Microengineering Devices
- Lecture 2 - Introduction to Microengineering Devices (Continued...)
- Lecture 3 - Introduction to Microengineering Devices (Continued...)
- Lecture 4 - Silicon, silicon di-oxide and photolithography
- Lecture 5 - Silicon, silicon di-oxide and photolithography (Continued...)
- Lecture 6 - Physical Vapour Deposition
- Lecture 7 - Physical Vapour Deposition (Continued...)
- Lecture 8 - Photolithography
- Lecture 9 - Mask Aligner
- Lecture 10 - Mask Aligner (Continued...)
- Lecture 11 - Micromachining
- Lecture 12 - Micromachining
- Lecture 13 - Micromachining
- Lecture 14 - Micromachining
- Lecture 15 - Chemical Vapour Deposition
- Lecture 16 - Typical Microfabricated Devices for Biomedical Applications
- Lecture 17 - Cancer Diagnostic Tool
- Lecture 18 - Process flow for Fabrication of Micro Heater
- Lecture 19 - Process flow for Fabrication of Interdigitated Electrodes
- Lecture 20 - Process flow for Fabrication of Interdigitated Electrodes (Continued...)
- Lecture 21 - Process flow for Fabrication of ETM phenotyping
- Lecture 22 - Process flow for Fabrication of Piezo canteliver
- Lecture 23
- Lecture 24
- Lecture 25
- Lecture 26
- Lecture 27 - Microchip for Rapid Drug Screening
- Lecture 28 - Microchip for Rapid Drug Screening (Continued...)
- Lecture 29 - A Microfluidic chip for rapid bacterial antibiotic Susceptibility testing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Smart Catheter
- Lecture 31 - Smart Catheter
- Lecture 32 - Smart Catheter
- Lecture 33 - Tissue and Cell Culture Techniques
- Lecture 34 - Clean Room
- Lecture 35 - GLP
- Lecture 36 - Introduction to Equipments
- Lecture 37 - Gowning Procedure for using Biological Lab Setup
- Lecture 38 - Introduction to Equipments
- Lecture 39 - Introduction to Equipments
- Lecture 40 - Introduction to Equipments
- Lecture 41 - Function generator, Multimeter, Sampling, LabVIEW, NI-CDAQ
- Lecture 42 - Introduction to Equipments
- Lecture 43 - Introduction to Equipments
- Lecture 44 - Introduction to Equipments
- Lecture 45 - Introduction to Equipments
- Lecture 46 - Introduction to Equipments
- Lecture 47 - Introduction to Equipments
- Lecture 48 - Introduction to Equipments
- Lecture 49 - Introduction to Equipments
- Lecture 50 - Introduction to Equipments
- Lecture 51 - PDMS Moulding
- Lecture 52 - 3D Printing
- Lecture 53 - Introduction to Fabricated Sensors
- Lecture 54 - Simulation
- Lecture 55 - Simulation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Op-Amp Practical Applications: Design, Simulation and Imple

Subject Co-ordinator - Prof. Hardik Jeetendra Pandya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction/Summary on Op-amps
- Lecture 2 - Introduction/Summary on Op-amps (Continued...)
- Lecture 3 - Introduction/Summary on Op-amps (Continued...)
- Lecture 4 - Effect of Loading and Input Impedance - Part 1
- Lecture 5 - Effect of Loading and Input Impedance - Part 2
- Lecture 6 - Effect of Loading and Input Impedance - Part 3
- Lecture 7 - Effect of Loading and Input Impedance - Part 4
- Lecture 8 - Introduction to an Analog Circuit Development Board (TI ASLK Pro)
- Lecture 9 - Op-amp Applications
- Lecture 10 - Op-amp Applications
- Lecture 11 - Op-amp Applications
- Lecture 12 - Op-amp Circuits using Diodes
- Lecture 13 - Understanding the Range of Feedback Amplifiers
- Lecture 14 - Op-amps as Phase Shift Oscillator
- Lecture 15 - Op-amp as Wein Bridge Oscillator
- Lecture 16 - Op-amp as Hartley Oscillator
- Lecture 17 - Op-amp as Colpitts Oscillator
- Lecture 18 - Op-amps as Comparator
- Lecture 19 - Op-amp with Positive Feedback
- Lecture 20 - Op-amp with Positive Feedback
- Lecture 21 - Op-amp with Positive Feedback
- Lecture 22 - Op-amp with Positive Feedback
- Lecture 23 - Op-amp based Voltage Controlled Current Source
- Lecture 24 - Measure of Unknown Resistance by Constant Current Drive Circuit Implemented using Op-amp
- Lecture 25 - Design and Development of Temperature Controlled Circuit using Op-amp as ON-OFF, Proportional and
- Lecture 26 - Implementation of Error Detector Circuit and Signal Conditioning Circuit for Temperature Control
- Lecture 27 - Implementation of Plant/Heating Circuit and ON-OFF Controller
- Lecture 28 - Implementation of P and PI Controllers
- Lecture 29 - Experiment on Controlling the Temperature on the Plant using different Controllers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Experiment
- Lecture 31 - Introduction to ECG Experiment
- Lecture 32 - Design and Implementation of ECG Preprocessing Stage - Part 1
- Lecture 33 - Design and Implementation of ECG Preprocessing Stage - Part 2
- Lecture 34 - Design and Implementation of ECG Preprocessing Stage - Part 3
- Lecture 35 - Design and Implementation of ECG Preprocessing Stage - Part 4
- Lecture 36 - Design and Implementation of Peak Detector and Thresholding Circuit for ECG Signal Conditioning
- Lecture 37 - Live Demonstration on ECG Signal Acquisition, Conditioning and Measurement of BPM
- Lecture 38 - Understanding Analog Multipliers using Development Board
- Lecture 39 - Application
- Lecture 40 - Introduction to Data-Acquisition
- Lecture 41 - Analog to Digital Conversion Circuits and Experiment on 2-bit Flash Type ADC
- Lecture 42 - Digital to Analog Conversion Circuits and Experiment on 4-bit R-2R DAC
- Lecture 43 - DAC Basics using Development Board - Introduction
- Lecture 44 - Understanding DAC 7821 Datasheet
- Lecture 45 - Basic DAC Experiment on Variable Gain Amplifier
- Lecture 46 - Understanding DAC
- Lecture 47 - Introduction to CDAQ (Compact DAQ)
- Lecture 48 - Software-in-Loop based Temperature Controller using CDAQ and LabVIEW



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Physical Modelling for Electronics Enclosures using Rapid p

Subject Co-ordinator - Prof. N. V Chalapathi Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Products prototyping
- Lecture 2 - Prototype concepts
- Lecture 3 - Physical simulation
- Lecture 4 - Rapid Prototyping
- Lecture 5 - Products detailing
- Lecture 6 - Advantages of Design Modelling
- Lecture 7 - Sample product concept
- Lecture 8 - Product sample exercise 1
- Lecture 9 - Exercise in product sample 2
- Lecture 10 - Integration of components 1
- Lecture 11 - Components integration in models
- Lecture 12 - 3D printing detail 1
- Lecture 13 - 3D printing detail 2
- Lecture 14 - 3D print assembly design
- Lecture 15 - Heat spreader to 3D print
- Lecture 16 - Metallic, 3D, build up 1
- Lecture 17 - 3D build up 2
- Lecture 18 - 3D design 1 from Photo snap
- Lecture 19 - 3D design 2 from Photo snap
- Lecture 20 - 3D Laser cuts 1, prints
- Lecture 21 - 3D Laser cuts 2, open source public prints
- Lecture 22 - Demo of 3D Part print
- Lecture 23 - Building a model 1
- Lecture 24 - Building a model 2
- Lecture 25 - Common place objects
- Lecture 26 - Materials
- Lecture 27 - Future 3D In biology
- Lecture 28 - Product clamp variants
- Lecture 29 - Product clamp build up

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multi direction features
- Lecture 31 - Multi direction features (Continued...)
- Lecture 32 - Fastening detail
- Lecture 33 - Flat objects
- Lecture 34 - Modularity
- Lecture 35 - Creative design work
- Lecture 36 - Creative designs
- Lecture 37 - Using flat features
- Lecture 38 - Organic shapes
- Lecture 39 - Simulation for alternate use

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Recent Advances in Transmission Insulators

Subject Co-ordinator - Prof Subba Reddy B

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Transmission and distribution Insulators
- Lecture 2 - Manufacturing process for Ceramic/glass Insulators
- Lecture 3 - Manufacturing process for Polymeric Insulators
- Lecture 4 - Design Considerations of Transmission Insulators
- Lecture 5 - Field experience of Ceramic/Glass and Polymeric Insulators
- Lecture 6 - Comparison of Transmission Insulators
- Lecture 7 - Environmental issues with transmission Insulators
- Lecture 8 - Reliability and Philosophy of Testing
- Lecture 9 - Testing of Ceramic, Glass and Composite Insulators
- Lecture 10 - Cleaning methods adopted for Insulators
- Lecture 11 - Cleaning methods adopted for Insulators (Continued...)
- Lecture 12 - Coating techniques for Insulators
- Lecture 13 - Introduction to Hybrid Insulators

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Contemporary Issues in Philosophy of Mind and Cognition

Subject Co-ordinator - Dr. Rajakishore Nath, Dr. Ranjan K. Panda

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Transcendental Consciousness  
Lecture 3 - Plato's Theory of Mind  
Lecture 4 - Parable of Cave  
Lecture 5 - Aristotle's Concept Mind  
Lecture 6 - The Concept of Mind in Upanishadas  
Lecture 7 - Dualism - I  
Lecture 8 - Dualism - II  
Lecture 9 - Dualism - III  
Lecture 10 - Against Dualism  
Lecture 11 - Property Dualism  
Lecture 12 - Varieties of Materialism  
Lecture 13 - Mind-Body Identity Theory  
Lecture 14 - Functionalism  
Lecture 15 - Different Models of Cognitive Mind  
Lecture 16 - Connectionism and Folk - Psychology  
Lecture 17 - Representation - I  
Lecture 18 - Representation - II  
Lecture 19 - Artificial Intelligence - I  
Lecture 20 - Artificial Intelligence - II  
Lecture 21 - Artificial Intelligence - III  
Lecture 22 - The Limit of Artificial Intelligence - I  
Lecture 23 - The Limit of Artificial Intelligence - II  
Lecture 24 - Biological Naturalism  
Lecture 25 - The Concept of Intentionality  
Lecture 26 - The Structure of Consciousness - I  
Lecture 27 - The Structure of Consciousness - II  
Lecture 28 - Phenomenal Consciousness - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Phenomenal Consciousness - II
- Lecture 30 - Language, Representation & Meaning - I
- Lecture 31 - Language & Meaning - II
- Lecture 32 - Language & Mind
- Lecture 33 - Language & World - I
- Lecture 34 - Language & World - II
- Lecture 35 - Emergentism & Supervenience
- Lecture 36 - Reduction & Realization - I
- Lecture 37 - Reduction & Realization - II
- Lecture 38 - The Cartesian Mind Revisited
- Lecture 39 - Personal Identity - I
- Lecture 40 - Personal Identity - II
- Lecture 41 - Creativity
- Lecture 42 - Creativity

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Understanding Creativity and Creative Writing

Subject Co-ordinator - Prof. Neelima Talwar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview
- Lecture 2 - In Conversation with Richard Schechner
- Lecture 3 - Multilingual Plurality
- Lecture 4 - Multilingual Plurality
- Lecture 5 - Interplay of Languages and Forms of Writing - Part I
- Lecture 6 - Interplay of Languages and Forms of Writing - Part II
- Lecture 7 - Creativity and Cultures
- Lecture 8 - Notion of Play and The Three Domain Activities
- Lecture 9 - Theory of Enjoyment
- Lecture 10 - Divergences and Convergences - Part I
- Lecture 11 - Divergences and Convergences - Part II
- Lecture 12 - Creative and Cultural Spaces for Students
- Lecture 13 - Being and Doing
- Lecture 14 - Writers and Writing
- Lecture 15 - Creativity, Writing, Creative Writing
- Lecture 16 - Issues Related to the Teaching of Creative Writing
- Lecture 17 - Writers on Writing
- Lecture 18 - Critical Reading of Great Writers
- Lecture 19 - Critical Reading of Important Writers
- Lecture 20 - Reading and Writing
- Lecture 21 - Indian Writing
- Lecture 22 - Contemporary Indian Writers
- Lecture 23 - Contemporary Indian Writers
- Lecture 24 - Mosaic Patterns
- Lecture 25 - Introduction to Drama
- Lecture 26 - Performance and Script Writing
- Lecture 27 - Western Classical Theory
- Lecture 28 - Student Response - I
- Lecture 29 - Indian Drama

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interacting Continuum
- Lecture 31 - From The Perspective of Playwriting
- Lecture 32 - From The Playwright's Perspective - Part I
- Lecture 33 - From The Playwright's Perspective - Part II
- Lecture 34 - From The Perspective of Playwriting
- Lecture 35 - Drama in the Classroom
- Lecture 36 - Student Response - II
- Lecture 37 - Performative Reading of the Cherry Orchard
- Lecture 38 - Short Story as a Genre
- Lecture 39 - Short Stories by Indian Women Writers
- Lecture 40 - Modern Western Short Story
- Lecture 41 - Varieties of Writing Processes

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Cultural Studies

Subject Co-ordinator - Dr. Liza Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Understanding Cultural Studies - Part 1

Lecture 2 - Understanding Cultural Studies - Part 2

Lecture 3 - Evolution and Culture

Lecture 4 - Evolutionary Psychology

Lecture 5 - The Modern Mind

Lecture 6 - Memetics

Lecture 7 - Cultural Theory

Lecture 8 - Marxism - Part 1

Lecture 9 - Marxism - Part 2

Lecture 10 - Poststructuralism

Lecture 11 - Subjectivity

Lecture 12 - Identity

Lecture 13 - Ideology - Part 1

Lecture 14 - Ideology - Part 2

Lecture 15 - Representation - Part 1

Lecture 16 - Representation - Part 2

Lecture 17 - Power

Lecture 18 - Discourse

Lecture 19 - Gender - Part 1

Lecture 20 - Gender - Part 2

Lecture 21 - The Body

Lecture 22 - Space

Lecture 23 - Time

Lecture 24 - Development

Lecture 25 - Language

Lecture 26 - Ethnicity, Race and Nation

Lecture 27 - Globalisation

Lecture 28 - Consumption - Part 1

Lecture 29 - Consumption - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Biology
- Lecture 31 - Culture Industry
- Lecture 32 - Commodity
- Lecture 33 - Media
- Lecture 34 - Television
- Lecture 35 - New Media
- Lecture 36 - Science, Technology and Culture
- Lecture 37 - Cyberculture
- Lecture 38 - Cultural Policy
- Lecture 39 - Critiquing Cultural Studies
- Lecture 40 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - English Language and Literature

Subject Co-ordinator - Dr. Krishna Barua, Dr. Liza Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - The Scope of English Studies
- Lecture 3 - The English Language
- Lecture 4 - International English
- Lecture 5 - The Globalization of English
- Lecture 6 - World Englishes
- Lecture 7 - The Rise of Cultural Studies
- Lecture 8 - Old English
- Lecture 9 - Middle English
- Lecture 10 - Early Modern English
- Lecture 11 - Modern English - 1
- Lecture 12 - Modern English - 2
- Lecture 13 - The Age of Chaucer
- Lecture 14 - The Age of Shakespeare
- Lecture 15 - Milton and his Times
- Lecture 16 - The Augustans
- Lecture 17 - The Romantics
- Lecture 18 - The Victorians
- Lecture 19 - Modern Literature
- Lecture 20 - The Novel
- Lecture 21 - Poetry
- Lecture 22 - Drama
- Lecture 23 - Essay
- Lecture 24 - Short story
- Lecture 25 - Biography
- Lecture 26 - Autobiography
- Lecture 27 - History Of English Language
- Lecture 28 - Marxist Literary Criticism
- Lecture 29 - Feminist Criticism

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structuralist Criticism
- Lecture 31 - Poststructuralism
- Lecture 32 - Postcolonialism
- Lecture 33 - Cognitive Approaches To Literature
- Lecture 34 - Classical Criticism
- Lecture 35 - Liberal Humanism
- Lecture 36 - Reader-response Criticism
- Lecture 37 - New Historicism
- Lecture 38 - Ecocriticism

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Game Theory for Economists

Subject Co-ordinator - Dr. Debarshi Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition of Game Theory and Rational Choice
- Lecture 2 - Interacting Decision Makers
- Lecture 3 - Strategic Games
- Lecture 4 - Matching Pennies, Stag Hunt and Nash Equilibrium
- Lecture 5 - Examples of Nash Equilibrium
- Lecture 6 - Altruism and Prisoner's Dilemma
- Lecture 7 - Variants Stag Hunt Game, Hawk Dove and Coordination Game
- Lecture 8 - Public Good Provision, Strict Nash Equilibrium
- Lecture 9 - Best Response Functions
- Lecture 10 - Strictly and Weakly Dominated Action
- Lecture 11 - Application of Weak Domination
- Lecture 12 - Symmetric Games and Symmetric Equilibrium
- Lecture 13 - Cournot Model of Oligopoly
- Lecture 14 - Different Aspects of Cournot Model
- Lecture 15 - Further Aspects of Cournot Model
- Lecture 16 - Cournot & Bertrand Models
- Lecture 17 - Different Aspects of Bertrand Model
- Lecture 18 - Electoral Competition 1
- Lecture 19 - Different Aspects of Hotelling Model
- Lecture 20 - Hotelling Model
- Lecture 21 - War of Attrition
- Lecture 22 - Second Price Sealed Bid Auction
- Lecture 23 - Further Aspects of Second Price Auction
- Lecture 24 - First Price Auction
- Lecture 25 - All Pay Auction, Multi Unit Auction
- Lecture 26 - Accident Laws
- Lecture 27 - Mixed Strategy Nash Equilibrium
- Lecture 28 - Mixed Strategy, Mixed Strategy Equilibrium
- Lecture 29 - Mixed Strategy Equilibrium

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Characterisation of Mixed Strategy Equilibrium
- Lecture 31 - Dominated Actions and Iterated Elimination
- Lecture 32 - Rationalisability and Beliefs
- Lecture 33 - Extensive Games
- Lecture 34 - Strategy and Equilibrium
- Lecture 35 - Nash Equilibrium and Its Problems
- Lecture 36 - Subgame Perfect Nash Equilibrium
- Lecture 37 - Backward Induction
- Lecture 38 - Backward Induction
- Lecture 39 - Ultimatum Game
- Lecture 40 - Stackelberg Duopoly Model

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Digital Human Modeling and Simulation for Virtual E

Subject Co-ordinator - Dr. Sougata Karmakar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Ergonomics

Lecture 2 - Notes 1

Lecture 3 - Use of percentile anthropometric and biomechanical data for product design - Part I

Lecture 4 - Use of percentile anthropometric and biomechanical data for product design - Part II

Lecture 5 - Use of percentile anthropometric and biomechanical data for product design - Part III

Lecture 6 - Use of percentile anthropometric and biomechanical data for product design - Part IV

Lecture 7 - Notes 2

Lecture 8 - Virtual Ergonomics and its Advantages

Lecture 9 - Notes 3

Lecture 10 - Introduction of Digital Human Modeling (DHM) and Simulation

Lecture 11 - Notes 4

Lecture 12 - Techniques/Process of virtual ergonomics evaluation using DHMs - Part A (Part I)

Lecture 13 - Notes 5

Lecture 14 - Techniques/Process of virtual ergonomics evaluation using DHMs - Part B (Part I)

Lecture 15 - Techniques/Process of virtual ergonomics evaluation using DHMs - Part B (Part II)

Lecture 16 - Techniques/Process of virtual ergonomics evaluation using DHMs - Part B (Part III)

Lecture 17 - Notes 6

Lecture 18 - Application of Digital Human Modeling and Simulation in various Industrial Sectors - Part I

Lecture 19 - Application of Digital Human Modeling and Simulation in various Industrial Sectors - Part II

Lecture 20 - Notes 7

Lecture 21 - Future research avenues and steps to be taken towards widespread - Part I

Lecture 22 - Future research avenues and steps to be taken towards widespread - Part II

Lecture 23 - Future research avenues and steps to be taken towards widespread - Part III

Lecture 24 - Notes 8

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Science, Technology and Society

Subject Co-ordinator - Dr. Sambit Mallick

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Cognitive Dimensions - I
- Lecture 2 - Cognitive Dimensions - II
- Lecture 3 - Ethical Dimensions
- Lecture 4 - Inductivism and Hypothesisism - I
- Lecture 5 - Inductivism and Hypothesisism - II
- Lecture 6 - Positivism - I
- Lecture 7 - Positivism - II
- Lecture 8 - Karl Popper - I
- Lecture 9 - Karl Popper - II
- Lecture 10 - Thomas Kuhn
- Lecture 11 - Popper versus Kuhn
- Lecture 12 - Paul Feyerabend
- Lecture 13 - Rewards and Recognitions - I
- Lecture 14 - Rewards and Recognitions - II
- Lecture 15 - Rewards and Recognitions - III
- Lecture 16 - Cumulative Advantage and Symbolism of Intellectual Property - I
- Lecture 17 - Cumulative Advantage and Symbolism of Intellectual Property - II
- Lecture 18 - Cumulative Advantage and Symbolism of Intellectual Property - III
- Lecture 19 - Max Weber
- Lecture 20 - Preliminary Exercise and Explanation
- Lecture 21 - Edwin Layton Jr.
- Lecture 22 - Langdon Winner - I
- Lecture 23 - Langdon Winner - II
- Lecture 24 - Langdon Winner - III
- Lecture 25 - Donald MacKenzie and Judy Wajcman - I
- Lecture 26 - Donald MacKenzie and Judy Wajcman - II
- Lecture 27 - Thomas Edison
- Lecture 28 - Capitalism, class, gender, city, machine, workplace - I
- Lecture 29 - Capitalism, class, gender, city, machine, workplace - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Capitalism, class, gender, city, machine, workplace - III
- Lecture 31 - Alvin Toffler and Daniel Bell
- Lecture 32 - Themes and Factors of Information Technology
- Lecture 33 - Information Technology and Reconceptualization of Class
- Lecture 34 - Reception of Modern Science in India
- Lecture 35 - Science Policies in India
- Lecture 36 - Summary of the Course



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Gender and Literature

Subject Co-ordinator - Prof. Avishek Parui

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A Brief Overview of the Course
- Lecture 2 - Performativity and Embodiment
- Lecture 3 - The Chess Players - Part 1
- Lecture 4 - The Chess Players - Part 2
- Lecture 5 - Shooting an Elephant - Part 1
- Lecture 6 - Shooting an Elephant - Part 2
- Lecture 7 - Heart of Darkness - Part 1
- Lecture 8 - Heart of Darkness - Part 2
- Lecture 9 - Heart of Darkness - Part 3
- Lecture 10 - The Fly - Part 1
- Lecture 11 - The Fly - Part 2
- Lecture 12 - Look Back in Anger - Part 1
- Lecture 13 - Look Back in Anger - Part 2
- Lecture 14 - Look Back in Anger - Part 3
- Lecture 15 - Look Back in Anger - Part 4
- Lecture 16 - Look Back in Anger - Part 5
- Lecture 17 - Look Back in Anger - Part 6
- Lecture 18 - Gender and Popular Culture Lecture - 1
- Lecture 19 - Gender and Popular Culture Lecture = 2
- Lecture 20 - Gender and Popular Culture Lecture - 3
- Lecture 21 - Gender and Popular Culture Final Lecture

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Ecology and Society

Subject Co-ordinator - Prof. Ngamjahao Kipgen

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Ecology and Society - 1
- Lecture 2 - Ecology and Society - 2
- Lecture 3 - Culture and Cultural Ecology
- Lecture 4 - Cultural Ecology and Economic
- Lecture 5 - Cultural Ecological Theory
- Lecture 6 - Human Ecology
- Lecture 7 - Human Ecology - Theoretical Approach
- Lecture 8 - Ecological Anthropology
- Lecture 9 - Ecosystem-based and Actor-based Model of Human Ecology
- Lecture 10 - Nature and Culture Debate
- Lecture 11 - Nature - A Contested Concept
- Lecture 12 - Conceptions of Nature
- Lecture 13 - Contested Domains and Boundaries of Culture
- Lecture 14 - MCQs Discussion
- Lecture 15 - Paradigms in Humanâ Environmental Relations - Part I
- Lecture 16 - Paradigms in Humanâ Environmental Relations - Part II
- Lecture 17 - Nature, Culture, Magic and Science
- Lecture 18 - Religion, Nature and Environment
- Lecture 19 - Religion, Nature and Environment Continue
- Lecture 20 - The Historical Roots of our Ecological Crisis
- Lecture 21 - Biodiversity Conservation Ethics in Buddhism
- Lecture 22 - Hinduism and Nature Conservation, Christian Religion Response to Ecological Crisis
- Lecture 23 - Hinduism and Nature Conservation, Christian Religion Response to Ecological Crisis
- Lecture 24 - Deep Ecology
- Lecture 25 - Social Ecology
- Lecture 26 - Ecological Feminist Philosophies
- Lecture 27 - Indigenous Knowledge
- Lecture 28 - Ecological Journey
- Lecture 29 - Kuki Jhumming Practices

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Debates on Shifting Cultivation

Lecture 31 - Course Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Sociological Perspectives on Modernity

Subject Co-ordinator - Dr. Sambit Mallick

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Thematic Preliminaries - I  
Lecture 2 - Thematic Preliminaries - II  
Lecture 3 - Thematic Preliminaries - III  
Lecture 4 - Sociological Modernism  
Lecture 5 - Sociological Modernism  
Lecture 6 - Sociological Modernism  
Lecture 7 - Sociological Modernism  
Lecture 8 - Sociological Modernism  
Lecture 9 - Sociological Modernism  
Lecture 10 - Sociological Modernism  
Lecture 11 - Sociological Modernism  
Lecture 12 - Structuralist Interpretation - I  
Lecture 13 - Structuralist Interpretation - II  
Lecture 14 - Structuralist Interpretation - III  
Lecture 15 - Western Marxism - I  
Lecture 16 - Western Marxism - II  
Lecture 17 - Modernity and Social Theory - I  
Lecture 18 - Modernity and Social Theory - II  
Lecture 19 - Modernity and Social Theory - III  
Lecture 20 - Modernity and Social Theory - IV  
Lecture 21 - Deconstruction of Modernity  
Lecture 22 - Deconstruction of Modernity  
Lecture 23 - Deconstruction of Modernity  
Lecture 24 - Deconstruction of Modernity  
Lecture 25 - Deconstruction of Modernity  
Lecture 26 - Deconstruction of Modernity  
Lecture 27 - A New Totality - I  
Lecture 28 - A New Totality - II  
Lecture 29 - Modernity in India

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - What have we discussed?

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Cognitive Psychology

Subject Co-ordinator - Prof. Naveen Kashyap

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A Brief History of Cognitive Psychology - 1
- Lecture 2 - A Brief History of Cognitive Psychology - 2
- Lecture 3 - Studying Cognition
- Lecture 4 - Perception
- Lecture 5 - Models of Perception - 1
- Lecture 6 - Models of Perception - 2
- Lecture 7 - Basic Attention Processes
- Lecture 8 - Models of Attention
- Lecture 9 - Automization and Attention
- Lecture 10 - Memory Introduction
- Lecture 11 - Short Term Memory
- Lecture 12 - Working Memory
- Lecture 13 - Long-Term Memory Encoding
- Lecture 14 - Retrieval from Long-Term Memory
- Lecture 15 - Semantic Memory Basics
- Lecture 16 - Models of Semantic Memory
- Lecture 17 - Introducing Concepts and Categories - 1
- Lecture 18 - Introducing Concepts and Categories - 2
- Lecture 19 - Basics of Visual Memory
- Lecture 20 - Object Transformation in Visual Memory
- Lecture 21 - Basic Issues in Language
- Lecture 22 - Comprehension and Understanding of Language
- Lecture 23 - Introduction to Problem Solving
- Lecture 24 - Factors Influencing Problem Solving
- Lecture 25 - Insight and Creativity
- Lecture 26 - Reasoning - 1
- Lecture 27 - Reasoning - 2
- Lecture 28 - Classical Theory of Decision Making
- Lecture 29 - Prospect Theory of Decision Making

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Course Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Modern Indian Political Thought

Subject Co-ordinator - Prof. Mithilesh Kumar Jha

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the course

Lecture 2 - Raja Rammohan Roy

Lecture 3 - Raja Rammohan Roy

Lecture 4 - Raja Rammohan Roy

Lecture 5 - Rabindranath Tagore

Lecture 6 - Rabindranath Tagore

Lecture 7 - Rabindranath Tagore

Lecture 8 - Aurobindo Ghosh

Lecture 9 - Aurobindo Ghosh

Lecture 10 - Vivekananda

Lecture 11 - Vivekananda

Lecture 12 - Mahatma Gandhi

Lecture 13 - Mahatma Gandhi

Lecture 14 - Mahatma Gandhi

Lecture 15 - Muhammad Iqbal

Lecture 16 - Muhammad Iqbal

Lecture 17 - Savarkar

Lecture 18 - Savarkar

Lecture 19 - Jawaharlal Nehru

Lecture 20 - Jawaharlal Nehru

Lecture 21 - Jawaharlal Nehru

Lecture 22 - B.R.Ambedkar

Lecture 23 - B.R.Ambedkar

Lecture 24 - B.R.Ambedkar

Lecture 25 - Pandita Ramabai

Lecture 26 - Pandita Ramabai

Lecture 27 - Rammanohar Lohia

Lecture 28 - Rammanohar Lohia

Lecture 29 - Rammanohar Lohia

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Consumer Psychology

Subject Co-ordinator - Prof. Naveen Kashyap

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Consumer Psychology - I  
Lecture 2 - Introduction to Consumer Psychology - II  
Lecture 3 - Problem Recognition - I  
Lecture 4 - Problem Recognition - II  
Lecture 5 - Alternate Evaluation - I  
Lecture 6 - Alternate Evaluation - II  
Lecture 7 - Alternate Evaluation - III  
Lecture 8 - Post Purchase and Consumption - I  
Lecture 9 - Post Purchase and Consumption - II  
Lecture 10 - Perception and Cognition - I  
Lecture 11 - Perception and Cognition - II  
Lecture 12 - Memory and Learning - I  
Lecture 13 - Memory and Learning - II  
Lecture 14 - Emotion Motivation and Mood - I  
Lecture 15 - Emotion Motivation and Mood - II  
Lecture 16 - Attitude and Attitude Change - I  
Lecture 17 - Attitude and Attitude Change - II  
Lecture 18 - Communication and Persuasion - I  
Lecture 19 - Communication and Persuasion - II  
Lecture 20 - Summary

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Communication Skills

Subject Co-ordinator - Dr. T. Ravichandran

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Barriers to Communication - 1  
Lecture 3 - Barriers to Communication - 2  
Lecture 4 - Barriers to Communication - 3  
Lecture 5 - Non-Verbal Communication - 1  
Lecture 6 - Non-Verbal Communication - 2  
Lecture 7 - Non-Verbal Communication - 3  
Lecture 8 - Non-Verbal Communication - 4  
Lecture 9 - Non-Verbal Communication - 5  
Lecture 10 - Listening Skills - 1  
Lecture 11 - Listening Skills - 2  
Lecture 12 - Listening Skills - 3  
Lecture 13 - Business Letters Writing - 1  
Lecture 14 - Business Letters Writing - 2  
Lecture 15 - Business Letters Writing - 3  
Lecture 16 - Business Letters Writing - 4  
Lecture 17 - Report Writing - 1  
Lecture 18 - Report Writing - 2  
Lecture 19 - Group Discussion - 1  
Lecture 20 - Group Discussion - 2  
Lecture 21 - Group Discussion - 3  
Lecture 22 - Interview Skills - 1  
Lecture 23 - Interview Skills - 2  
Lecture 24 - Interview Skills - 3  
Lecture 25 - Interview Skills - 4  
Lecture 26 - Interview Skills - 5  
Lecture 27 - Interview Skills - 6  
Lecture 28 - Interview Skills - 7  
Lecture 29 - Netiquette - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Netiquette - 2
- Lecture 31 - Oral Presentation - 1
- Lecture 32 - Oral Presentation - 2
- Lecture 33 - Oral Presentation - 3
- Lecture 34 - Cross Cultural Communication - 1
- Lecture 35 - Cross Cultural Communication - 2
- Lecture 36 - Cross Cultural Communication - 3
- Lecture 37 - Cross Cultural Communication - 4
- Lecture 38 - Common Errors - 1
- Lecture 39 - Common Errors - 2
- Lecture 40 - Common Errors - 3

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Ethics

Subject Co-ordinator - Dr. Vineet Sahu

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Ethics - 'Crtio' A Socratic dialoguea
- Lecture 2 - Introduction to Ethics -An assessment of Ethical relativism
- Lecture 3 - Consequentialism -Introduction
- Lecture 4 - Consequentialism Rule and Act
- Lecture 5 - Hedonism
- Lecture 6 - Utilitarianism
- Lecture 7 - Deontological theories - Introduction
- Lecture 8 - Deontological theories - Immanuel Kant
- Lecture 9 - Ethical Rules (with reference to W D Ross)
- Lecture 10 - Situation Ethics
- Lecture 11 - Virtue Ethics
- Lecture 12 - Metaethical Theories
- Lecture 13 - Ethical Relativism
- Lecture 14 - Ethical Naturalism
- Lecture 15 - Ethical Naturalism (Continued...)
- Lecture 16 - Ethical Naturalism-Emotivism
- Lecture 17a - Ethical Non-naturalism
- Lecture 17b - Ethical Non-naturalism-II
- Lecture 18 - Non-cognitive or Nondescriptivist Theories - Intuitionism
- Lecture 19 - Non-cognitive or Nondescriptivist Theories - Intuitionism Nihilism
- Lecture 20 - Why be Moral?
- Lecture 21 - Ethics in the Indian tradition
- Lecture 22 - Theory of Karma - Part 1
- Lecture 23 - Theory of Karma - Part 2
- Lecture 24 - Nishkama Karma - Part 1
- Lecture 25 - Nishkama Karma - Part 2
- Lecture 26 - Gandhian Ethics - Part 1
- Lecture 27 - Gandhian Ethics - Part 2
- Lecture 28 - Gandhian Ethics - Part 3 (Satyagraha)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Purusharthas
- Lecture 30 - Buddhist Ethics - Part 1
- Lecture 31 - Buddhist Ethics - Part 2 - Jaina Ethics
- Lecture 32 - Some ethical issues (Applied Ethics) Discussing Peter Singer's 'Famine Affluence and Morality'
- Lecture 33 - Some ethical issues (Applied Ethics) Discussing Peter Singer's 'Famine Affluence and Morality'
- Lecture 34 - Discussing Thomas Pogge's 'Real World Justice' - Part 1
- Lecture 35 - Discussing Thomas Pogge's 'Real World Justice' - Part 2
- Lecture 36 - Discussing Thomas Pogge's 'Real World Justice' - Part 3
- Lecture 37 - Sexuality
- Lecture 38 - Sexuality

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - International Economics

Subject Co-ordinator - Dr. Somesh K. Mathur

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - International Economics  
Lecture 2 - International Economics  
Lecture 3 - International Economics  
Lecture 4 - International Economics  
Lecture 5 - International Economics  
Lecture 6 - International Economics  
Lecture 7 - International Economics  
Lecture 8 - International Economics  
Lecture 9 - International Economics  
Lecture 10 - International Economics  
Lecture 11 - International Economics  
Lecture 12 - International Economics  
Lecture 13 - International Economics  
Lecture 14 - International Economics  
Lecture 15 - International Economics  
Lecture 16 - International Economics  
Lecture 17 - International Economics  
Lecture 18 - International Economics  
Lecture 19 - International Economics  
Lecture 20 - International Economics  
Lecture 21 - International Economics  
Lecture 22 - International Economics  
Lecture 23 - International Economics  
Lecture 24 - International Economics  
Lecture 25 - International Economics  
Lecture 26 - International Economics  
Lecture 27 - International Economics  
Lecture 28 - International Economics  
Lecture 29 - International Economics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - International Economics  
Lecture 31 - International Economics  
Lecture 32 - International Economics  
Lecture 33 - International Economics  
Lecture 34 - International Economics  
Lecture 35 - International Economics  
Lecture 36 - International Economics  
Lecture 37 - International Economics  
Lecture 38 - International Economics  
Lecture 39 - International Economics  
Lecture 40 - International Economics  
Lecture 41 - International Economics  
Lecture 42 - International Economics  
Lecture 43 - International Economics



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Introduction to Logic

Subject Co-ordinator - Dr. A.V. Ravishankar Sarma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Identification of Arguments

Lecture 2 - Non-arguments

Lecture 3 - Types of Arguments

Lecture 4 - Nature and Scope of Deductive and Inductive Arguments

Lecture 5 - Truth, Validity and Soundness

Lecture 6 - Strength of Inductive arguments, Counter example method

Lecture 7 - Toulmin's Model of Argumentation

Lecture 8 - Identification of Formal and Informal Fallacies

Lecture 9 - Informal Fallacies

Lecture 10 - Fallacies of Weak Induction and Fallacies arising out of ambiguity in Language

Lecture 11 - Introduction and motivation for Syllogistic Logic

Lecture 12 - Aristotle theory of Syllogisms - 1

Lecture 13 - Syllogistic Poem, Reduction of Syllogisms

Lecture 14 - Syllogistic Poem, Reduction of Syllogisms

Lecture 15 - Nature and Scope of Propositional Logic

Lecture 16 - Syntax of Propositional Logic

Lecture 17 - Logical Connectives

Lecture 18 - Truth Table Method

Lecture 19 - Semantic Tableaux Method for Propositional Logic

Lecture 20 - Knights and Knaves Puzzles

Lecture 21 - Semantic Tableaux Method

Lecture 22 - Natural Deduction Method

Lecture 23 - Natural Deduction

Lecture 24 - Conjunctive and Disjunctive Normal Forms

Lecture 25 - CNF, DNF and satisfiability and Validity

Lecture 26 - Resolution and refutation method

Lecture 27 - Resolution and refutation method

Lecture 28 - Axiomatic Propositional Logic

Lecture 29 - Hilbert Ackermann Axiomatic system

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- Lecture 30 - Proofs in the PM system
- Lecture 31 - Hilbert and Ackermann System
- Lecture 32 - Outlines of Predicate Logic
- Lecture 33 - Outlines of Predicate Logic
- Lecture 34 - Building blocks of Predicate Logic
- Lecture 35 - Quantifiers, freedom, bondage
- Lecture 36 - Translation in to predicate Logic
- Lecture 37 - Semantics of Predicate Logic
- Lecture 38 - Truth, satisfiability, validity in Predicate Logic
- Lecture 39 - Formation Trees for wffs in predicate Logic
- Lecture 40 - Semantic Tableaux Method for Predicate Logic
- Lecture 41 - Semantic Tableaux method
- Lecture 42 - Natural Deduction in Predicate Logic
- Lecture 43 - Important theorems in First order Logic
- Lecture 44 - Limitations of first order logic and Introduction to the course

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Population and Society

Subject Co-ordinator - Prof. A.K. Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Basics Concepts

Lecture 3 - Perspectives On Population

Lecture 4 - Indian Society

Lecture 5 - Social Change in India

Lecture 6 - India

Lecture 7 - Methodology

Lecture 8 - Primary and Secondary Data and Related Issues

Lecture 9 - Sources of Population Data

Lecture 10 - Participatory Rural Appraisal

Lecture 11 - Demographic Models - I

Lecture 12 - Demographic models - II

Lecture 13 - Contemporary Issues In Modelling Population Processes

Lecture 14 - World Population Growth

Lecture 15 - Demographic Transition in the Nineteenth and Twentieth Centuries

Lecture 16 - Demographic schism between Developed and Developing Countries and Future Prospects

Lecture 17 - History Of Growth

Lecture 18 - Population of India - II

Lecture 19 - Trends In Death and Birth Rates

Lecture 20 - Population projections, Migration and Future Prospects

Lecture 21 - Urbanization and Development

Lecture 22 - Urbanization in India

Lecture 23 - Theories Of urbanization and Development

Lecture 24 - Future Of Urbanization In India

Lecture 25 - Population Theories

Lecture 26 - Marxist theory Of Population

Lecture 27 - Demographic Transition Theory and Related Issues

Lecture 28 - Gandhian Theory Of population

Lecture 29 - Population Policy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Effectiveness Of population Policies
- Lecture 31 - Family Planning Programme and Beyond
- Lecture 32 - National Population Policy
- Lecture 33 - The First Policy Statement
- Lecture 34 - Subsequent Developments Leading To National Population Policy 2000
- Lecture 35 - Ecological Degradation and Environmental Protection
- Lecture 36 - Differences In Perception Between Developed and Developing Countries
- Lecture 37 - Total Environment Impact and Beliefs
- Lecture 38 - Emerging Issues In sociology Of Population
- Lecture 39 - Population Issues In The framework of MDGs
- Lecture 40 - Population Issues (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Macro Economics

Subject Co-ordinator - Prof. Surajit Sinha

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
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Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Introduction to Sociology

Subject Co-ordinator - Prof. A.K. Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is sociology?  
Lecture 2 - Sociological approaches  
Lecture 3 - Nature of society  
Lecture 4 - Cooperation and conflict  
Lecture 5 - Family-I  
Lecture 6 - Family-II  
Lecture 7 - State-I  
Lecture 8 - State-II  
Lecture 9 - State-III  
Lecture 10 - State-IV  
Lecture 11 - Sociology of work-I  
Lecture 12 - Sociology of work-II  
Lecture 13 - Sociology of work-III  
Lecture 14 - Sociology of work-IV  
Lecture 15 - Religion-I  
Lecture 16 - Religion-II  
Lecture 17 - Religion-III  
Lecture 18 - What is sociology?  
Lecture 19 - Religion-V  
Lecture 20 - Religion-VI  
Lecture 21 - Education-I  
Lecture 22 - Education-II  
Lecture 23 - Social stratification-I  
Lecture 24 - Social stratification-II  
Lecture 25 - Social stratification-III  
Lecture 26 - Social stratification-IV  
Lecture 27 - Deviance-I  
Lecture 28 - Deviance-II  
Lecture 29 - Deviance-III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Social change-I
- Lecture 31 - Social change-II
- Lecture 32 - Social change-III
- Lecture 33 - Social change-IV
- Lecture 34 - Population-I
- Lecture 35 - Population-II
- Lecture 36 - Perspectives in Sociology-I
- Lecture 37 - Perspectives in Sociology-II
- Lecture 38 - Social Problems and Theory
- Lecture 39 - Sociological methods-I
- Lecture 40 - Sociological methods-II
- Lecture 41 - Sociological methods-III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Money and Banking

Subject Co-ordinator - Prof. Surajit Sinha

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
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Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
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Lecture 39  
Lecture 40

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Human Adjustment Processes

Subject Co-ordinator - Prof. Braj Bhushan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module-1 - Lecture-1  
Module-1 - Lecture-2  
Module-1 - Lecture-3  
Module-1 - Lecture-4  
Module-2 - Lecture-1  
Module-2 - Lecture-2  
Module-2 - Lecture-3  
Module-3 - Lecture-1  
Module-4 - Lecture-1  
Module-4 - Lecture-2  
Module-4 - Lecture-3  
Module-4 - Lecture-4  
Module-4 - Lecture-5  
Module-4 - Lecture-6  
Module-4 - Lecture-7  
Module-4 - Lecture-8  
Module-4 - Lecture-9  
Module-5 - Lecture-1  
Module-5 - Lecture-2  
Module-5 - Lecture-3  
Module-6 - Lecture-1  
Module-6 - Lecture-2  
Module-6 - Lecture-3  
Module-6 - Lecture-4  
Module-7 - Lecture-1  
Module-7 - Lecture-2  
Module-7 - Lecture-3  
Module-7 - Lecture-4  
Module-7 - Lecture-5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Module-8 - Lecture-1  
Module-8 - Lecture-2  
Module-8 - Lecture-3  
Module-8 - Lecture-4  
Module-9 - Lecture-1  
Module-9 - Lecture-2  
Module-9 - Lecture-3  
Module-9 - Lecture-4  
Module-9 - Lecture-5  
Module-10 - Lecture-1  
Understanding Oneself

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Selected Topics in Psychology

Subject Co-ordinator - Prof. Manas K Mandal, Prof. JBP Sinha, Prof. Alok Bajpai, Prof. Rakesh K. Gupta,  
Prof. Ramadhar Singh, Prof. Braj Bhushan, Prof. Vivek Benegal, Prof. Ajit Dalal,  
Prof. Girishwar Misra

Co-ordinating Institute - DRDO | ASSERT | Institute of Management Studies | Consultant Psychiatrist,  
Fortis Memorial Research Institute | IIM - Bangalore | IIT - Kanpur | NIMHANS |  
University of Allahabad | University of Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction Selected Topics in Psychology
- Lecture 2 - Psychology
- Lecture 3 - Psychology
- Lecture 4 - Beginning, growth and decline of Western psychology in India
- Lecture 5 - The core and context of Indian psychology
- Lecture 6 - The indigenization of psychology in India
- Lecture 7 - Weaving culture into psychology
- Lecture 8 - Culture and Self
- Lecture 9 - Cultural and organizational behaviour
- Lecture 10 - How do similar attitudes determine attraction?
- Lecture 11 - Why do similar attitudes determine attraction?
- Lecture 12 - A beautiful mind? Perspective on brain , mind and it's challenges
- Lecture 13 - Emotion and well?being
- Lecture 14 - Mental health and illness - Part 1
- Lecture 15 - Mental health and illness - Part 2
- Lecture 16 - Folk Healing Traditions in India
- Lecture 17 - To sleep or not
- Lecture 18 - Issues and challenges in psychological assessment
- Lecture 19 - Nontraditional research in behavioural sciences
- Lecture 20 - What a surprise
- Lecture 21 - Neuropsychology and cognitive neuroscience research
- Lecture 22 - Functional MRI in psychology - Part 1
- Lecture 23 - Functional MRI in psychology - Part 2
- Lecture 24 - Side bias in human behaviour
- Lecture 25 - Brain microstructural correlates of cognition in Cerebral Palsy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 26 - Brain microstructural correlates of cognition in vitamin B12 deficiency
- Lecture 27 - The neuroscience of addictive behaviour
- Lecture 28 - Who is at risk and why? The neurogenetics of vulnerability to addiction - Part 1
- Lecture 29 - Who is at risk and why? The neurogenetics of vulnerability to addiction - Part 2
- Lecture 30 - The gambler's lament
- Lecture 31 - Art and the brain - Part 1
- Lecture 32 - Art and the brain - Part 2
- Lecture 33 - Technological advances in other areas and their impact on psychology
- Lecture 34 - Positioning the state of psychology in India in the global scenario
- Lecture 35 - Introduction Selected Topics in Psychology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Elements of Visual Representation

Subject Co-ordinator - Dr. Shatarupa Thakurta Roy

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Visual Literacy
- Lecture 2 - What is Art? Visual styles
- Lecture 3 - Principle of Visual Communication
- Lecture 4 - Elements of Visual Representation
- Lecture 5 - Need of Visual Harmony, Aerial Perspective in Visual Representation
- Lecture 6 - Visual Mediums Method and Material
- Lecture 7 - Visual Arrangement
- Lecture 8 - Illusion of Space Overlapping and Vertical Location
- Lecture 9 - Multiple point Perspective, Cubist form
- Lecture 10 - Oriental Perspective, Isometric Projection
- Lecture 11 - Unconventional Space, Visual Riddle
- Lecture 12 - Perspective, Foreshortening and Amplification
- Lecture 13 - Static Form
- Lecture 14 - Impression of Movement
- Lecture 15 - Movement by Repetition
- Lecture 16 - Use of Multiple Image to Depict Motion
- Lecture 17 - Principle of Op Art
- Lecture 18 - Asymmetry in Visual Narration
- Lecture 19 - Scale and Space in Composition
- Lecture 20 - Choosing the Right Scale
- Lecture 21 - Natural Proportion
- Lecture 22 - Ideal Proportion
- Lecture 23 - Arbitrary and Mandatory Proportion
- Lecture 24 - Form of Visual Paradox
- Lecture 25 - Line as Line and Line as Shape
- Lecture 26 - Character Specific Use of Line in Visual Representation
- Lecture 27 - Implied, Psychic, Contour Line and Gesture Line
- Lecture 28 - Line as Building Block
- Lecture 29 - Line for Rendering

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quality of Line in Visual Expression
- Lecture 31 - Example of Unified Composition
- Lecture 32 - Visual Continuity
- Lecture 33 - Gestalt law of Universal Whole
- Lecture 34 - Unity in Variation. Visual Climax and Harmony
- Lecture 35 - Degree of Emphasis to Maintain Harmony
- Lecture 36 - Rhythm and Motion in Visual Representation Alternating and Progressing Arrangement
- Lecture 37 - Visual Balance in Symmetry, Radial and Crystallographic Balance
- Lecture 38 - Balance in Asymmetry
- Lecture 39 - Visual Balance in Colour Combination, Conflicting Colours
- Lecture 40 - Balance through Achromatic Value Distribution
- Lecture 41 - Local, optical and Arbitrary colour
- Lecture 42 - Colour in Digital Media Pigment and Light, Resolution
- Lecture 43 - Rectilinear and Curvilinear Form
- Lecture 44 - Volume and Surface Texture
- Lecture 45 - Visual and Tactile Texture
- Lecture 46 - Form, Texture and Pattern
- Lecture 47 - Visual Analysis
- Lecture 48 - Steps of Problem Solving

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Practical English: Learning and Teaching

Subject Co-ordinator - Dr. Bhaskar Dasgupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC: Brief introduction to Psychology

Subject Co-ordinator - Braj Bhushan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Psychiatry:An overview

Subject Co-ordinator - Mr. Alok Bajpai

Co-ordinating Institute - Consultant Psychiatrist

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Neuroanatomy
- Lecture 2 - Neurophysiology
- Lecture 3 - Imaging
- Lecture 4 - Electrophysiology
- Lecture 5 - Psychology
- Lecture 6 - Mental Status Examination 1 & 2
- Lecture 7 - Classificatory Systems
- Lecture 8 - Investigation and Psychological Testing
- Lecture 9 - Organic Syndromes
- Lecture 10 - Schizophrenia
- Lecture 11 - Mood Disorders
- Lecture 12 - Anxiety Disorders
- Lecture 13 - Obsessive Compulsive Disorder
- Lecture 14 - Childhood Disorder Introduction
- Lecture 15 - Autism
- Lecture 16 - Learning Disability
- Lecture 17 - ADHD
- Lecture 18 - Personality Disorder
- Lecture 19 - Sleep Disorder 1
- Lecture 20 - Sleep Disorder 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Indian Art - An appreciation

Subject Co-ordinator - Prof.Soumik Nandy Majumdar

Co-ordinating Institute - Visva Bharati University, Santiniketan

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Geographical Expanse
- Lecture 2 - Chronological Journey
- Lecture 3 - Forms of Indian Architecture
- Lecture 4 - Variations in Indian Sculpture
- Lecture 5 - Formats of Indian Painting
- Lecture 6 - Pre-historic art
- Lecture 7 - Ancient Art
- Lecture 8 - Early Buddhist Art
- Lecture 9 - Art of the Royal Dynasty
- Lecture 10 - Islamic Architecture
- Lecture 11 - Wonder from Classical period
- Lecture 12 - Narrative Art in Sculpture
- Lecture 13 - Narrative Art in Miniature Painting
- Lecture 14 - Indigenous Art
- Lecture 15 - Indigenous Art
- Lecture 16 - End of Traditional Art - Advent of the British
- Lecture 17 - Art patronized by the Colonial Rulers
- Lecture 18 - Art for National Cause
- Lecture 19 - Art in the post-independent India
- Lecture 20 - Art Now - Trends in contemporary art

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Basic Concepts of Modal Logic

Subject Co-ordinator - Dr. A.V. Ravishankar Sarma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is logic? General Introduction
- Lecture 2 - Propositional Logic
- Lecture 3 - Propositional Logic
- Lecture 4 - Semantic Tableaux Method for Propositional Logic
- Lecture 5 - Semantic Tableaux Method
- Lecture 6 - Semantic Tableaux Method-3
- Lecture 7 - Limitations of Classical Logic
- Lecture 8 - Origin of Modal Logic
- Lecture 9 - Origin of Modal Logic
- Lecture 10 - Strict Implication
- Lecture 11 - Strict Implication
- Lecture 12 - Language of Normal Modal Logic
- Lecture 13 - Language of Modal Logic, Modal Sentences - 1
- Lecture 14 - Language of Modal Logic 2
- Lecture 15 - Axiomatic Modal Logic
- Lecture 16 - Semantics of Modal Logic
- Lecture 17 - Kripke semantics for Modal Logic systems
- Lecture 18 - Kripke semantics for Modal Logic
- Lecture 19 - Kripke Semantics for Modal Logic
- Lecture 20 - Semantic Tableaux method - I
- Lecture 21 - Semantic Tableaux method - II
- Lecture 22 - Possible worlds and Modal realism
- Lecture 23 - Conditional logic introduction
- Lecture 24 - Conditional logic C
- Lecture 25 - Conditional logics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Probability and Stochastic for Finance II

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Interest Rates
- Lecture 2 - Fixed Income Securities
- Lecture 3 - Term Structure of Interest Rates - I
- Lecture 4 - Optimization Models In Finance
- Lecture 5 - Crash course on KKT Condition
- Lecture 6 - Mean Variance Portfolio Optimization - I
- Lecture 7 - Mean Variance Portfolio Optimization - II
- Lecture 8 - Mean Variance Portfolio Optimization - III
- Lecture 9 - Mean Variance Portfolio Optimization - IV
- Lecture 10 - Last lecture on Portfolio Optimization
- Lecture 11 - Capital Asset Pricing Model
- Lecture 12 - The Binomial Model [Lox-Ross-Rubenstein Model]
- Lecture 13 - The Binomial Method - II
- Lecture 14 - Binomial Method - III (Multi-period model)
- Lecture 15 - Binomial model - IV
- Lecture 16 - Girsanov's Theorem (Basic tool)
- Lecture 17 - Girsanov's Theorem (Statement and proof)
- Lecture 18 - Stock price under risk neutral measure
- Lecture 19 - The Black Scholes formula
- Lecture 20 - Final Lecture

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Psychology

Subject Co-ordinator - Braj Bhushan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Major Areas of Psychology
- Lecture 2 - Major Milestones in Psychology
- Lecture 3 - Methods in Psychology
- Lecture 4 - Schools of thoughts in Psychology
- Lecture 5 - Sensory Mechanisms
- Lecture 6 - External Factors in Perception
- Lecture 7 - Theory of Signal Detection
- Lecture 8 - Gestalt Principles
- Lecture 9 - Form Perception
- Lecture 10 - Role of Culture in Perception
- Lecture 11 - Basic Concepts of Learning
- Lecture 12 - Classical Conditioning
- Lecture 13 - Concepts and Applications of Classical Conditioning
- Lecture 14 - Operant Conditioning
- Lecture 15 - Observational Learning
- Lecture 16 - Cognitive Learning
- Lecture 17 - Models of Memory
- Lecture 18 - Short Term Memory - Storage and Retention
- Lecture 19 - Long Term Memory - Episodic Memory
- Lecture 20 - Long Term Memory - Autobiographical and Semantic Memory
- Lecture 21 - Long Term Memory - Procedural Memory
- Lecture 22 - Forgetting
- Lecture 23 - Theories of Emotion - 1
- Lecture 24 - Theories of Emotion - 2
- Lecture 25 - Basic Emotions
- Lecture 26 - Culture and Emotions
- Lecture 27 - Musculature Analysis of Facial Expressions
- Lecture 28 - Biological Basis of Emotion
- Lecture 29 - Nature vs Nurture

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Behavioural Genetics - I
- Lecture 31 - Behavioural Genetics - II
- Lecture 32 - Intelligence
- Lecture 33 - Aptitude
- Lecture 34 - Various Perspectives of Personality
- Lecture 35 - Neo Freudian and Behaviourist Perspective
- Lecture 36 - Behaviourist and Humanistic Perspective
- Lecture 37 - Indian Perspective of Personality and Assessment of Personality
- Lecture 38 - Psychometric tests of Personality Assessment
- Lecture 39 - Lab Session 1
- Lecture 40 - Lab Session 2
- Lecture 41 - Lab Session 3
- Lecture 42 - Lab Session 4
- Lecture 43 - Lab Session 5



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Folk and Minor Art in India

Subject Co-ordinator - Dr. Shatarupa Thakurta Roy

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Changing Definition of Folk and Minor Art
- Lecture 2 - Timelines and Regions
- Lecture 3 - Traditional Roots
- Lecture 4 - Timelessness
- Lecture 5 - Evolution in Purpose
- Lecture 6 - Contemporary Practice
- Lecture 7 - Classification and Connections
- Lecture 8 - Early Literary Resources
- Lecture 9 - Mythical Associations
- Lecture 10 - Idea of Nationalism and Modernism in the Context of Folk Art-I and II
- Lecture 11 - Relevance of the Art Practice
- Lecture 12 - Contextualization and Decontextualization
- Lecture 13 - Concept of Communication for Social Purpose
- Lecture 14 - Aesthetic Perspective
- Lecture 15 - Secularity and Religious Plurality
- Lecture 16 - Ethnographic perspective on the study of Folk Art and Culture
- Lecture 17 - About the Exponents who brought the culture under the Limelight
- Lecture 18 - Commonality and Congruity in the Diverse Content of Art
- Lecture 19 - School of Art in Madhubani Painting
- Lecture 20 - Art as a Feminine Preserve vs the Male painters of Madhubani
- Lecture 21 - Yamapata, Pytkar and other art practice of Jharkhand
- Lecture 22 - Patachitra of Bengal
- Lecture 23 - Patachitra of Odisha
- Lecture 24 - Continuum of the Practice
- Lecture 25 - Continuum of the Practice
- Lecture 26 - Continuum of the Practice
- Lecture 27 - Case study-1
- Lecture 28 - Case study-2
- Lecture 29 - Case study-3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Characteristics of Contemporary Collection - Semiotic Analysis
- Lecture 31 - Characteristics of Contemporary Collection - Thematic and Iconic Analysis
- Lecture 32 - Characteristics of Contemporary Collection of Indian Folk and Minor Art
- Lecture 33 - Thematic Change in Contemporary Collection of Indian Folk and Minor Art
- Lecture 34 - Individual Expression in Contemporary Collection of Indian Folk and Minor Art
- Lecture 35 - Cultural Condition
- Lecture 36 - Cultural Condition
- Lecture 37 - Contextualizing Folk idiom - Part I
- Lecture 38 - Contextualizing Folk idiom - Part II
- Lecture 39 - Contextualizing Folk idiom - Part III
- Lecture 40 - Coexistence and Collaborations with Mainstream Art
- Lecture 41 - Alternative Context
- Lecture 42 - Need of Paradigm Shift - I
- Lecture 43 - Need of Paradigm Shift - II
- Lecture 44 - Endnote

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Developing Soft Skills and Personality

Subject Co-ordinator - Dr. T. Ravichandran

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Planning and Goal-Setting
- Lecture 3 - Human Perceptions
- Lecture 4 - Types of Soft Skills
- Lecture 5 - Aiming for Excellence
- Lecture 6 - Need Achievement and Spiritual Intelligence
- Lecture 7 - Conflict Resolution Skills
- Lecture 8 - Inter-Personal Conflicts
- Lecture 9 - Inter-Personal Conflicts
- Lecture 10 - Types of Conflicts
- Lecture 11 - Types of Stress
- Lecture 12 - Regulating Stress
- Lecture 13 - Habits
- Lecture 14 - Habits
- Lecture 15 - Habits
- Lecture 16 - Breaking Bad Habits
- Lecture 17 - Using the Zeigarnik Effect for Productivity and Personal Growth
- Lecture 18 - Forming Habits of Success
- Lecture 19 - Communication
- Lecture 20 - Communication
- Lecture 21 - Communication
- Lecture 22 - Telephone Communication
- Lecture 23 - Telephone Communication
- Lecture 24 - Telephone Communication
- Lecture 25 - Technology and Communication
- Lecture 26 - Technology and Communication
- Lecture 27 - Topic
- Lecture 28 - Technology and Communication
- Lecture 29 - Technology and Communication

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Technology and Communication
- Lecture 31 - Communication Skills
- Lecture 32 - Barriers to Communication
- Lecture 33 - Barriers to Communication
- Lecture 34 - Barriers To Communication
- Lecture 35 - Non-Verbal Communication
- Lecture 36 - Non-Verbal Communication
- Lecture 37 - Nonverbal Communication
- Lecture 38 - Non-Verbal Communication
- Lecture 39 - Non-Verbal Communication
- Lecture 40 - Non-Verbal Communication
- Lecture 41 - Body Language
- Lecture 42 - Body Language
- Lecture 43 - Lecture 43
- Lecture 44 - Presentation Skills
- Lecture 45 - Presentation Skills
- Lecture 46 - Presentation Skills
- Lecture 47 - Reading Skills
- Lecture 48 - Human Relations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:How the Brain Creates Mind

Subject Co-ordinator - Alok Bajpai

Co-ordinating Institute - Consultant Psychiatrist

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Brain - 1  
Lecture 2 - Brain - 2  
Lecture 3 - Brain - 3  
Lecture 4 - Electrical Activity In Brain - 1  
Lecture 5 - Electrical Activity In Brain - 2  
Lecture 6 - EEG  
Lecture 7 - Dynamics - 1  
Lecture 8 - Dynamics - 2  
Lecture 9 - Dynamics - 3  
Lecture 10 - Dynamics - 4  
Lecture 11 - Cognition and Emotions - 1  
Lecture 12 - Cognition and Emotions - 2 Edit Lesson  
Lecture 13 - Cognition and Emotions - 3  
Lecture 14 - Cognition and Emotions - 4  
Lecture 15 - Consciousness  
Lecture 16 - Sleep - 1  
Lecture 17 - Sleep - 2  
Lecture 18 - Sleep - 3  
Lecture 19 - Future of Brain - 1  
Lecture 20 - Future of Brain - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Understanding Design Thinking and People Centred De

Subject Co-ordinator - Prof. Jhumkee Iyengar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Design Thinking

Lecture 2 - The Need to be People Centered

Lecture 3 - People Centered Design Methodology

Lecture 4 - Examine and Reflect on the Problem

Lecture 5 - Reconsider and arrive at the "right" problem to solve

Lecture 6 - Research with Users and their Contexts

Lecture 7 - Question Framing and Conducting Research

Lecture 8 - User Stories and Themes

Lecture 9 - Personas

Lecture 10 - Insight Statements, "How Might We" Questions, Design Strategy Statement

Lecture 11 - Generating Ideas

Lecture 12 - Top Five Ideas

Lecture 13 - Bundle Ideas and Create a Concept

Lecture 14 - Scenarios and Storyboards

Lecture 15 - Rapid Prototyping

Lecture 16 - Importance of Testing with People

Lecture 17 - Testing your Design with People

Lecture 18 - Conducting the Usability Test

Lecture 19 - Record Results, Enhance, Retest and Refine Design

Lecture 20 - Create a Pitch for your Design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Enhancing Soft Skills and Personality

Subject Co-ordinator - Dr. T. Ravichandran

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction  
Lecture 3 - MIND-SET-1  
Lecture 4 - MIND-SET-2  
Lecture 5 - MIND-SET-3  
Lecture 6 - Managing Time-1  
Lecture 7 - Managing Time-2  
Lecture 8 - Handling Delay-1  
Lecture 9 - Handling Delay-2  
Lecture 10 - Assertiveness - 1  
Lecture 11 - Assertiveness - 2  
Lecture 12 - Assertiveness - 3  
Lecture 13 - Managing Negative Emotions  
Lecture 14 - Channelizing Positive Emotions - 1  
Lecture 15 - Channelizing Positive Emotions - 2  
Lecture 16 - People Skills-1-What Makes Others Dislike You  
Lecture 17 - People Skills-2-What Makes Others Like You - 1  
Lecture 18 - People Skills-3  
Lecture 19 - People Skills-4-Being Attractive - 1  
Lecture 20 - People Skills-5-Being Attractive - 2  
Lecture 21 - English Skills  
Lecture 22 - English Skills-2  
Lecture 23 - English Skills-3  
Lecture 24 - English Skills-4  
Lecture 25 - English Skills-5  
Lecture 26 - Significance of Humour in Communication - 1  
Lecture 27 - Humour in the Workplace  
Lecture 28 - Function of Humour in the Workplace  
Lecture 29 - Money and Personality

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Managing Money
- Lecture 31 - Health and Personality
- Lecture 32 - Managing Health-1 Importance of Exercise
- Lecture 33 - Managing Health-2 Diet and Sleep
- Lecture 34 - Love and Personality
- Lecture 35 - Managing Love
- Lecture 36 - Ethics and Etiquette
- Lecture 37 - Business Etiquette
- Lecture 38 - Managing Mind and Memory
- Lecture 39 - Improving Memory
- Lecture 40 - Care for Environment



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Postcolonial Literature

Subject Co-ordinator - Prof. Sayan Chattopadhyay

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Commonwealth Literature
- Lecture 3 - Colonial Discourse Analysis
- Lecture 4 - Colonial Discourse Analysis
- Lecture 5 - Joseph Conrad's Heart of Darkness
- Lecture 6 - Colonialism
- Lecture 7 - Chinua Achebe's Things Fall Apart - I
- Lecture 8 - Chinua Achebe's Things Fall Apart - II
- Lecture 9 - Decolonisation and the Discourse of Nationalism
- Lecture 10 - Sonnets of Henry Derozio
- Lecture 11 - Raja Rao's Kanthapura - I
- Lecture 12 - Raja Rao's Kanthapura - II
- Lecture 13 - Critics of Nationalism
- Lecture 14 - Homi Bhabha and the concept of Cultural Hybridity
- Lecture 15 - Caribbean Poetry
- Lecture 16 - Diasporic Literature
- Lecture 17 - Gayatri C. Spivak
- Lecture 18 - Mahasweta Devi's Pterodactyl - I
- Lecture 19 - Mahasweta Devi's Pterodactyl - II
- Lecture 20 - Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introducing Modern Western Art: Movements and Artists

Subject Co-ordinator - Prof.Soumik Nandy Majumdar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is Modern Art?

Lecture 2 - Pre-history of Modern Art

Lecture 3 - Chronology of Modern Western Art

Lecture 4 - Beginning(s) of Modern Art - 1 (Romanticism and Realism)

Lecture 5 - Beginning(s) of Modern Art - 2 (Impressionism and Post - Impressionism)

Lecture 6 - Fauvism and Matisse

Lecture 7 - Cubism and Picasso

Lecture 8 - Futurism and Dada-ism

Lecture 9 - Surrealism

Lecture 10 - German Expressionism

Lecture 11 - Rodin - the precursor of Modern Sculpture

Lecture 12 - From Figuration to Abstract (Henry Moore and Brancusi)

Lecture 13 - Pure Abstract Sculpture (Constructivism and Minimalism)

Lecture 14 - Introspection and Innovations (Giacometti and Calder)

Lecture 15 - Outdoor Sculpture and Public Art

Lecture 16 - Abstract Painting (Picasso, Paul Klee, Mondrian)

Lecture 17 - Abstract Expressionism

Lecture 18 - Art and Optical Science: Op Art

Lecture 19 - Art and the Mass Culture: Pop Art

Lecture 20 - Contemporary Trends: Breaking the Barriers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Cognition, Transformation and Lives

Subject Co-ordinator - Alok Bajpai

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Cognition, Emotion and Transformation
- Lecture 2 - Self and Others
- Lecture 3 - Human Cognition
- Lecture 4 - Cognition and Human Behaviour
- Lecture 5 - Human Emotions
- Lecture 6 - Understanding Emotions
- Lecture 7 - Stories from the Brain
- Lecture 8 - Stories from the Brain (Continued...)
- Lecture 9 - Humans and Madness
- Lecture 10 - Humans and Madness (Continued...)
- Lecture 11 - Vices and Virtues
- Lecture 12 - Change and its Context
- Lecture 13 - Can we transform?
- Lecture 14 - Need for transformation
- Lecture 15 - Process of Transformation
- Lecture 16 - Biographical models of transformations
- Lecture 17 - Biographical narrative of Gandhi
- Lecture 18 - Gandhi's process of transformation
- Lecture 19 - Transformation and Ethics
- Lecture 20 - Transformation and Society

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Visual Perception and Art - A Survey Across the Cul

Subject Co-ordinator - Prof.Soumik Nandy Majumdar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introductory Lecture
- Lecture 2 - What is Visual Perception?
- Lecture 3 - Visual Perception and Visual Reality
- Lecture 4 - Visual Perception and Creativity - 1
- Lecture 5 - Visual Perception and Creativity - 2
- Lecture 6 - Child art
- Lecture 7 - Pre-historic art
- Lecture 8 - Folk art
- Lecture 9 - Primitive art
- Lecture 10 - Photography
- Lecture 11 - Popular visual culture
- Lecture 12 - Mimetic and Non-mimetic art
- Lecture 13 - Traditional art
- Lecture 14 - Traditional art
- Lecture 15 - Realistic art of the West
- Lecture 16 - Alternative realism
- Lecture 17 - Breakthrough in Visual Perception
- Lecture 18 - Abstract art - 1
- Lecture 19 - Abstract art - 2
- Lecture 20 - Contemporary art

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Basic Cognitive Processes

Subject Co-ordinator - Prof. ARK Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Cognitive Psychology
- Lecture 2 - A Brief History of Cognitive Psychology
- Lecture 3 - A Brief History of Cognitive Psychology (Continued...)
- Lecture 4 - Foundational Assumptions of Cognitive Psychology
- Lecture 5 - Foundations of Cognitive Psychology
- Lecture 6 - Foundations of Cognitive Psychology
- Lecture 7 - Approaches towards Cognitive Psychology
- Lecture 8 - Modularity and Cognitive Neuropsychology
- Lecture 9 - Basic Concepts in Cognitive Neuroscience
- Lecture 10 - The Cerebral Cortex
- Lecture 11 - Basics of Research Methods
- Lecture 12 - Research Methods in Cognitive Psychology
- Lecture 13 - Sensation and Perception
- Lecture 14 - Psychophysics
- Lecture 15 - Signal Detection Theory
- Lecture 16 - Physiology of Visual Perception
- Lecture 17 - Representation in Perception
- Lecture 18 - Approaches to Visual Perception - 1
- Lecture 19 - Approaches to Visual Perception - 2
- Lecture 20 - Approaches to Visual Perception - 3
- Lecture 21 - Theories of Object Recognition
- Lecture 22 - Perception and Action
- Lecture 23 - Auditory Perception - I
- Lecture 24 - Auditory Perception - II
- Lecture 25 - Attention - I
- Lecture 26 - Attention - II
- Lecture 27 - Attention - III
- Lecture 28 - Attention - IV
- Lecture 29 - Memory - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Memory - II
- Lecture 31 - Memory - III
- Lecture 32 - Memory - IV
- Lecture 33 - Memory - V
- Lecture 34 - Memory - VI
- Lecture 35 - Memory - VII
- Lecture 36 - Everyday Memory and Memory Errors
- Lecture 37 - Disorders for Perception and Attention
- Lecture 38 - Disorders of Memory
- Lecture 39 - Summary and Q & A

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Calculus of One Real Variable

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Numbers
- Lecture 2 - Countability and Uncountability
- Lecture 3 - Examples of Irrational numbers
- Lecture 4 - Functions
- Lecture 5 - Limits of Functions - I
- Lecture 6 - Limits of Functions - II
- Lecture 7 - Continuous Functions
- Lecture 8 - Intermediate Value Theorem
- Lecture 9 - Maximum Value Theorem
- Lecture 10 - Supremum and Infimum
- Lecture 11 - Derivative of a Function
- Lecture 12 - Rules of Differentiation
- Lecture 13 - Maxima and Minima
- Lecture 14 - Rolles Theorem and Lagrange Mean Value Theorem (MVT)
- Lecture 15 - Monotonic Functions and Inverse Functions
- Lecture 16 - Newton's Method for solving Equations
- Lecture 17 - Optimization Problems
- Lecture 18 - Integration-I
- Lecture 19 - Integration-II
- Lecture 20 - Integration-III
- Lecture 21 - Integration theory of Riemann - I
- Lecture 22 - Integration theory of Riemann - II
- Lecture 23 - Integration Rule
- Lecture 24 - Fundamental Theorem of Calculus (in Riemann style)
- Lecture 25 - The Kurzweil-Henstock Integral (K-H Integral)
- Lecture 26 - Calculating Indefinite Integrals
- Lecture 27 - Improper Integral - I
- Lecture 28 - Improper Integral - II
- Lecture 29 - Application of Definite Integral - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Application of definite Integral - II
- Lecture 31 - Application of definite Integral - III
- Lecture 32 - Application of definite Integral - III (Continued.....)
- Lecture 33 - Numerical Integration - I
- Lecture 34 - Numerical Integration - II
- Lecture 35 - Sequences
- Lecture 36 - Sequences (Continued...)
- Lecture 37 - Infinite Series
- Lecture 38 - infinite series (Continued...)
- Lecture 39 - Taylors Theorem, other issues and end of the course - I
- Lecture 40 - Taylors Theorem, other issues and end of the course - II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:An Introduction to Microeconomics

Subject Co-ordinator - Dr. Vimal Kumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Economics ?
- Lecture 2 - Resources, Wants and Scarcity
- Lecture 3 - Allocation, Command, Market and Mixed Economy
- Lecture 4 - Individual
- Lecture 5 - Rationality, Self Interest and Optimization
- Lecture 6 - Branches of Economics
- Lecture 7 - Introduction to Demand and Supply
- Lecture 8 - Demand
- Lecture 9 - Demand
- Lecture 10 - Market Demand Function
- Lecture 11 - Factors Affecting Demand
- Lecture 12 - Supply and Market Supply
- Lecture 13 - Supply
- Lecture 14 - Factors Affecting Supply
- Lecture 15 - Market Equilibrium
- Lecture 16 - Few Examples
- Lecture 17 - Application
- Lecture 18 - Consumer Surplus
- Lecture 19 - Producer Surplus
- Lecture 20 - Total Surplus
- Lecture 21 - Effect of Price Control on Surplus
- Lecture 22 - Implications of Market Equilibrium
- Lecture 23 - Price Elasticity of Demand
- Lecture 24 - Elastic, Inelastic and Unit- elastic Demand
- Lecture 25 - Perfectly Elastic and Perfectly Inelastic Demand
- Lecture 26 - More on Elasticity
- Lecture 27 - Factors Affecting Price Elasticity of Demand
- Lecture 28 - Effect of Taxation
- Lecture 29 - Tax Imposed on Seller

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Incidence of Tax
- Lecture 31 - Incidence of Tax
- Lecture 32 - Incidence of Tax
- Lecture 33 - Towards Consumer Theory
- Lecture 34 - Budget Line and Budget Set
- Lecture 35 - Factors Affecting the Budget Line
- Lecture 36 - Few Examples of Changes in Budget Line
- Lecture 37 - Consumption Set
- Lecture 38 - Convexity of Consumption Set
- Lecture 39 - Describing Utility
- Lecture 40 - Some Axioms
- Lecture 41 - Preferences as a Mathematical Construct
- Lecture 42 - Rationality in Real Life Vs. Rationality in Economics
- Lecture 43 - More on Three Axioms of Rationality
- Lecture 44 - Defining Utility Function
- Lecture 45 - Ordinal Vs. Cardinal Utility
- Lecture 46 - Properties of Preferences
- Lecture 47 - Indifference Set
- Lecture 48 - Indifference Curve
- Lecture 49 - Behavioural Assumption
- Lecture 50 - Properties of Preferences
- Lecture 51 - Marginal Rate of Substitution (MRS)
- Lecture 52 - DMRS and Convexity
- Lecture 53 - Summary
- Lecture 54 - Utility Maximization
- Lecture 55 - Utility Maximization
- Lecture 56 - More on Utility Maximization
- Lecture 57 - Utility Maximization
- Lecture 58 - Example Revisited
- Lecture 59 - Marginal Utility Vs. Marginal Rate of Substitution (MRS)
- Lecture 60 - Perfect Substitutes
- Lecture 61 - Perfect Complements
- Lecture 62 - An Example with Quasi Linear Preferences
- Lecture 63 - Demand Revisited
- Lecture 64 - Effect of Income on Quantity Demanded
- Lecture 65 - Effect of Change in Price
- Lecture 66 - Substitution Effect and Income Effect
- Lecture 67 - Giffen Good
- Lecture 68 - Expenditure Minimization as a Dual Problem of Utility Maximization

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- Lecture 69 - Marshallian and Hicksian Demand Function
- Lecture 70 - Slutsky Equation
- Lecture 71 - An Application
- Lecture 72 - Towards Producer Theory
- Lecture 73 - Technology or Production Function
- Lecture 74 - Isoquants
- Lecture 75 - Few Axioms Related to Technology
- Lecture 76 - Axioms/ Assumptions Continued
- Lecture 77 - Production in Short Run
- Lecture 78 - Average and Marginal Product of Labour (APL and MPL)
- Lecture 79 - More on APL and MPL
- Lecture 80 - Law of Diminishing Marginal Returns
- Lecture 81 - Production in Long Run
- Lecture 82 - MRTS
- Lecture 83 - Decreasing MRTS
- Lecture 84 - Elasticity of Substitution
- Lecture 85 - Returns to Scale
- Lecture 86 - Elasticity of Scale
- Lecture 87 - Economic Terminology
- Lecture 88 - Economic Terminology
- Lecture 89 - Economic Terminology
- Lecture 90 - Diminishing Marginal Product Vs. DMRTS
- Lecture 91 - Returns to Scale through Graphs
- Lecture 92 - Cost in Long Run
- Lecture 93 - Cost Minimization
- Lecture 94 - Cost Minimization
- Lecture 95 - Cost Minimization
- Lecture 96 - More on Cost Minimization
- Lecture 97 - Cost Function in the Long Run
- Lecture 98 - Cost in Short Run
- Lecture 99 - Cost in Short Run
- Lecture 100 - Shape of Cost Curves
- Lecture 101 - Factor Demand Function
- Lecture 102 - Output Expansion Path
- Lecture 103 - Cost Revisited
- Lecture 104 - Cobb-Douglas Function
- Lecture 105 - Short Run Vs. Long Run Cost Minimization
- Lecture 106 - Short Run Vs. Long Run Cost Minimization Through Graphs
- Lecture 107 - Average Cost in Short Run Vs. Long Run

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Short Run Marginal Cost Vs. Long Run Marginal Cost
- Lecture 109 - Profit Maximization
- Lecture 110 - Marginal Revenue
- Lecture 111 - Profit Maximization in Short Run Through Graphs
- Lecture 112 - Profit Maximization in Short Run Through Algebra and Calculus
- Lecture 113 - Market Environment
- Lecture 114 - Perfectly Competitive Market
- Lecture 115 - Supply Curve
- Lecture 116 - An example obtaining the short run supply function
- Lecture 117 - Two Interpretation of Supply Function
- Lecture 118 - Profit maximization implies cost minimization
- Lecture 119 - Producer's Surplus Revisited
- Lecture 120 - Profit Maximization and Returns to Scale
- Lecture 121 - Short Run Supply Vs. Long Run Supply
- Lecture 122 - Long Run Equilibrium and Supply Function
- Lecture 123 - Introduction to Monopoly
- Lecture 124 - Marginal Revenue of the Monopolist
- Lecture 125 - Monopoly
- Lecture 126 - Profit Maximization for the Monopolist
- Lecture 127 - Inverse Elasticity Pricing Rule
- Lecture 128 - Profit Maximization for the Monopolist through Graph
- Lecture 129 - No Supply Function for Monopoly
- Lecture 130 - Monopoly
- Lecture 131 - Imposition of the Tax on the Monopolist
- Lecture 132 - Welfare Effects of Monopoly Pricing
- Lecture 133 - Price Discrimination
- Lecture 134 - Monopoly
- Lecture 135 - Responses from Policy Makers
- Lecture 136 - Introduction to Oligopoly
- Lecture 137 - Nash Equilibrium
- Lecture 138 - Cournot Model of Duopoly
- Lecture 139 - Stackelberg Model of Duopoly
- Lecture 140 - Bertrand Model of Duopoly
- Lecture 141 - Market Environment

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Advanced Cognitive Processes

Subject Co-ordinator - Prof. ARK Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Preface, Outline and Course Structure  
Lecture 2 - Knowledge - I  
Lecture 3 - Knowledge - II  
Lecture 4 - Knowledge - III  
Lecture 5 - Knowledge - IV  
Lecture 6 - Knowledge - V  
Lecture 7 - Visual Imagery - I  
Lecture 8 - Visual Imagery - II  
Lecture 9 - Cognitive Maps  
Lecture 10 - Mental Imagery  
Lecture 11 - Language  
Lecture 12 - Language  
Lecture 13 - Evolution of Language  
Lecture 14 - Language Acquisition - I  
Lecture 15 - Language Acquisition - II  
Lecture 16 - Language Comprehension - I  
Lecture 17 - Language Comprehension - II  
Lecture 18 - Language Production  
Lecture 19 - Reading - I  
Lecture 20 - Reading - II  
Lecture 21 - Aphasia  
Lecture 22 - Bilingualism  
Lecture 23 - Reasoning and Decision Making - I  
Lecture 24 - Reasoning and Decision Making - II  
Lecture 25 - Reasoning and Decision Making - III  
Lecture 26 - Problem Solving - I  
Lecture 27 - Problem Solving - II  
Lecture 28 - Problem Solving - III  
Lecture 29 - Problem Solving - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Creativity
- Lecture 31 - Cognition and Emotion - I
- Lecture 32 - Cognition and Emotion - II
- Lecture 33 - Cognition and Emotion - III
- Lecture 34 - Cognition and Emotion - IV
- Lecture 35 - Cognition and Emotion - V
- Lecture 36 - Cognitive Development - I
- Lecture 37 - Cognitive Development - II
- Lecture 38 - Cognitive Development - III
- Lecture 39 - Cognitive Development - IV
- Lecture 40 - Summary and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Literary Theory

Subject Co-ordinator - Prof. Sayan Chattopadhyay

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Literature and Mimesis  
Lecture 3 - Literature and Mimesis  
Lecture 4 - Literature and Mimesis  
Lecture 5 - Literature and Mimesis  
Lecture 6 - Literature and the Sublime  
Lecture 7 - Neoclassical Literary Theory  
Lecture 8 - Literature and Romanticism - I  
Lecture 9 - Literature and Romanticism - II  
Lecture 10 - New Criticism  
Lecture 11 - Formalism  
Lecture 12 - Dialogism I  
Lecture 13  
Lecture 14 - Reader Response Theory I  
Lecture 15 - Reader Response Theory II  
Lecture 16 - Structuralism I  
Lecture 17 - Structuralism II  
Lecture 18 - Poststructuralism I  
Lecture 19 - Poststructuralism II  
Lecture 20 - Poststructuralism III  
Lecture 21 - Marxist Literary Theory I  
Lecture 22 - Marxist Literary Theory II  
Lecture 23 - Marxist Literary Theory III  
Lecture 24 - Literature and Psychoanalysis  
Lecture 25 - Literature and Psychoanalysis  
Lecture 26 - Literature and Psychoanalysis  
Lecture 27 - Literature and Psychoanalysis IV  
Lecture 28 - Literature and Psychoanalysis V  
Lecture 29 - Feminism and Literature I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Feminism and Literature II
- Lecture 31 - Feminism and Literature III
- Lecture 32 - Modernism and Postmodernism
- Lecture 33 - Postcolonial Theory I
- Lecture 34 - Postcolonial Theory II
- Lecture 35 - Conclusion



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Development of Sociology in India

Subject Co-ordinator - Prof. Ashish Saxena

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6 - On Civilizational perspective

Lecture 7 - On Indological perspective

Lecture 8 - On Indological perspective

Lecture 9 - On Marxian perspective

Lecture 10 - On Marxian perspective

Lecture 11 - Structural-functional perspective

Lecture 12 - Structural-functional perspective

Lecture 13 - On Environmental Perspective

Lecture 14 - On Environmental Perspective

Lecture 15 - On Gender perspective

Lecture 16 - On Gender perspective

Lecture 17 - Subaltern perspective

Lecture 18 - Subaltern perspective

Lecture 19 - On Dalit Perspective

Lecture 20 - On Dalit Perspective

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Technology Transfer through Joint Venture

Subject Co-ordinator - Prof. Indrajit Dube

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Forms of Strategic Alliance
- Lecture 2 - Negotiations and Contractual Aspect
- Lecture 3 - Risks and Opportunities
- Lecture 4 - Regulatory Issues
- Lecture 5 - Implication on Stakeholders
- Lecture 6 - Joint Venture [JV] Options
- Lecture 7 - Types of Joint Venture [JV]
- Lecture 8 - Issues Frequently Arise During JV Negotiation
- Lecture 9 - Key Compliance
- Lecture 10 - Governing Laws in Cross-Border Transaction
- Lecture 11 - Formation of Joint Venture Agreement
- Lecture 12 - Governance Issues in Joint Venture
- Lecture 13 - Business Plan in Joint Venture
- Lecture 14 - Shareholder Agreement in Joint Venture
- Lecture 15 - Specific Issues of Share Transfer in Joint Venture
- Lecture 16 - Preparation for SPV
- Lecture 17 - Formation of SPV
- Lecture 18 - Disclosure to be made by SPV
- Lecture 19 - Risk Management and SPV
- Lecture 20 - Offset and SPV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Legal Compliance for Incorporating Startup

Subject Co-ordinator - Prof. Indrajit Dube

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Why we need a business form for startup
- Lecture 2 - How to choose appropriate business form for startup
- Lecture 3 - Comparative Analysis of Incorporation Requirement
- Lecture 4 - Comparative Analysis of Compliance Cost
- Lecture 5 - Other Formalities to Comply
- Lecture 6 - Law relating to Partnership and Deed
- Lecture 7 - Law relating to LL.P
- Lecture 8 - How to Incorporate LL.P
- Lecture 9 - Law relating to Co-operative
- Lecture 10 - How to Incorporate Co-operative
- Lecture 11 - Law Relating to One Person Company
- Lecture 12 - Law Relating to Pvt. Ltd. Company
- Lecture 13 - Law Relating to Pub. Ltd. Compnay
- Lecture 14 - Law Relating to Non-Profit Company
- Lecture 15 - How to Incorporate these Companies
- Lecture 16 - How to Capitalize the Business
- Lecture 17 - Raising fund through Private Equity and Venture Capital
- Lecture 18 - Raising fund from Financial Institution
- Lecture 19 - Types of Instruments for raising the fund
- Lecture 20 - Issue of the Instruments

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Soft Skill Development

Subject Co-ordinator - Prof. Priyadarshi Patnaik, Prof. V.N. Giri, Prof. D. Suar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 36 - Managing Time

Lecture 1 - Understanding the Communicative Environment Â I

Lecture 2 - Understanding the Communicative Environment Â II

Lecture 3 - What to listen for and why

Lecture 4 - When to speak and how

Lecture 5 - Starting and Sustaining a Conversation

Lecture 6 - What to Present and How - Part I

Lecture 7 - What to Present and How - Part II

Lecture 8 - Multimedia Presentation

Lecture 9 - Communication Styles

Lecture 10 - Speaking in Groups

Lecture 11 - The World of Visual Culture I

Lecture 12 - Visual Perception

Lecture 13 - The Aural

Lecture 14 - The Body and the Way It Communicates

Lecture 15 - The Face, Its Expressions and What It Says

Lecture 16 - Building Relationships

Lecture 17 - Understanding Group Dynamics - I

Lecture 18 - Understanding Group Dynamics - II

Lecture 19 - Groups, Conflicts and their Resolution

Lecture 20 - Social Network, Media and Extending Our Identity

Lecture 21 - How Emotionally Mature Are You

Lecture 22 - Improving Your Emotional Intelligence

Lecture 23 - Empathy

Lecture 24 - Intrapersonal Communication

Lecture 25 - Change Tolerance

Lecture 26 - Creativity

Lecture 27 - Creativity

Lecture 28 - Creativity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Creativity at Workplace
- Lecture 30 - Creativity, Critical Thinking and Problem Solving
- Lecture 31 - Motivating Oneself
- Lecture 32 - The Art of Persuasion - I
- Lecture 33 - The Art of Persuasion - II
- Lecture 34 - From Persuasion to Negotiation
- Lecture 35 - Leadership and Motivating Others
- Lecture 37 - Managing Stress
- Lecture 38 - Resilience
- Lecture 39 - Work - Life Balance
- Lecture 40 - Applying Soft Skills to Workplace

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Symbolic Logic

Subject Co-ordinator - Prof. Chhanda Chakraborti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Propositions, Arguments, Components, Basic Characteristics
- Lecture 3 - Recognizing arguments, Diagramming logic flow
- Lecture 4 - Types of arguments, Deductive, Inductive, different norms to assess arguments
- Lecture 5 - Concepts of Validity Soundness, Consistency
- Lecture 6 - History of Symbolic Language
- Lecture 7 - Propositional Logic
- Lecture 8 - Connectives, Scope of Connectives
- Lecture 9 - Truth-functional Connectives, Propositional Variables, Propositional Constants
- Lecture 10 - Symbolization with Connectives
- Lecture 11 - Propositional Logic
- Lecture 12 - Using Truth Table
- Lecture 13 - Using Truth Table
- Lecture 14 - Shorter Truth Table
- Lecture 15 - Using Truth Table
- Lecture 16 - Introduction to Truth Trees
- Lecture 17 - Truth Tree Rules and their Application
- Lecture 18 - More on Truth-Tree Recovery of Partial Truth - Values
- Lecture 19 - Using the Truth Trees
- Lecture 20 - More on Truth Trees
- Lecture 21 - Formal Proof of Validity
- Lecture 22 - Valid Argument Forms
- Lecture 23 - How to Apply the Rules of Inference in a Proof
- Lecture 24 - Understanding the Rules
- Lecture 25 - Proofs with All Rules
- Lecture 26 - Completeness
- Lecture 27 - Indirect Proof
- Lecture 28 - Conditional Proof
- Lecture 29 - More on Conditional Proof

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - More on Derivations
- Lecture 31 - Limitation of Propositional Logic
- Lecture 32 - Basic 4 Types of Categorical Propositions
- Lecture 33 - Understanding Logical Relations in Standard Form Categorical Propositions
- Lecture 34 - Translating Non-Standard Propositions into Standard Form Categorical Propositions
- Lecture 35 - Validity and Invalidity of Syllogisms
- Lecture 36 - First Order Predicate Logic
- Lecture 37 - Quantifiers
- Lecture 38 - Scope of a Quantifier Edit Lesson
- Lecture 39 - Multiple Quantifiers
- Lecture 40 - Understanding Overlapping Quantifiers Sharing Predicates and Scope

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction on Intellectual Property to Engineers

Subject Co-ordinator - Prof. Tapas Kumar Bandyopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic of Intellectual Property
- Lecture 2 - Introduction to Law
- Lecture 3 - Theories of IP
- Lecture 4 - Different Forms of IP
- Lecture 5 - Different Forms of IP and Applicability of Theory
- Lecture 6 - Patent Basic
- Lecture 7 - Patent Ability Criteria
- Lecture 8 - Non-Patentable Invention
- Lecture 9 - Prier-Art Search
- Lecture 10 - Patent Filing Procedure
- Lecture 11 - Patent Prosecution
- Lecture 12 - Patent Prosecution (Continued...)
- Lecture 13 - International Patent
- Lecture 14 - Patent Infringement
- Lecture 15 - Patent Management
- Lecture 16 - Utility Model Protection
- Lecture 17 - Copyright Basic
- Lecture 18 - Copy Right Registration
- Lecture 19 - Copyright Infringement and Fair Use
- Lecture 20 - Copyright in Digital Media
- Lecture 21 - Industrial Design Basic
- Lecture 22 - Industrial Design Registration
- Lecture 23 - Utility Patent Vs Industrial Design
- Lecture 24 - Trademark Basic
- Lecture 25 - Trademark Registration
- Lecture 26 - Trademark and Internet
- Lecture 27 - Certification Mark and Collective Mark
- Lecture 28 - Geographical Indication
- Lecture 29 - Economics of GI Edit Lesson

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- Lecture 30 - Trademark Vs GI Trademark Management
- Lecture 31 - IC Layout Design and Basic
- Lecture 32 - IC Layout Design Registration
- Lecture 33 - Trade- Secret and Basic
- Lecture 34 - Trade-Secret Protection
- Lecture 35 - Patent Vs Trade-Secret
- Lecture 36 - Plant Variety Protection
- Lecture 37 - Bio-diversity
- Lecture 38 - Comparative Analysis
- Lecture 39 - IP Management
- Lecture 40 - Case - Study on IP Management

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Globalization and Culture

Subject Co-ordinator - Prof. Anjali Gera Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Globalization Definition
- Lecture 2 - Global Flows and New Media and Technologies
- Lecture 3 - Globalization and Nation
- Lecture 4 - Rise of Global Capitalism
- Lecture 5 - Cultural Imperialism
- Lecture 6 - Global Monocultures
- Lecture 7 - Birth of Asian Kool
- Lecture 8 - Bhangra Reinvention
- Lecture 9 - Disorienting Bhangra
- Lecture 10 - The Body of Dance
- Lecture 11 - World Music I - Tabla
- Lecture 12 - World Music II - Qawwali
- Lecture 13 - World Music III - Baul
- Lecture 14 - Is Chutney the New Rage
- Lecture 15 - Bollywood Song and Dance
- Lecture 16 - Planet Bollywood
- Lecture 17 - Bollywood at Large
- Lecture 18 - Bollywood Assemblages - Part I
- Lecture 19 - Bollywood Assemblages - Part II
- Lecture 20 - Bollywood's Soft Power
- Lecture 21 - Travels of Dastan
- Lecture 22 - Scripting the Nation
- Lecture 23 - Cracking the Nation
- Lecture 24 - Narrating and Interrogating the Nation
- Lecture 25 - Cosmopolitans the Borderless World
- Lecture 26 - Orientalism
- Lecture 27 - Yoga, Meditation, Gurus
- Lecture 28 - Beatles, Ravi Shankar and Sitar
- Lecture 29 - Orientalizing India

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Neorientalism
- Lecture 31 - The Birth of Indo-Chic
- Lecture 32 - Henna, Bindi, Saris and Bangles
- Lecture 33 - The Taste of Curry
- Lecture 34 - Global News
- Lecture 35 - News as Infortainment
- Lecture 36 - Global Media Cultures
- Lecture 37 - Cultural Imperialism
- Lecture 38 - Contraflows in Global Media
- Lecture 39 - Contraflows in News and Entertainment

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Qualitative Research Methods

Subject Co-ordinator - Prof. Aradhna Malik

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - The Qualitative Researcher
- Lecture 3 - Quantitative vs. Qualitative Research
- Lecture 4 - History of Qualitative Research
- Lecture 5 - The Process of Qualitative Research
- Lecture 6 - Dominant Paradigms of Qualitative Research
- Lecture 7 - Interpretivist Thinking
- Lecture 8 - Verstehen
- Lecture 9 - Constructivism
- Lecture 10 - Properties of Constructions
- Lecture 11 - Constructivism-Sub Paradigms
- Lecture 12 - Criticisms of Interpretivism and Constructivism
- Lecture 13 - Critical Theory
- Lecture 14 - Characteristics of Critical Theory
- Lecture 15 - Critiques of Critical Theory
- Lecture 16 - Introduction to Qualitative Inquiry
- Lecture 17 - Qualitative Research Design
- Lecture 18 - Qualitative Research Design (Continued...)
- Lecture 19 - Ethnography
- Lecture 20 - Autoethnography
- Lecture 21 - Case Studies
- Lecture 22 - Case Studies (Continued...)
- Lecture 23 - Analyzing Interpretive Practice
- Lecture 24 - Analyzing Interpretive Practice (Continued...)
- Lecture 25 - Grounded Theory
- Lecture 26 - Grounded Theory (Continued...)
- Lecture 27 - Participatory Action Research
- Lecture 28 - Participatory Action Research (Continued...)
- Lecture 29 - Observation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interviewing
- Lecture 31 - Interviewing (Continued...)
- Lecture 32 - Interpretation of Documents and Material Culture
- Lecture 33 - Autoethnography, Personal Narrative and Reflexivity
- Lecture 34 - Analyzing Visual Data
- Lecture 35 - Analyzing Talk and Text
- Lecture 36 - Data Management and Analysis Methods
- Lecture 37 - Data Management and Analysis Methods (Continued...)
- Lecture 38 - Software and Qualitative Research
- Lecture 39 - The Problem of Criteria
- Lecture 40 - Interpretation
- Lecture 41 - Writing
- Lecture 42 - Writing (Continued...)
- Lecture 43 - Understanding Social Programs through Evaluation
- Lecture 44 - Understanding Social Programs through Evaluation (Continued...)
- Lecture 45 - Influencing the Policy Progress with Qualitative Research
- Lecture 46 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Emotional Intelligence

Subject Co-ordinator - Prof. Rabindra Kumar Pradhan

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to EI and Related Concepts
- Lecture 2 - Introduction to EI and Related Concepts (Continued...)
- Lecture 3 - Introduction to EI and Related Concepts (Continued...)
- Lecture 4 - Introduction to EI and Related Concepts (Continued...)
- Lecture 5 - Introduction to Intelligence
- Lecture 6 - Meaning, Nature, Scope, Types of Intelligence
- Lecture 7 - Measurement of Intelligence
- Lecture 8 - Applications
- Lecture 9 - Discovery of Emotional Intelligence
- Lecture 10 - Meaning, Nature Theory
- Lecture 11 - Measurement of EI
- Lecture 12 - Difference Between EQ and IQ
- Lecture 13 - EQ Assessment
- Lecture 14 - EQ and Empathy
- Lecture 15 - EQ and Resilience
- Lecture 16 - EQ and Health and Wellbeing
- Lecture 17 - EQ Map
- Lecture 18 - EQ Map (Continued...)
- Lecture 19 - EQ Map (Continued...)
- Lecture 20 - EQ Map (Continued...)
- Lecture 21 - Emotional Intelligence in Education
- Lecture 22 - Evaluation of EQ for Students
- Lecture 23 - EI New Vision for Learning
- Lecture 24 - EQ Skills for Students Success
- Lecture 25 - EI in Health and Well Being
- Lecture 26 - EI in Health and Well Being (Continued...)
- Lecture 27 - EI and Cultural Adjustment
- Lecture 28 - EI at Work
- Lecture 29 - Emotional Intelligence and Happiness Positive Psychology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Emotional Intelligence and Happiness Positive Psychology (Continued...)
- Lecture 31 - Emotional Intelligence and Happiness Positive Psychology (Continued...)
- Lecture 32 - Emotional Intelligence and Happiness Positive Psychology (Continued...)
- Lecture 33 - Emotional Intelligence and Leadership
- Lecture 34 - Emotional Intelligence an Leadership (Continued...)
- Lecture 35 - Emotional Intelligence an Leadership (Continued...)
- Lecture 36 - Emotional Intelligence an Leadership (Continued...)
- Lecture 37 - Culture and Emotion
- Lecture 38 - Role of EI
- Lecture 39 - Cultural Intelligence
- Lecture 40 - Emotional Intelligence for Cross Cultural Adaptability

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Speaking Effectively

Subject Co-ordinator - Prof. Anjali Gera Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction, The Art of Speaking  
Lecture 2 - Encoding Meaning Using Verbal and Nonverbal Symbols  
Lecture 3 - Encoding Meaning Using Verbal Symbols  
Lecture 4 - The Power of words  
Lecture 5 - Cross Cultural Factors in Communication Verbal and Nonverbal  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11 - Phonetics  
Lecture 12 - Sounds of English Vowels  
Lecture 13 - Sounds of English Diphthongs and Consonants  
Lecture 14 - Stress and Rhythm Intonation  
Lecture 15 - Role plays and activities  
Lecture 16 - Speaking Voice  
Lecture 17 - Speaking Delivery  
Lecture 18 - How to Improve Voice  
Lecture 19 - How to Improve Delivery  
Lecture 20 - Sample Speeches  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Great Experiments in Psychology

Subject Co-ordinator - Prof. Rajlakshmi Guha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - History and Origin of Psychology

Lecture 2 - Establishing Psychology as a Science

Lecture 3 - Establishing Psychology as a Science (Continued...)

Lecture 4 - A New Psychology

Lecture 5 - Structuralism and Beyond

Lecture 6 - Herman Ebbinghaus on Memory

Lecture 7 - Reconstruction of an Automobile Destruction - An Example of the Interaction between Language and Memory

Lecture 8 - Emotionality and Perceptual Defence

Lecture 9 - Festinger's Cognitive Dissonance Theory

Lecture 10 - Milgram's Study on Obedience

Lecture 11 - Case Studies and Experiments in Clinical and Health Psychology

Lecture 12 - Obsessive Compulsive Disorder

Lecture 13 - A Case of Multiple Personality

Lecture 14 - The Story of Dibs

Lecture 15 - On Being Sane in Insane Places

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Human Resource Development

Subject Co-ordinator - Prof. K. B. L. Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to HRD  
Lecture 2 - Introduction to HRD (Continued...)  
Lecture 3 - Introduction to HRD (Continued...)  
Lecture 4 - Introduction to HRD (Continued...)  
Lecture 5 - Introduction to HRD (Continued...)  
Lecture 6 - The Context of HRD  
Lecture 7 - The Context of HRD (Continued...)  
Lecture 8 - The Context of HRD (Continued...)  
Lecture 9 - The Context of HRD (Continued...)  
Lecture 10 - The Context of HRD (Continued...)  
Lecture 11 - HRD Process - I  
Lecture 12 - HRD Process - I (Continued...)  
Lecture 13 - HRD Process - I (Continued...)  
Lecture 14 - HRD Process - I (Continued...)  
Lecture 15 - HRD Process - I (Continued...)  
Lecture 16 - HRD Process - II  
Lecture 17 - HRD Process - II (Continued...)  
Lecture 18 - HRD Process - II (Continued...)  
Lecture 19 - HRD Process - II (Continued...)  
Lecture 20 - HRD Process - II (Continued...)  
Lecture 21 - Coaching  
Lecture 22 - Coaching (Continued...)  
Lecture 23 - Coaching (Continued...)  
Lecture 24 - Coaching (Continued...)  
Lecture 25 - Coaching (Continued...)  
Lecture 26 - Mentoring  
Lecture 27 - Mentoring (Continued...)  
Lecture 28 - Mentoring (Continued...)  
Lecture 29 - Mentoring (Continued...)

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- Lecture 30 - Mentoring (Continued...)
- Lecture 31 - Employee Counseling and Wellbeing
- Lecture 32 - Employee Counseling and Wellbeing (Continued...)
- Lecture 33 - Employee Counseling and Wellbeing (Continued...)
- Lecture 34 - Employee Counseling and Wellbeing (Continued...)
- Lecture 35 - Employee Counseling and Wellbeing (Continued...)
- Lecture 36 - Competency Mapping Approach to HRD
- Lecture 37 - Competency Mapping Approach to HRD (Continued...)
- Lecture 38 - Competency Mapping Approach to HRD (Continued...)
- Lecture 39 - Competency Mapping Approach to HRD (Continued...)
- Lecture 40 - Competency Mapping Approach to HRD (Continued...)
- Lecture 41 - Career Planning and Development
- Lecture 42 - Career Planning and Development (Continued...)
- Lecture 43 - Career Planning and Development (Continued...)
- Lecture 44 - Career Planning and Development (Continued...)
- Lecture 45 - Career Planning and Development (Continued...)
- Lecture 46 - Intellectual Capital Management
- Lecture 47 - Intellectual Capital Management (Continued...)
- Lecture 48 - Intellectual Capital Management (Continued...)
- Lecture 49 - Intellectual Capital Management (Continued...)
- Lecture 50 - Intellectual Capital Management (Continued...)
- Lecture 51 - HRD, Organizational Learning, and Learning Organization
- Lecture 52 - HRD, Organizational Learning, and Learning Organization (Continued...)
- Lecture 53 - HRD, Organizational Learning, and Learning Organization (Continued...)
- Lecture 54 - HRD, Organizational Learning, and Learning Organization (Continued...)
- Lecture 55 - HRD, Organizational Learning, and Learning Organization (Continued...)
- Lecture 56 - Diversity, HRD Ethics, and Future of HRD
- Lecture 57 - Diversity, HRD Ethics, and Future of HRD (Continued...)
- Lecture 58 - Diversity, HRD Ethics, and Future of HRD (Continued...)
- Lecture 59 - Diversity, HRD Ethics, and Future of HRD (Continued...)
- Lecture 60 - Diversity, HRD Ethics, and Future of HRD (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC: Educational Leadership

Subject Co-ordinator - Prof. Atasi Mohanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Educational Management and Leadership
- Lecture 2 - Key Challenges for Educational Leaders
- Lecture 3 - Key Challenges for Educational Leaders (Continued...)
- Lecture 4 - Key Challenges for Educational Leaders (Continued...)
- Lecture 5 - Key Challenges for Educational Leaders (Continued...)
- Lecture 6 - Professional Development and The Reflective Practitioner
- Lecture 7 - Professional Development and The Reflective Practitioner (Continued...)
- Lecture 8 - Professional Development and The Reflective Practitioner (Continued...)
- Lecture 9 - Professional Development and The Reflective Practitioner (Continued...)
- Lecture 10 - Professional Development and The Reflective Practitioner (Continued...)
- Lecture 11 - Professional Ethics and Values in Teaching
- Lecture 12 - Professional Ethics and Values in Teaching (Continued...)
- Lecture 13 - Professional Ethics and Values in Teaching (Continued...)
- Lecture 14 - Emotional Intelligence and Educational Leadership
- Lecture 15 - Emotional Intelligence and Educational Leadership (Continued...)
- Lecture 16 - Emotional Intelligence and Educational Leadership (Continued...)
- Lecture 17 - Emotional Intelligence and Educational Leadership (Continued...)
- Lecture 18 - Managing Diversity and Inclusion
- Lecture 19 - Managing Diversity and Inclusion (Continued...)
- Lecture 20 - Managing Diversity and Inclusion (Continued...)
- Lecture 21 - Managing Diversity and Inclusion (Continued...)
- Lecture 22 - Managing Diversity and Inclusion (Continued...)
- Lecture 23 - Educational Research and Pedagogy
- Lecture 24 - Educational Research and Pedagogy (Continued...)
- Lecture 25 - Educational Research and Pedagogy (Continued...)
- Lecture 26 - Educational Research and Pedagogy (Continued...)
- Lecture 27 - Educational Research and Pedagogy (Continued...)
- Lecture 28 - Innovative Pedagogy and Technology for Learning
- Lecture 29 - Innovative Pedagogy and Technology for Learning (Continued...)

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- Lecture 30 - Innovative Pedagogy and Technology for Learning (Continued...)
- Lecture 31 - Innovative Pedagogy and Technology for Learning (Continued...)
- Lecture 32 - Innovative Pedagogy and Technology for Learning (Continued...)
- Lecture 33 - Innovative Pedagogy and Technology for Learning (Continued...)
- Lecture 34 - Innovative Pedagogy and Technology for Learning (Continued...)
- Lecture 35 - Turnaround Leadership and Educational Entrepreneurship
- Lecture 36 - Turnaround Leadership and Educational Entrepreneurship (Continued...)
- Lecture 37 - Turnaround Leadership and Educational Entrepreneurship (Continued...)
- Lecture 38 - Turnaround Leadership and Educational Entrepreneurship (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Strategic Performance Management

Subject Co-ordinator - Prof. Kbl Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Performance management
- Lecture 2 - Aim and purpose of performance management
- Lecture 3 - Characteristics of an effective PM system
- Lecture 4 - Performance Management Process
- Lecture 5 - Role of PM in employee development and identification of Key performance areas
- Lecture 6 - Understanding performance planning
- Lecture 7 - Strategic Planning and performance
- Lecture 8 - Strategic planning and performance - 2
- Lecture 9 - Strategic planning and performance - 3
- Lecture 10 - Strategy and performance alignment
- Lecture 11 - Performance dimensions
- Lecture 12 - Behavior, result and trait approach system
- Lecture 13 - Measuring behavior and results
- Lecture 14 - Measurement system
- Lecture 15 - Collecting information in performance management
- Lecture 16 - Implementing PM System
- Lecture 17 - Implementing PMS (2)
- Lecture 18 - Self appraisal
- Lecture 19 - Managing team performance
- Lecture 20 - 360 degree appraisal
- Lecture 21 - Performance Management Skill
- Lecture 22 - Performance Management and Employee Development
- Lecture 23 - Coaching for performance improvement
- Lecture 24 - Coaching process, analysis and techniques
- Lecture 25 - Coaching skills for managers and evaluation
- Lecture 26 - Performance Review
- Lecture 27 - Performance Review (Continued...)
- Lecture 28 - Performance review Discussion
- Lecture 29 - Performance Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Use of performance management data for HR decision making
- Lecture 31 - Potential Appraisal 1
- Lecture 32 - Potential Appraisal 2
- Lecture 33 - Reward system 1
- Lecture 34 - Reward system 2
- Lecture 35 - Performance Management and Legal System
- Lecture 36 - PMS in Indian Organisations
- Lecture 37 - Culture and Performance Management
- Lecture 38 - Technology and Performance Management
- Lecture 39 - PMS in Select Indian Companies
- Lecture 40 - Future of Performance Management



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Basic Spoken Sanskrit

Subject Co-ordinator - Prof. Anuradha Choudry

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - The Sounds of Sanskrit
- Lecture 3 - Sentence Construction and its underlying logic
- Lecture 4 - Introduction of Self and Others
- Lecture 5 - Basic Verbs and Some Conjugations
- Lecture 6 - Introduction to the Genitive (6th) Case
- Lecture 7 - Counting and Reading the Time
- Lecture 8 - Plural of Pronouns and Nouns
- Lecture 9 - Conjugation of Basic Verbs in the Plural
- Lecture 10 - Introduction to the Locative (7th) Case
- Lecture 11 - Days of the Week, Months, Future Tense
- Lecture 12 - Past Tense and More Verbs
- Lecture 13 - Introduction to the Accusative (2nd) Case
- Lecture 14 - Continuation of the Accusative (2nd) Case
- Lecture 15 - Introduction to the Instrumental (3rd) Case
- Lecture 16 - Continuation of the Instrumental (3rd) Case
- Lecture 17 - Introduction to the Ablative (5th) Case
- Lecture 18 - Introduction to the Dative (4th) Case
- Lecture 19 - Introduction to the Vocative (8th) Case
- Lecture 20 - Overview and Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Water, Society and Sustainability

Subject Co-ordinator - Prof. Jenia Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Setting the Context

Lecture 2 - Beyond Hydrology

Lecture 3 - Socio Hydrology

Lecture 4 - Political Ecology of Water

Lecture 5 - Hydrosocial

Lecture 6 - Critical Physical Geography (CPG)

Lecture 7 - The South Asian Context

Lecture 8 - Water Harvesting and Water Use Techniques in Ancient India - 1

Lecture 9 - Water Harvesting and Water Use Techniques in Ancient India - 2

Lecture 10 - Water Harvesting and Water Use Techniques in Ancient India - 3

Lecture 11 - Water Technology in Medieval India - 1

Lecture 12 - Water Technology in Medieval India - 2

Lecture 13 - Colonial Hydrology

Lecture 14 - Dams and Development in Contemporary India

Lecture 15 - The Farakka Barrage Project

Lecture 16 - The Farakka Barrage Project

Lecture 17 - Urban Waters

Lecture 18 - Peri-urban Water Justice in the Global South

Lecture 19 - Transforming Trajectories of Blue Infrastructures of Kolkata

Lecture 20 - Discussion and Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Aspects of Western Philosophy

Subject Co-ordinator - Dr. Sreekumar Nellickappilly

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Greek Philosophy

Lecture 2 - Sophists, Socrates; philosophy of man; relativism and subjectivism; the idea of good

Lecture 3 - Platos idealism

Lecture 4 - Plato

Lecture 5 - Aristotles criticism of Platonic idealism and the concepts of Form and Matter

Lecture 6 - Aristotles theory of causation; potentiality and actuality

Lecture 7 - Medieval philosophy

Lecture 8 - Modern Philosophy

Lecture 9 - Descartes

Lecture 10 - Descartes

Lecture 11 - Spinoza

Lecture 12 - Spinozas pantheism-God and nature

Lecture 13 - Leibniz

Lecture 14 - The empiricism of John Locke

Lecture 15 - John Locke

Lecture 16 - Berkeley

Lecture 17 - Berkeleys critique of abstract ideas, esse est percipi,  
the problem of solipsism; God and self

Lecture 18 - Hume

Lecture 19 - The external world and the self, personal identity, rejection of metaphysics,  
scepticism, reason and the passions.

Lecture 20 - Critical Philosophy

Lecture 21 - Kant

Lecture 22 - The Ideas of Reason-soul, God and world as a whole; antinomies; rejection of  
speculative metaphysics.

Lecture 23 - Kants ethics; freedom and immortality, problems with Kant.

Lecture 24 - Hegel

Lecture 25 - Absolute idealism; consciousness, self consciousness and reason.

Lecture 26 - Karl Marx

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 27 - Nietzsche
- Lecture 28 - Linguistic turn in British philosophy
- Lecture 29 - Wittgenstein
- Lecture 30 - Later Wittgensteins conception of language games and forms of life; meaning and use.
- Lecture 31 - Logical positivism; against metaphysics and a scientific conception of philosophy; the limitation of logical positivism
- Lecture 32 - Husserl
- Lecture 33 - Phenomenological reduction, eidetic reduction and transcendental reduction; transcendental subjectivity; the pure subject.
- Lecture 34 - Heidegger
- Lecture 35 - Authentic and inauthentic existence; Truth as disclosure
- Lecture 36 - Existentialism
- Lecture 37 - Sartres conception of human existence; man is condemned to be free; rejection of essentialism
- Lecture 38 - The concept of being-in-itself, being-for-itself and being-for-others
- Lecture 39 - Postmodernism
- Lecture 40 - Deconstruction, feminism, discourse theory etc.

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Contemporary Literature

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Drama
- Lecture 2 - Harold Pinter
- Lecture 3 - The Dumb Waiter
- Lecture 4 - The Dumb Waiter (Continued...)
- Lecture 5 - Six Degrees of Separation
- Lecture 6 - Six Degrees of Separation
- Lecture 7 - Six Degrees of Separation
- Lecture 8 - Six Degrees of Separation
- Lecture 9 - Six Degrees of Separation
- Lecture 10 - Tom Stoppard - Dogg's Hamlet, Cahoot's Macbeth
- Lecture 11 - Tom Stoppard - Dogg's Hamlet, Cahoot's Macbeth
- Lecture 12 - Tom Stoppard - Dogg's Hamlet, Cahoot's Macbeth
- Lecture 13 - Tom Stoppard - Dogg's Hamlet, Cahoot's Macbeth
- Lecture 14 - Tom Stoppard - Dogg's Hamlet, Cahoot's Macbeth
- Lecture 15 - Tom Stoppard - Dogg's Hamlet, Cahoot's Macbeth
- Lecture 16 - Arthur Miller Clara
- Lecture 17 - Arthur Miller Clara
- Lecture 18 - Arthur Miller Clara
- Lecture 19 - Albert Camus The Fall
- Lecture 20 - Albert Camus The Fall
- Lecture 21 - Albert Camus The Fall
- Lecture 22 - Girish Karnad - Nagamandala
- Lecture 23 - Girish Karnad - Nagamandala
- Lecture 24 - Girish Karnad - Nagamandala
- Lecture 25 - Short Story - Salman Rushdie's
- Lecture 26 - Short Story2 - Hanif Kureishi's
- Lecture 27 - Modernism Post
- Lecture 28 - Kazuo Ishiguro - Remains of the Day
- Lecture 29 - Kazuo Ishiguro - Remains of the Day

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Kazuo Ishiguro - Remains of the Day
- Lecture 31 - Kazuo Ishiguro - Remains of the Day
- Lecture 32 - Michael Ondaatje - The English Patient
- Lecture 33 - Michael Ondaatje - The English Patient
- Lecture 34 - Michael Ondaatje - The English Patient
- Lecture 35 - Asian-American Writing
- Lecture 36 - Amy Tan's - The Joy Luck Club
- Lecture 37 - Amy Tan's - The Joy Luck Club
- Lecture 38 - Amy Tan's - The Joy Luck Club
- Lecture 39 - Poetry
- Lecture 40 - Poetry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - History of Economic Theory

Subject Co-ordinator - Prof. S.S. SivaKumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - The Socio-Economic Role of Scarcity and Uncertainty

Lecture 2 - The Process of Construction of Knowledge

Lecture 3 - The Roles of Faith and Experience

Lecture 4 - From Orphism to the Milesians in ancient Greece

Lecture 5 - Pythagoras and Heraclitus

Lecture 6 - From Parmenides to the atomists

Lecture 7 - From the ancient Greece to the emergence of Feudalism

Lecture 8 - Feudalism and the growth of the Church

Lecture 9 - The age of Faith

Lecture 10 - The beginnings of modernity

Lecture 11 - Scholasticism and St.Thomas

Lecture 12 - Transformation of Europe towards modernity

Lecture 13 - Birth of political economy

Lecture 14 - The debate over mercantilism

Lecture 15 - A postscript to mercantilism

Lecture 16 - "Natural Order" and the market

Lecture 17 - Smith

Lecture 18 - Smith

Lecture 19 - Ricardo-Malthus debate

Lecture 20 - Ricardian economics and more

Lecture 21 - Equilibrium of the market

Lecture 22 - More on Equilibrium

Lecture 23 - Socialists and Marx

Lecture 24 - The economics of Marx

Lecture 25 - Marx as an ideologue of revolution

Lecture 26 - Arrival of modern universals in Economics

Lecture 27 - Economic Theory at the time arrival of Keynes

Lecture 28 - The centrality of the idea of efficiency in the study of market

Lecture 29 - Keynesian Revolution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Keynesian economics
- Lecture 31 - Economics of Institutions
- Lecture 32 - Transaction cost and Economic Anthropology approaches
- Lecture 33 - Evolutionary Economics
- Lecture 34 - From Schumpeter to neo Schumpeterian evolutionism
- Lecture 35 - The social construction of knowledge
- Lecture 36 - The social construction of knowledge



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Indian Philosophy

Subject Co-ordinator - Dr. Satya Sundar Sethy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Indian Philosophy
- Lecture 2 - A Brief Discussion on the Vedas & the Upanishads
- Lecture 3 - The CĀ•rvĀ•ka School - I
- Lecture 4 - The CĀ•rvĀ•ka School - II
- Lecture 5 - The SĀ•ā<sup>1</sup> khya School - I
- Lecture 6 - The SĀ•ā<sup>1</sup> khya School - II
- Lecture 7 - The SĀ•ā<sup>1</sup> khya School - III
- Lecture 8 - The SĀ•ā<sup>1</sup> khya School - IV
- Lecture 9 - The SĀ•ā<sup>1</sup> khya School - V
- Lecture 10 - The SĀ•ā<sup>1</sup> khya School - VI
- Lecture 11 - The Yoga School - I
- Lecture 12 - The Yoga School - II
- Lecture 13 - The Yoga School - III
- Lecture 14 - The Yoga School - IV
- Lecture 15 - The NyĀ•ya School - I
- Lecture 16 - The NyĀ•ya School - II
- Lecture 17 - The NyĀ•ya School - III
- Lecture 18 - The NyĀ•ya School - IV
- Lecture 19 - The NyĀ•ya School - V
- Lecture 20 - The NyĀ•ya School - VI
- Lecture 21 - The NyĀ•ya School - VII
- Lecture 22 - The NyĀ•ya School - VIII
- Lecture 23 - The NyĀ•ya School - IX
- Lecture 24 - Buddhism - I
- Lecture 25 - Buddhism - II
- Lecture 26 - Buddhism - III
- Lecture 27 - Buddhism - IV
- Lecture 28 - Buddhism - V
- Lecture 29 - Jainism - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Jainism - II
- Lecture 31 - Jainism - III
- Lecture 32 - The Vaiṣṭhika School - I
- Lecture 33 - The Vaiṣṭhika School - II
- Lecture 34 - The Vaiṣṭhika School - III
- Lecture 35 - The Vaiṣṭhika School - IV
- Lecture 36 - The Vaiṣṭhika School - V
- Lecture 37 - The Vaiṣṭhika School - VI
- Lecture 38 - The Mimāṃsā School - I
- Lecture 39 - The Mimāṃsā School - II
- Lecture 40 - The Mimāṃsā School - III
- Lecture 41 - The Mimāṃsā School - IV
- Lecture 42 - The Mimāṃsā School - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Better Spoken English

Subject Co-ordinator - Prof. Shreesh Chaudhary

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Student Presentations - I
- Lecture 3 - Feedback on Presentations - I
- Lecture 4 - Stage Manners
- Lecture 5 - Tempo of Speech
- Lecture 6 - Some Reasons for Mishearing
- Lecture 7 - Topics for Presentations - II
- Lecture 8 - Message
- Lecture 9 - Tables, Charts, Graphs
- Lecture 10 - Power Point Slides
- Lecture 11 - Criteria for Evaluation
- Lecture 12 - Student Presentations - II
- Lecture 13 - Feedback on Presentation - II
- Lecture 14 - Topics for Presentation - III
- Lecture 15 - On "Saying Please!" •
- Lecture 16 - English Rhythm - I
- Lecture 17 - English Rhythm - II
- Lecture 18 - Phrasal Pause in English - I
- Lecture 19 - Phrasal Pause in English - II
- Lecture 20 - Units of Time, Weight, Distance
- Lecture 21 - Stress in English - I
- Lecture 22 - Stress in English - II
- Lecture 23 - Stress in English - III
- Lecture 24 - Stress in English - IV
- Lecture 25 - Stress in English - V
- Lecture 26 - Stress in English - VI
- Lecture 27 - Student Presentations - III
- Lecture 28 - Student Presentations - III
- Lecture 29 - Student Presentations - III (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Feedback on Presentations - III
- Lecture 31 - Some Non-standard Sounds
- Lecture 32 - Some â Difficultâ • Sounds in English
- Lecture 33 - Some â Vowelâ • Sounds in English
- Lecture 34 - Some â Consonantsâ • in English
- Lecture 35 - Student Presentations - IV
- Lecture 36 - Student Presentations - IV
- Lecture 37 - Student Presentations - IV (Continued...)
- Lecture 38 - Final Tips

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Introduction to Film Studies

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview  
Lecture 2 - Cinema & Semiotics  
Lecture 3 - Cinema & Semiotics (Continued...)  
Lecture 4 - Plot in Cinema  
Lecture 5 - Plot in Cinema (Continued...)  
Lecture 6 - Character as a plot element  
Lecture 7 - Editing in Cinema  
Lecture 8 - Realism in Cinema  
Lecture 9 - Colour  
Lecture 10 - Intertextuality  
Lecture 11 - Intertextuality (Continued...)  
Lecture 12 - Intertextuality (Continued...)  
Lecture 13 - Cinema & Modernism  
Lecture 14 - Cinema and Modernism (Continued...)  
Lecture 15 - The French Masters  
Lecture 16 - The French Masters (Continued...)  
Lecture 17 - The French Masters (Continued...)  
Lecture 18 - Canonical Text  
Lecture 19 - Canonical Text (Continued...)  
Lecture 20 - Canonical Text (Continued...)  
Lecture 21 - The Academy Awards  
Lecture 22 - Classic Hollywood  
Lecture 23 - Classic Hollywood (Continued...)  
Lecture 24 - Classic Hollywood (Continued...)  
Lecture 25 - Case study  
Lecture 26 - Stars as Icons  
Lecture 27 - Cinema and the Counterculture Movement  
Lecture 28 - Italian cinema  
Lecture 29 - Japanese Cinema

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Auteur Theory in the USA
- Lecture 31 - Auteur Theory in the USA (Continued...)
- Lecture 32 - New Hollywood
- Lecture 33 - New Hollywood (Continued...)
- Lecture 34 - New Hollywood (Continued...)
- Lecture 35 - New Hollywood (Continued...)
- Lecture 36 - Cinema and Genres
- Lecture 37 - Cinema and Genres (Continued...)
- Lecture 38 - Postmodernism and Cinema
- Lecture 39 - Postmodernism & Cinema (Continued...)
- Lecture 40 - The Western

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Introduction to Modern Linguistics

Subject Co-ordinator - Prof. Rajesh Kumar, Prof. Shreesh Chaudhary

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Design Features of Language - 1  
Lecture 3 - Design Features of Language - 2  
Lecture 4 - Design Features of Language - 3  
Lecture 5 - Design Features of Language - 4  
Lecture 6 - Design Features of Language - 5  
Lecture 7 - Production of Speech Sounds  
Lecture 8 - Organs of Articulation  
Lecture 9 - Functions of Vocal Cords  
Lecture 10 - Production of Speech Sounds, Cardinal Vowels  
Lecture 11 - English Vowels  
Lecture 12 - Diphthong  
Lecture 13 - Production of Consonants  
Lecture 14 - Consonants  
Lecture 15 - Consonants-2  
Lecture 16 - Review  
Lecture 17 - What is Phonology  
Lecture 18 - Phonemes & Allophones  
Lecture 19 - Phonological Phenomena  
Lecture 20 - Syllable Template  
Lecture 21 - Syllable  
Lecture 22 - Syllable - Based Generalization  
Lecture 23 - Syllable - Based Generalization  
Lecture 24 - Morphology  
Lecture 25 - Units of Word Formation  
Lecture 26 - Affixation  
Lecture 27 - Syntax  
Lecture 28 - Syntax  
Lecture 29 - Syntax

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Syntax
- Lecture 31 - Syntax
- Lecture 32 - Syntax
- Lecture 33 - Syntax
- Lecture 34 - Syntax
- Lecture 35 - Syntax
- Lecture 36 - Syntax
- Lecture 37 - Syntax
- Lecture 38 - Word Formation-3
- Lecture 39 - Discourse
- Lecture 40 - Discourse..
- Lecture 41 - Concluding Remarks



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Principles and Parameters in Natural Language

Subject Co-ordinator - Prof. Rajesh Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of the Course
- Lecture 2 - What is linguistics? What is Language?
- Lecture 3 - Language and Arbitrariness, Language and Dialect
- Lecture 4 - E vs I Language, Language as a rule governed system
- Lecture 5 - Language Faculty, Language in Human Mind
- Lecture 6 - How do we learn language?
- Lecture 7 - Language Acquisition
- Lecture 8 - Innateness
- Lecture 9 - Structure of Language at the Level of Sounds
- Lecture 10 - Sounds (Vocal Apparatus)
- Lecture 11 - Places and Manners of Articulation
- Lecture 12 - Word Formation/Phonotactic Rules
- Lecture 13 - Rules of Word Formation (Singular-Plural)
- Lecture 14 - Sentence
- Lecture 15 - Making of a Sentence (Components)
- Lecture 16 - Grammaticality and Acceptability
- Lecture 17 - Subject and Verb in a Sentence
- Lecture 18 - Sentence
- Lecture 19 - Phrase Structure
- Lecture 20 - X-Bar Theory
- Lecture 21 - Specifier and Complement
- Lecture 22 - Complements and Adjuncts
- Lecture 23 - VP Components
- Lecture 24 - Categorical Selections, Selectional Restrictions on verbs
- Lecture 25 - Thematic Relations
- Lecture 26 - Case
- Lecture 27 - Morphological and Abstract Case
- Lecture 28 - Structural Case
- Lecture 29 - Exceptional Case Marking

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Movement
- Lecture 31 - Motivations for Movement
- Lecture 32 - Questions and Movement
- Lecture 33 - Guest Lecture
- Lecture 34 - Passives and NP Movement
- Lecture 35 - NP Movement and Raising
- Lecture 36 - Binding Theory and NP Interpretations
- Lecture 37 - Principles of Binding Theory
- Lecture 38 - Constraints on Movements
- Lecture 39 - Structure of Language and Negation
- Lecture 40 - Negation and Negative Polarity Items
- Lecture 41 - Structure, Language, Cognition and Pragmatics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Literary Criticism and Literary Theory

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Lecture 1 - Introduction & Course Overview - Lecture 1 - Part A  
Lecture 2 - Introduction & Course Overview - Lecture 1 - Part B  
Lecture 3 - Key terms and Concepts - 1 - Lecture 2  
Lecture 4 - Key terms and Concepts - 2 - Lecture 3  
Lecture 5 - Key terms and Concepts - 3 - Lecture 4  
Lecture 6 - Classical Theory - Lecture 5 - Part C  
Lecture 7 - Classical Theory - Lecture 5 - Part A  
Lecture 8 - Classical Theory - Lecture 5 - Part B  
Lecture 9 - Classical Theory - Lecture 6 - Part A  
Lecture 10 - Neoclassicism - Lecture 6 - Part B  
Lecture 11 - Romanticism - Early Romanticism - Lecture 7 - Part A  
Lecture 12 - Romanticism - Romanticism - Lecture 7 - Part C  
Lecture 13 - Romanticism - Romanticism - Lecture 7 - Part D  
Lecture 14 - Romanticism - Early Romanticism - Lecture 7 Part B  
Lecture 15 - Late 19th Century - Lecture 9 - Late 19th century  
Lecture 16 - Lecture 10 A - Marxism  
Lecture 17 - Lecture 10 B - Marxism  
Lecture 18 - Twentieth Century Criticism - Lecture 11 A - Formalism  
Lecture 19 - Twentieth Century Criticism - Lecture 11 B - New criticism  
Lecture 20 - Psychoanalysis and Psychoanalytic Criticism - PART A  
Lecture 21 - Psychoanalysis and Psychoanalytic Criticism - PART B  
Lecture 22 - Psychoanalysis and Psychoanalytic Criticism - PART C  
Lecture 23 - Structuralism - Lecture 12 Part A structuralism  
Lecture 24 - Structuralism - Lecture 12 Part B structuralism  
Lecture 25 - Archetypal Criticism - Lecture 13 - Archetypal Criticism  
Lecture 26 - Post Structuralism - Part A  
Lecture 27 - Post Structuralism - Part B  
Lecture 28 - Post Colonialism - Part A  
Lecture 29 - New Historicism and Cultural Materialism - Part A  
Lecture 30 - New Historicism and Cultural Materialism - Part B  
Lecture 31 - Reader Response criticism  
Lecture 32 - Semiotics theory - PART A  
Lecture 33 - Semiotics theory - PART B

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 34 - Film studies - Part A
- Lecture 35 - Film studies - Part B
- Lecture 36 - Postmodernism - Part A
- Lecture 37 - Postmodernism - Part B
- Lecture 38 - Ecocriticism - Part A
- Lecture 39 - Ecocriticism - Part B
- Lecture 40 - Post theory - Part A
- Lecture 41 - Post theory - Part B

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Language and Mind

Subject Co-ordinator - Prof. Rajesh Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - On Language - What is language
- Lecture 2 - On Language - How do we learn language
- Lecture 3 - On Language - Learning language
- Lecture 4 - On Language - Acquiring language
- Lecture 5 - On Language - Language evolution
- Lecture 6 - Language in Mind - Language and language learning
- Lecture 7 - Language in Mind - Language in mind
- Lecture 8 - Language in Mind - Grammar
- Lecture 9 - Language in Mind - Language and human mind
- Lecture 10 - Language in Mind - Mechanism of sound production
- Lecture 11 - Patterns in Sounds and Words - Consonants
- Lecture 12 - Patterns in Sounds and Words - Features of sounds
- Lecture 13 - Patterns in Sounds and Words - Words
- Lecture 14 - Patterns in Sounds and Words - Words II
- Lecture 15 - Patterns in Sounds and Words - Words III
- Lecture 16 - Words and Sentences - Words IV
- Lecture 17 - Words and Sentences - Words V
- Lecture 18 - Words and Sentences - Structure of a sentence
- Lecture 19 - Words and Sentences - Nature of sentences and phrases
- Lecture 20 - Words and Sentences - Syntax
- Lecture 21 - Grammar - Structure of sentence (agreement)
- Lecture 22 - Grammar - Sentence (categories and phrase)
- Lecture 23 - Grammar - Sentence (phrase structure)
- Lecture 24 - Grammar - Sentence (X bar and IP)
- Lecture 25 - Grammar - Sentence (inflectional phrase)
- Lecture 26 - Advanced Grammar - Sentence (compliment and adjunct)
- Lecture 27 - Advanced Grammar - Sentence (restrictions)
- Lecture 28 - Advanced Grammar - Sentence (semantic relations)
- Lecture 29 - Advanced Grammar - Sentence (case)
- Lecture 30 - Advanced Grammar - Sentence (movement)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 31 - Levels of Representation and Principles of Grammar - CP and displacement
- Lecture 32 - Levels of Representation and Principles of Grammar - Sentence (CP in subject and object position)
- Lecture 33 - Levels of Representation and Principles of Grammar - Sentence (passivization and NP movement)
- Lecture 34 - Levels of Representation and Principles of Grammar - Sentence (referential expressions)
- Lecture 35 - Levels of Representation and Principles of Grammar - Sentence (binding)
- Lecture 36 - Language and Cognition - Sentence Dependencies
- Lecture 37 - Language and Cognition - Language and cognition
- Lecture 38 - Language and Cognition - Language, cognition and computers
- Lecture 39 - Language and Cognition - Language and computers
- Lecture 40 - Language and Cognition - Language and mind

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Film Appreciation

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Key Concepts  
Lecture 3 - Key Concepts  
Lecture 4 - Lecture  
Lecture 5 - Lecture  
Lecture 6 - Lecture  
Lecture 7 - Lecture  
Lecture 8 - Lecture  
Lecture 9 - Lecture  
Lecture 10 - Lecture  
Lecture 11 - Lecture  
Lecture 12 - Action Cinema  
Lecture 13 - Lecture  
Lecture 14 - Melodrama  
Lecture 15 - Formalism in Cinema  
Lecture 16 - The Language of Cinema  
Lecture 17 - Devdas  
Lecture 18 - City Cinema  
Lecture 19 - The Semiotics of Cinema  
Lecture 20 - Raging Bull  
Lecture 21 - Robert Bresson  
Lecture 22 - Studio Cinema  
Lecture 23 - Studio Cinema  
Lecture 24 - New Hollywood Cinema  
Lecture 25 - New Hollywood Cinema  
Lecture 26 - History of Hindi Cinema  
Lecture 27 - History of Hindi Cinema  
Lecture 28 - History of Hindi Cinema  
Lecture 29 - Ideology in Cinema

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Character in Cinema
- Lecture 31 - Mythological Cinema in India
- Lecture 32 - The Cinema of Satyajit Ray
- Lecture 33 - Hindi Film Music
- Lecture 34 - The Hollywood musicals
- Lecture 35 - African cinema
- Lecture 36 - Iranian cinema
- Lecture 37 - Canadian Cinema
- Lecture 38 - Eastern European Cinema
- Lecture 39 - European Cinema Hungary, Sweden, Greece
- Lecture 40 - Postmodernism and cinema
- Lecture 41 - Mall towns in cinema
- Lecture 42 - Film sequels, remakes and cult films
- Lecture 43 - Parallel Cinema From India



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Appreciating Carnatic Music

Subject Co-ordinator - Dr. Lakshmi Sreeram

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - The Body of Music

Lecture 2 - Music everywhere finding the classical

Lecture 3 - Classical Music Art Music

Lecture 4 - Music through Melody & Music through Harmony

Lecture 5 - Musical Material A Hard Look

Lecture 6 - Musical material Mo2

Lecture 7 - Carnatic Music as Raga Music

Lecture 8 - Understanding Raga - Part I

Lecture 9 - Understanding Raga - Part II (Raga and Swara)

Lecture 10 - Understanding Raga - Part III A Glimpse into Gamaka (Ornamentation) and Phraseology

Lecture 11 - Swara in the Sanskrit Textual Tradition

Lecture 12 - Sruti in Sanskrit Textual tradition

Lecture 13 - Tambura

Lecture 14 - Gamaka I

Lecture 15 - Gamaka II

Lecture 16 - Gamaka III

Lecture 17 - Gamakas IV

Lecture 18 - Raga and Phraseology

Lecture 19 - Raga - some basic expectations

Lecture 20 - A string of Ragas and a teaser

Lecture 21 - Raga in the textual tradition

Lecture 22 - Classification of Ragas I

Lecture 23 - Classification of Ragas II

Lecture 24 - Mela system of classifying raga-s

Lecture 25 - Generating the 72 mela-s

Lecture 26 - Application of 72 mela

Lecture 27 - Katapayadi Naming the 72 melas

Lecture 28 - Vivadi I

Lecture 29 - Vivadi II

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Raga - Circles and Triangles
- Lecture 31 - Laya
- Lecture 32 - Tala an Introduction to the Concept
- Lecture 33 - More on Tala and laya
- Lecture 34 - Aspects of Tala - I
- Lecture 35 - Aspects of Tala - II
- Lecture 36 - Aspects of Tala - III
- Lecture 37 - Aspects of IV
- Lecture 38 - Composition in Carnatic Music
- Lecture 39 - An Introduction
- Lecture 40 - Varnam and laya intricacies
- Lecture 41 - Kriti the premier compositional form in Carnatic music
- Lecture 42 - Kriti some basic features
- Lecture 43 - Precursors to the Kriti
- Lecture 44 - Bhakti and Carnatic Music
- Lecture 45 - Tanjavur and the Carnatic Trinity
- Lecture 46 - Tyagaraja, the Vaggeyakara
- Lecture 47 - Tyagaraja and His Many Moods -I
- Lecture 48 - Tyagaraja and His Many Moods II
- Lecture 49 - Muthuswami Dikshitar an overview
- Lecture 50 - Muthuswami Dikshitar the Sanskrit Scholar and Advaitin
- Lecture 51 - Muthuswami Dikshitar Some Other Aspects of his Work.
- Lecture 52 - Syama Sastri
- Lecture 53 - Tamil Composers before the trinity
- Lecture 54 - Post trinity Composers
- Lecture 55 - Swathi Tirunal - the Versatile Royal Composer
- Lecture 56 - The Romance of Padam and Javali
- Lecture 57 - Tillana
- Lecture 58 - Improvisation in Carnatic Music - Alapana
- Lecture 59 - ALAPANA
- Lecture 60 - Neraval and Swaraprastara
- Lecture 61 - TANAM
- Lecture 62 - An exposition of Balagopala, a kriti in the raga Bhairavi with alapana, neraval and swaraprastara
- Lecture 63 - Accompaniment in Carnatic Music - The Violin
- Lecture 64 - Percussive Accompaniment - the Mridangam
- Lecture 65 - Subsidiary Accompaniment - Interaction Among Accompanists
- Lecture 66 - The Typical carnatic Concert And Ragam Tanam Pallavi - RTP

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Infrastructure Economics

Subject Co-ordinator - Prof.Nalin Bharti

Co-ordinating Institute - IIT - Patna

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Language and Society

Subject Co-ordinator - Prof. Rajesh Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to language and society

Lecture 2 - Language and India

Lecture 3 - Language and a language

Lecture 4 - Language, dialect and variety

Lecture 5 - Dialect and standard language

Lecture 6 - How do children learn language?

Lecture 7 - First language acquisition

Lecture 8 - Critical period and SLA

Lecture 9 - Sounds and words

Lecture 10 - Sentence

Lecture 11 - India as a linguistic area

Lecture 12 - Language variation

Lecture 13 - Language and culture

Lecture 14 - Language and power- politics

Lecture 15 - Indian english

Lecture 16 - Fluidity and continuum

Lecture 17 - Language in education

Lecture 18 - Language and scholastic achievement

Lecture 19 - Language and language teaching

Lecture 20 - Concluding remarks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Issues in Bioethics

Subject Co-ordinator - Dr. Sreekumar Nellickappilly

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1 - Unit 1 - Overview of Bioethics  
Lecture 2 - Module 1 - Unit 2 - Historical Evolution of Bioethics-I  
Lecture 3 - Module 1 - Unit 3 - Historical Evolution of Bioethics-II  
Lecture 4 - Module 1 - Unit 4 - Historical Evolution of Bioethics-III  
Lecture 5 - Module 1 - Unit 5 - Bioethics Today  
Lecture 6 - Module 2 - Unit 1 - Ethical theories and Bioethical Issues  
Lecture 7 - Module 2 - Unit 2 - Other ethical theories  
Lecture 8 - Module 2 - Unit 3 - Hedonistic Approaches in Ethical Theories  
Lecture 9 - Module 2 - Unit 4 - Deontological Approach  
Lecture 10 - Module 2 - Unit 5 - Principle-Based Theories  
Lecture 11 - Module 3 - Unit 1 - Challenges to the Person of the Individual  
Lecture 12 - Module 3 - Unit 2 - Challenges to Dignity and the Human Rights Approach in Bioethics  
Lecture 13 - Module 3 - Unit 3 - Problems in Resource Allocation  
Lecture 14 - Module 3 - Unit 4 - End of Life Issues  
Lecture 15 - Module 3 - Unit 5 - Ethics of Care, Gender Concerns and Feminist Perspectives  
Lecture 16 - Module 4 - Unit 1 - Technological Advancements and Bioethical concerns  
Lecture 17 - Module 4 - UNIT 2 - The challenges posed by Genetic Engineering and Gener Therapy Not Started  
Lecture 18 - Module 4 - Unit 3 - The challenges posed by Epidemic Threats  
Lecture 19 - Module 4 - Unit 4 - Religious Traditions and Contemporary Bioethics  
Lecture 20 - Module 4 - Unit 5 - Towards a Phronetic Bioethics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Technical English for Engineers

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction to the Course
- Lecture 2 - Parts of Speech - Nouns
- Lecture 3 - Parts of Speech - Preposition and Noun Phrases
- Lecture 4 - Countable and Uncountable Nouns
- Lecture 5 - Reading (Identifying main ideas) and Listening
- Lecture 6 - What is a Sentence
- Lecture 7 - What is a Sentence (Continued...)
- Lecture 8 - Subject Verb Agreement
- Lecture 9 - Articles
- Lecture 10 - Verbs
- Lecture 11 - Comparatives
- Lecture 12 - Modals and Voices
- Lecture 13 - Passive Voice (Continued...)
- Lecture 14 - Tenses
- Lecture 15 - Tenses (Continued...)
- Lecture 16 - Effective Speaking
- Lecture 17 - Formal Presentation
- Lecture 18 - Punctuation
- Lecture 19 - Punctuation (Continued...)
- Lecture 20 - Reading - SQW3R Method and Note-taking
- Lecture 21 - Phrasal Verbs
- Lecture 22 - Collocation
- Lecture 23 - Word Formation
- Lecture 24 - Understanding the text organization
- Lecture 25 - Writing Emails
- Lecture 26 - Academic Writing and Linking Words
- Lecture 27 - Paragraph Writing
- Lecture 28 - Describing/Explaining Processes
- Lecture 29 - Essay Writing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Essay Writing and Formal Letters
- Lecture 31 - Letter Writing and Usage
- Lecture 32 - Understanding the Mechanics of Publishable Essays
- Lecture 33 - Writing Publishable Essays and Usage
- Lecture 34 - Report
- Lecture 35 - Everyday Usage
- Lecture 36 - Writing a Statement of Purpose
- Lecture 37 - CV/Resume and Cover Letters
- Lecture 38 - Conclusion



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Health Research Fundamentals

Subject Co-ordinator - Dr. P GaneshKumar, Dr. P. Manickam, Dr. Prabhdeep Kaur, Dr. Tarun Bhatnagar, Dr. R Ram

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Health Research
- Lecture 2 - Formulating research question, hypothesis and objectives
- Lecture 3 - Literature review
- Lecture 4 - Measurement of disease frequency
- Lecture 5 - Descriptive study designs
- Lecture 6 - Analytical study designs
- Lecture 7 - Experimental study designs
- Lecture 8 - Validity of epidemiological studies
- Lecture 9 - Qualitative research methods
- Lecture 10 - Measurement of study variables
- Lecture 11 - Sampling methods
- Lecture 12 - Calculating sample size and power
- Lecture 13 - Selection of study population
- Lecture 14 - Study plan and project management
- Lecture 15 - Designing data collection tools
- Lecture 16 - Principles of data collection
- Lecture 17 - Data management
- Lecture 18 - Overview of data analysis
- Lecture 19 - Ethical framework for health research
- Lecture 20 - Conducting clinical trials
- Lecture 21 - Preparing a concept paper for research projects
- Lecture 22 - Elements of a protocol for research studies

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:American Literature and Culture

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1 - Introduction to the course on American Literature and Culture  
Lecture 2 - Lecture 2 - Henry James  
Lecture 3 - Lecture 3 - Henry James  
Lecture 4 - Lecture 4 - Henry James  
Lecture 5 - Lecture 5 - Henry James  
Lecture 6 - Lecture 6 - Henry James  
Lecture 7 - Lecture 7 - Henry James  
Lecture 8 - Lecture 8a - Henry James  
Lecture 9 - Lecture 8b - Henry James  
Lecture 10 - Lecture 9a - Theodore Dreiser  
Lecture 11 - Lecture 9b - Theodore Dreiser  
Lecture 12 - Lecture 10a - Theodore Dreiser  
Lecture 13 - Lecture 10b - Theodore Dreiser  
Lecture 14 - Lecture 10c - Theodore Dreiser  
Lecture 15 - Lecture 11 - Herman Melville  
Lecture 16 - Lecture 12 - Herman Melville  
Lecture 17 - Lecture 12a - Herman Melville  
Lecture 18 - Lecture 13a - Short Story  
Lecture 19 - Lecture 13b - Flannery O'Connor  
Lecture 20 - Lecture 14 - Flannery O'Connor  
Lecture 21 - Lecture 15 - Ernest Hemingway  
Lecture 22 - Lecture 16 - Ernest Hemingway  
Lecture 23 - Lecture 17 - Ernest Hemingway  
Lecture 24 - Lecture 18 - Ernest Hemingway  
Lecture 25 - Lecture 19 - Ernest Hemingway  
Lecture 26 - Lecture 20 - F. Scott Fitzgerald  
Lecture 27 - Lecture 21 - Romanticism  
Lecture 28 - Lecture 22 - Edgar Allen Poe  
Lecture 29 - Lecture 23 - American Drama

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Lecture 24 - Lillian Hellman  
Lecture 31 - Lecture 25 - Lillian Hellman  
Lecture 32 - Lecture 26 - Lillian Hellman  
Lecture 33 - Lecture 27 - Lillian Hellman  
Lecture 34 - Lecture 28 - Arthur Miller  
Lecture 35 - Lecture 29 - Arthur Miller  
Lecture 36 - Lecture 30 - Arthur Miller  
Lecture 37 - Lecture 31 - Arthur Miller  
Lecture 38 - Lecture 32 - Eugene O'Neill  
Lecture 39 - Lecture 33 - Eugene O'Neill  
Lecture 40 - Lecture 34 - Edith Wharton  
Lecture 41 - Lecture 35 - Edith Wharton  
Lecture 42 - Lecture 36 - Edith Wharton  
Lecture 43 - Lecture 37 - Edith Wharton  
Lecture 44 - Lecture 38 - Christopher Hitchens  
Lecture 45 - Lecture 39 - Hart Crane

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Economics of IPR

Subject Co-ordinator - Prof.Nalin Bharti

Co-ordinating Institute - IIT - Patna

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to IPR - Historical Overview from GATT to WTO

Lecture 2 - Why IPR Matters

Lecture 3 - Application of IPR in the Global World

Lecture 4 - Economic Perspective on IPR

Lecture 5 - Types of IPR Its introduction and objectives

Lecture 6 - Globalization of IPR

Lecture 7 - Economics of Copyright

Lecture 8 - Economics of Patent

Lecture 9 - Economics of Trademarks

Lecture 10 - Economics of Trade Secrets

Lecture 11 - Economics of Industrial Design

Lecture 12 - Issues in Contemporary Patent

Lecture 13 - Critical Issues in Copyright and Related Rights

Lecture 14 - Issues in Traditional Knowledge

Lecture 15 - Plant Varieties Protection and Biotechnology

Lecture 16 - Commercialization of Intellectual Property and Unfair Competition

Lecture 17 - Disputes related to Patent in WTO

Lecture 18 - Disputes related to copyright, etc. in WTO

Lecture 19 - IP and Development

Lecture 20 - Summarizing the course

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Applied Linguistics

Subject Co-ordinator - Prof. Rajesh Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Language
- Lecture 3 - Language in Society
- Lecture 4 - Acquisition
- Lecture 5 - Vocal Apparatus
- Lecture 6 - Places and Manners of Articulation
- Lecture 7 - Word Formation Phonotactic Rules
- Lecture 8 - Rules of Word Formation
- Lecture 9 - Sentences- an introduction
- Lecture 10 - Components of a Sentence
- Lecture 11 - Grammaticality and Acceptability
- Lecture 12 - Subject and Verb in a sentence
- Lecture 13 - Sentence
- Lecture 14 - Application of linguistic structure in social theory
- Lecture 15 - Second Language Acquisition
- Lecture 16 - Language and Multilingualism
- Lecture 17 - Language, Culture and Cognition
- Lecture 18 - Classroom discussion on Language, Culture and Cognition
- Lecture 19 - Language and Gender
- Lecture 20 - Language, Media and Network society
- Lecture 21 - Language Teaching
- Lecture 22 - Language Teaching Methods - I
- Lecture 23 - Language Teaching Methods - II
- Lecture 24 - Materials and Assessment in Teaching Language
- Lecture 25 - Disability and Learning Disorder
- Lecture 26 - Language Development and Specific Difficulties
- Lecture 27 - Dyslexia
- Lecture 28 - Specific Learning Difficulties
- Lecture 29 - Language and Computers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Language, Computers and Applications
- Lecture 31 - Language and Education
- Lecture 32 - Language and Application

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:English Language for Competitive Exams

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Reading Comprehension?
- Lecture 2 - Literature and reading comprehension
- Lecture 3 - Scientific passages and reading comprehension
- Lecture 4 - Analyze a task - 1
- Lecture 5 - Analyze a task - 2
- Lecture 6 - Reading - Comprehending Scientific Passages
- Lecture 7 - Comprehending Literary Passages - 1
- Lecture 8 - Comprehending Literary Passages - 2
- Lecture 9 - Academic writing
- Lecture 10 - Text - Completion
- Lecture 11 - Analogy
- Lecture 12 - Writing
- Lecture 13 - Writing
- Lecture 14 - Listening
- Lecture 15 - Writing
- Lecture 16 - Listening for Specific Information
- Lecture 17 - Reading Comprehension
- Lecture 18 - (Lecture Missing)
- Lecture 19 - Reading Comprehension
- Lecture 20 - Verbal Analogy and Vocabulary
- Lecture 21 - Vocabulary
- Lecture 22 - Vocabulary
- Lecture 23 - Vocabulary
- Lecture 24 - Vocabulary
- Lecture 25 - Vocabulary
- Lecture 26 - Vocabulary
- Lecture 27 - Text Completion
- Lecture 28 - Text Completion (Continued...)
- Lecture 29 - Analogy and Text Completion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Text Completion (Continued...)
- Lecture 31 - Text Completion - Part 4
- Lecture 32 - Names and Vocabulary
- Lecture 33 - Latin Terms in English Vocabulary
- Lecture 34 - Greek Mythology and Vocabulary
- Lecture 35 - Green Names and Foreign Words
- Lecture 36 - Vocabulary Practice Test
- Lecture 37 - Analogy
- Lecture 38 - Foreign Words and Names
- Lecture 39 - Suffixes and Reference Words
- Lecture 40 - Uncommon Words - Part 1
- Lecture 41 - Uncommon Words - Part 2
- Lecture 42 - More Uncommon Words
- Lecture 43 - More Uncommon Words (Continued...)
- Lecture 44 - Vocabulary and Analogy
- Lecture 45 - Vocabulary
- Lecture 46 - Subject-Verb Agreement and Sentence Correction
- Lecture 47 - Sentence Correction
- Lecture 48 - Conditional Clauses, Prepositions and Reported Speech
- Lecture 49 - Clauses
- Lecture 50 - Modifiers, Active Voice and Passive Voice
- Lecture 51 - Gerunds and Infinitives
- Lecture 52 - Coordinators and Conjunctions - Part 1
- Lecture 53 - Coordinators and Conjunctions - Part 2
- Lecture 54 - Grammar
- Lecture 55 - Grammar
- Lecture 56 - Punctuation
- Lecture 57 - Punctuation (Continued...)
- Lecture 58 - Revision - Vocabulary
- Lecture 59 - Revision - Subject verb agreement
- Lecture 60 - Read and Revise



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Ethics

Subject Co-ordinator - Dr. Sreekumar Nellickappilly

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Ethics and Morals
- Lecture 2 - Different Approaches to Ethics
- Lecture 3 - Historical Perspectives
- Lecture 4 - Medieval and Modern Moral Theories
- Lecture 5 - Socratic Framework in Moral Philosophy
- Lecture 6 - Eudaimonism to Divine Command
- Lecture 7 - Divine Command Theory and the Euthyphro Dilemma
- Lecture 8 - Different Types of Ethical Theory
- Lecture 9 - Thomas Hobbes
- Lecture 10 - Contractarianism
- Lecture 11 - Contractarianism and its Moral Implications
- Lecture 12 - Introduction to Deontological Approaches
- Lecture 13 - Kantian Deontologism
- Lecture 14 - Egoism and its Ethical Implications
- Lecture 15 - Motivational and Ethical Hedonism
- Lecture 16 - Utilitarianism and its Moral Position
- Lecture 17 - The Individual and the Whole
- Lecture 18 - Critique of Moral Absolutism
- Lecture 19 - Existentialism and Ethics
- Lecture 20 - Ethics in the Present Age

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:The Renaissance and Shakespeare

Subject Co-ordinator - Prof. Shormishtha Panja

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - The Renaissance An Introduction - Part-1

Lecture 2 - The Renaissance An Introduction - Part-2

Lecture 3 - Shakespeare's Life and Times

Lecture 4 - Shakespeare's, William Shakespeare The Merchant of Venice performance

Lecture 5 - Shakespeare's, William Shakespeare The Merchant of Venice Panel Discussion

Lecture 6 - Othello Part-1

Lecture 7 - Othello Part-2

Lecture 8 - Lecture on A Midsummer Night's Dream

Lecture 9 - A Midsummer Night's Dream Performance

Lecture 10 - A Midsummer Night's Dream Panel Discussion

Lecture 11 - Shakespeare's History Plays

Lecture 12 - Lecture on Macbeth

Lecture 13 - Shakespeare's Romances or The Last Plays

Lecture 14 - Twelfth Night

Lecture 15 - Whose Shakespeares?? Colonial Encounters/Post Colonial Negotiations

Lecture 16 - Global Shakespeare

Lecture 17 - Global Shakespeare (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Literature for Competitive Exams

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Overview of the History of English Literature
- Lecture 2 - An Overview of the History of English Literature (Continued...)
- Lecture 3 - Landmarks of the English literature
- Lecture 4 - The Novel
- Lecture 5 - Landmarks in the English History
- Lecture 6 - The Elizabethan Age
- Lecture 7 - The Elizabethan Period (Part 1)
- Lecture 8 - Key Figures of the Renaissance and the Elizabethan Age
- Lecture 9 - 17 and early 18th century landmark events and literature
- Lecture 10 - Literature and major events in 18 and 19 century
- Lecture 11 - 18 and 19 century European masters
- Lecture 12 - The English Poets
- Lecture 13 - The Romantic Period
- Lecture 14 - The English Romanticism
- Lecture 15 - The English Poets (Continued...)
- Lecture 16 - New Criticism
- Lecture 17 - The American Romanticism
- Lecture 18 - American Literature
- Lecture 19 - Henry James
- Lecture 20 - American literature
- Lecture 21 - The American Novel
- Lecture 22 - American Drama and Poetry
- Lecture 23 - American Drama
- Lecture 24 - American poets and Dramatists
- Lecture 25 - Practice Test (Continued...)
- Lecture 26 - Indian Writing in English
- Lecture 27 - Postcolonialism
- Lecture 28 - Asian American Writing
- Lecture 29 - South Asian Writing in English

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - World Literature
- Lecture 31 - World Literature (Continued...)
- Lecture 32 - Goethe Faust
- Lecture 33 - Goethe Faust (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:History of English Language and Literature

Subject Co-ordinator - Prof. Merin Simi Raj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Locating the Starting Points
- Lecture 3 - Old English period
- Lecture 4 - Middle English Period
- Lecture 5 - The Age of Chaucer
- Lecture 6 - Middle English period after Chaucer
- Lecture 7 - Middle English period after Chaucer
- Lecture 8 - The Development of English Language - Tracing the Origins and Early Influences
- Lecture 9 - The Development of English Language - Old English to Middle English
- Lecture 10 - Introducing the Elizabethan Era - The English Reformation
- Lecture 11 - The Elizabethan Age
- Lecture 12 - Elizabethan Age
- Lecture 13 - The Emergence of Elizabethan 'Romantic' Drama
- Lecture 14 - The University Wits
- Lecture 15 - The University Wits
- Lecture 16 - William Shakespeare
- Lecture 17 - William Shakespeare
- Lecture 18 - Elizabethan Theatre
- Lecture 19 - Elizabethan Poetry and Prose
- Lecture 20 - The Jacobean Age
- Lecture 21 - The Jacobean Age (Continued...)
- Lecture 22 - Jacobean Drama
- Lecture 23 - Did Women Have a Renaissance?
- Lecture 24 - The Caroline Period / The Age of Milton and The Interregnum
- Lecture 25 - The Caroline Period / The Age of Milton and The Interregnum (Continued...)
- Lecture 26 - The Age of Milton
- Lecture 27 - Changes in Language
- Lecture 28 - Early Modern English (Continued...)
- Lecture 29 - The Age of Restoration

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- Lecture 30 - The Age of Dryden
- Lecture 31 - The Restoration Drama
- Lecture 32 - The Age of Pope / The Augustan Age
- Lecture 33 - The Age of Pope
- Lecture 34 - The Age of Pope
- Lecture 35 - The Age of Pope Conclusion
- Lecture 36 - Scottish Enlightenment of the 18th Century
- Lecture 37 - The Age of Johnson (1745 - 1798)
- Lecture 38 - The Age of Johnson (Continued...)
- Lecture 39 - The Rise of the Novel
- Lecture 40 - The Rise of the Novel
- Lecture 41 - The Rise of the Novel (Continued...)
- Lecture 42 - The Rise of the Woman Writer in the 18th Century
- Lecture 43 - The Revival of Romance
- Lecture 44 - The Revival of Romance (Continued...)
- Lecture 45 - The Revival of Romance
- Lecture 46 - The Age of Romanticism
- Lecture 47 - The Age of Wordsworth
- Lecture 48 - Age of Wordsworth (Continued...)
- Lecture 49 - Age of Wordsworth (Continued...)
- Lecture 50 - Prose in the age of Romanticism
- Lecture 51 - Drama in the age of Romanticism
- Lecture 52 - Novel in the age of Romanticism
- Lecture 53 - Women writers in the Romantic age
- Lecture 54 - The Age of Tennyson
- Lecture 55 - The Age of Tennyson
- Lecture 56 - The Age of Tennyson
- Lecture 57 - The Age of Tennyson
- Lecture 58 - The Age of Tennyson
- Lecture 59 - Prose in the Victorian Age
- Lecture 60 - Drama in the Victorian Age
- Lecture 61 - Victorian Novel and the Late Victorian Period
- Lecture 62 - Towards Modernism
- Lecture 63 - Modernist Literature
- Lecture 64 - Modernist Poetry
- Lecture 65 - Modernist Prose and Fiction
- Lecture 66 - Post-1945

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Patent Drafting for Beginners

Subject Co-ordinator - Prof. Feroze Ali

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - PDB-What are Inventions?
- Lecture 2 - Background
- Lecture 3 - Field of Invention
- Lecture 4 - Prior Art
- Lecture 5 - Patent Classification
- Lecture 6 - Technical Advance
- Lecture 7 - What are not inventions
- Lecture 8 - Why People Invent
- Lecture 9 - How Inventions Look
- Lecture 10 - Where to Look for Inventions
- Lecture 11 - How to Catch an Invention
- Lecture 12 - Getting a working disclosure
- Lecture 13 - Searching with the disclosure
- Lecture 14 - Outcome of search
- Lecture 15 - What is a Patentability Search
- Lecture 16 - Reasons for Ordering a Patentability Search
- Lecture 17 - When a Patentability Search is Not Required
- Lecture 18 - How to Order a Patentability Search
- Lecture 19 - Limits of Patentability Search
- Lecture 20 - Patentability Search Report
- Lecture 21 - How to pitch an invention
- Lecture 22 - Identifying the inventive concept
- Lecture 23 - Problem Solution Statement
- Lecture 24 - Problem-Solution to Claim
- Lecture 25 - How to Search for a Granted Patent
- Lecture 26 - Provisions relating to claim
- Lecture 27 - Some Exceptions to patentability
- Lecture 28 - Structure of Claims
- Lecture 29 - Preamble

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transition
- Lecture 31 - Body
- Lecture 32 - Form and Punctuation of Claims
- Lecture 33 - Omnibus Claims
- Lecture 34 - Structural and Functional Definitions
- Lecture 35 - Cooperation
- Lecture 36 - Types of Claims
- Lecture 37 - Dependent claims
- Lecture 38 - Apparatus Claims
- Lecture 39 - Methods or Process Claims
- Lecture 40 - Claim Drafting Best Practices
- Lecture 41 - Claims Drafting What to Avoid
- Lecture 42 - How to Download Copy of Patent Specification
- Lecture 43 - Amendment to Claims
- Lecture 44 - Claim Analysis Combo Pen with Marker
- Lecture 45 - Introduction to Specification Drafting
- Lecture 46 - Enabling Disclosure
- Lecture 47 - Best method
- Lecture 48 - Parts of the specification
- Lecture 49 - Background and Summary
- Lecture 50 - Detailed description
- Lecture 51 - Parts of the Application
- Lecture 52 - Evolution of Patent Specifications
- Lecture 53 - Live Session



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Business English Communication

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Reading Comprehension - 1

Lecture 2 - Reading Comprehension - 2

Lecture 3 - Reading Comprehension - 3

Lecture 4 - Reading Comprehension - 4

Lecture 5 - Reading Comprehension - 5

Lecture 6 - Vocabulary - 1

Lecture 7 - Vocabulary - 2

Lecture 8 - Vocabulary - 3

Lecture 9 - Vocabulary - 4

Lecture 10 - Vocabulary - 5

Lecture 11 - Grammar (subject verb agreement)

Lecture 12 - Grammar (Tenses)

Lecture 13 - Grammar (Clauses, Gerund and Infinitives, Coordinating conjunctions )

Lecture 14 - Grammar (Prepositions, Reported Speech, Active Voice and Passive Voice)

Lecture 15 - Grammar (Punctuations and Types of sentences)

Lecture 16 - Writing (Emails and Memos)

Lecture 17 - Writing (Official letters and Presentation scripts)

Lecture 18 - Writing (Different business writing genres)

Lecture 19 - Writing (Business writing and vocabulary for specific situations)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Postmodernism in Literature

Subject Co-ordinator - Prof. Merin Simi Raj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction Part - 1
- Lecture 2 - Introduction Part - 2
- Lecture 3 - Introduction Part - 3
- Lecture 4 - The Genealogy of Postmodernism
- Lecture 5 - The Genealogy of Postmodernism
- Lecture 6 - The Death of the author and it's Postmodern implications
- Lecture 7 - The Death of the author and it's Postmodern implications (Continued...)
- Lecture 8 - The Death of the author and it's Postmodern implications (Continued...)
- Lecture 9 - What is an Author ?
- Lecture 10 - What is an Author ? (Continued...)
- Lecture 11 - Postmodern Theories and Frameworks
- Lecture 12 - Lyotard's Postmodern condition
- Lecture 13 - Lyotard's Postmodern condition
- Lecture 14 - Baudrillard,Hyperreality and Postmodern representations
- Lecture 15 - Baudrillard,Hyperreality and Postmodern representations (Continued...)
- Lecture 16 - Derrida,Deconstruction and Postmodern texts
- Lecture 17 - Derrida,Deconstruction and Postmodern texts (Continued...)
- Lecture 18 - Derrida,Deconstruction and Postmodern texts (Continued...)
- Lecture 19 - Intertextuality,Kristeva and the study of Postmodern Texts
- Lecture 20 - Postmodern Feminism
- Lecture 21 - Formulation of the Postmodern
- Lecture 22 - Minor Literature' and Postmodern Narratives
- Lecture 23 - Critiques of Postmodernism
- Lecture 24 - Critiques of Postmodernism
- Lecture 25 - Feminism and Postmodernism
- Lecture 26 - Situating the Postcolonial in the Postmodern
- Lecture 27 - Homi K.Bhabha
- Lecture 28 - Is the Post-in Postmodernism the Post-in Postcolonial?
- Lecture 29 - Can the Subaltern Speak?

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Reading Postmodern-Postcolonial Fiction
- Lecture 31 - Hyperreality in Delillo's Postmodernist Fiction
- Lecture 32 - The Garden of Forking Paths
- Lecture 33 - The Garden of Forking Paths
- Lecture 34 - Postmodern Fiction by women
- Lecture 35 - Postmodern Fiction by women
- Lecture 36 - Reading Postmodern Fiction
- Lecture 37 - Reading Postmodern Fiction
- Lecture 38 - Postmodern Writings
- Lecture 39 - Postmodern Writings
- Lecture 40 - Postmodern literature today

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Indian Fiction in English

Subject Co-ordinator - Prof. Merin Simi Raj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Indian Fiction in English - Introduction

Lecture 2 - Rushdie and Indian Writing

Lecture 3 - Situating 'fiction' in the history of Indian Writing in English

Lecture 4 - Indian Writing in English

Lecture 5 - Introducing Indian Fiction in English

Lecture 6 - The Critical Tradition of Indian Fiction in English

Lecture 7 - The rise of novel in regional languages

Lecture 8 - Rajmohan's Wife to Kanthapura

Lecture 9 - Kanthapura, Mythmaking and Gandhi

Lecture 10 - Mahatma and Indian novels in English

Lecture 11 - Waiting for the Mahatma - Part I

Lecture 12 - Waiting for the Mahatma - Part II

Lecture 13 - Indian Fiction in English

Lecture 14 - Heat and Dust

Lecture 15 - The Strange Case of Billy Biswas

Lecture 16 - Cry, the Peacock

Lecture 17 - Midnight's children

Lecture 18 - Reading Midnight's Children

Lecture 19 - Salman Rushdie in Indian Fiction in English

Lecture 20 - Midnight's Children

Lecture 21 - Zelaldinus

Lecture 22 - Trotter Nama

Lecture 23 - Shadow Lines

Lecture 24 - Reading the Shadow Lines

Lecture 25 - Caste in Indian English Fiction

Lecture 26 - Caste in Untouchable

Lecture 27 - Reading The God of Small Things - I

Lecture 28 - Reading The God of Small Things - II

Lecture 29 - Other Representations of Caste in IE fiction

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- Lecture 30 - All About H.Hatterr
- Lecture 31 - Rich Like Us
- Lecture 32 - Partition novels
- Lecture 33 - White Tiger
- Lecture 34 - Notes on the New Indian Novel in English
- Lecture 35 - Riot
- Lecture 36 - English, August by Upamanyu Chatterjee
- Lecture 37 - The Hungry Tide by Amitav Ghosh
- Lecture 38 - Remains of the Feast
- Lecture 39 - Writings in English from the Northeast
- Lecture 40 - The writings of Ruskin Bond
- Lecture 41 - Inheritance of Loss by Kiran Desai
- Lecture 42 - Indian Fiction in English - Positioning Literary Studies
- Lecture 43 - New Writings in Contemporary Indian Fiction in English
- Lecture 44 - Graphic Novel in India
- Lecture 45 - The city in Indian English Fiction
- Lecture 46 - Postcoloniality and its Challenges
- Lecture 47 - Commonwealth literature does not exist

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Cultural Studies

Subject Co-ordinator - Prof. Avishek Parui

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Course

Lecture 2 - Different Interpretations Of Culture (Marxism) Lecture 22 - Judith Butler - Gender Trouble V - Conclusion

Lecture 3 - Edward Said's Orientalism Lecture 23 - Judith Butler - Gender Trouble VI - Conclusion Lecture 3

Lecture 4 - Homi Bhabha's The Other Question Lecture 24 - Judith Butler - Gender Trouble VII - Conclusion Lecture

Lecture 5 - The Other Question (Continued...)

Lecture 6 - George Orwell's Shooting An Elephant - Part - I

Lecture 7 - George Orwell's Shooting An Elephant - Part - II

Lecture 8 - George Orwell's Shooting An Elephant - Part - III

Lecture 9 - The Post Modern Condition (Lyotard) - Part I

Lecture 10 - The Post Modern Condition (Lyotard) - Part II

Lecture 11 - The Post Modern Condition (Lyotard) - Part III

Lecture 12 - The Post Modern Condition (Lyotard) - Part IV

Lecture 13 - Fanon - Black Skin,White Masks - Part - I

Lecture 14 - Fanon - Black Skin,White Masks - Part - II

Lecture 15 - Fanon - Black Skin,White Masks - Part - III

Lecture 16 - Fanon - Black Skin,White Masks - Part - IV

Lecture 17 - Fanon - Black Skin,White Masks - Part - V

Lecture 18 - Judith Butler - Gender Trouble I

Lecture 19 - Judith Butler - Gender Trouble II

Lecture 20 - Judith Butler - Gender Trouble III

Lecture 21 - Judith Butler - Gender Trouble IV - Conclusion Lecture 1 - Parody To Politics

Lecture 22 - Judith Butler - Gender Trouble V - Conclusion Lecture 2 - Parody To Politics

Lecture 23 - Judith Butler - Gender Trouble VI - Conclusion Lecture 3 - Parody To Politics

Lecture 24 - Judith Butler - Gender Trouble VII - Conclusion Lecture 4 - Parody To Politics

Lecture 25 - Culture Studies

Lecture 26 - Hannah Arendt - The Human Condition 1

Lecture 27 - Hannah Arendt - The Human Condition 2

Lecture 28 - Hannah Arendt - The Human Condition 3

Lecture 29 - Foucault - What Is An Author 1

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- Lecture 30 - Foucault - What Is An Author 2
- Lecture 31 - Foucault - What Is An Author 3
- Lecture 32 - Foucault - What Is An Author 4
- Lecture 33 - Foucault - What Is An Author 5
- Lecture 34 - Foucault - What Is An Author 6
- Lecture 35 - Ian Hacking - The Social Construction Of What 1
- Lecture 36 - Ian Hacking - The Social Construction Of What 2
- Lecture 37 - Ian Hacking - The Social Construction Of What 3
- Lecture 38 - Ian Hacking - The Social Construction Of What 4
- Lecture 39 - Ian Hacking - The Social Construction Of What 5
- Lecture 40 - Bell Hooks- Understanding Patriarchy 1
- Lecture 41 - Bell Hooks- Understanding Patriarchy 2
- Lecture 42 - Bell Hooks- Understanding Patriarchy 3
- Lecture 43 - Bell Hooks- Understanding Patriarchy 4
- Lecture 44 - Bell Hooks- Understanding Patriarchy 5
- Lecture 45 - Bell Hooks- Understanding Patriarchy 6
- Lecture 46 - Introduction To Cultural Studies - Summary
- Lecture 47 - Dick Hebdige-Subculture The Meaning Of Style 1
- Lecture 48 - Dick Hebdige-Subculture The Meaning Of Style 2
- Lecture 49 - Dick Hebdige-Subculture The Meaning Of Style 3
- Lecture 50 - Dick Hebdige-Subculture The Meaning Of Style 4
- Lecture 51 - Catherine Belsey Critical Practice 1
- Lecture 52 - Catherine Belsey Critical Practice 2
- Lecture 53 - Catherine Belsey Critical Practice 3
- Lecture 54 - Stuart Hall - Questions On Cultural Identity 1
- Lecture 55 - Stuart Hall - Questions On Cultural Identity 2
- Lecture 56 - Slavoj Zizek - Welcome To The Desert Of The Real Ii
- Lecture 57 - Slavoj Zizek - Welcome To The Desert Of The Real Ii
- Lecture 58 - Introduction to Cultural Studies - Summary and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC: Intellectual Property

Subject Co-ordinator - Prof. Feroze Ali

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Week 1 summary
- Lecture 2 - An Introduction to Intellectual Property
- Lecture 3 - What are Rights?
- Lecture 4 - What is Property in IPR?
- Lecture 5 - Meaning of Intellectual in IPR
- Lecture 6 - Characteristics of IP
- Lecture 7 - Defining IPR
- Lecture 8 - Kinds of IPRs and their Duration
- Lecture 9 - Rights Granted by IP
- Lecture 10 - The Origin of Intellectual Property - Part 1
- Lecture 11 - The Origin of Intellectual Property - Part 2
- Lecture 12 - Growth of Intellectual Property
- Lecture 13 - Learning Intellectual Property
- Lecture 14 - Intangible Economy
- Lecture 15 - The traits Intangibility
- Lecture 16 - Policy Challenges in an Intangible Economy
- Lecture 17 - Novartis Case
- Lecture 18 - Novartis Standard
- Lecture 19 - Definition of Start-up
- Lecture 20 - Subject Matter
- Lecture 21 - Patents in India
- Lecture 22 - To file or not to file a patent
- Lecture 23 - When and how to file a patent
- Lecture 24 - Who can apply for a patent
- Lecture 25 - Requirements of a patent application
- Lecture 26 - Types of patent application
- Lecture 27 - Mercedes Benz TV Commercial Patents
- Lecture 28 - Patent Prosecution
- Lecture 29 - Patent Prosecution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rights, Assignment and Licenses - Part 1
- Lecture 31 - Rights, Assignment and Licenses - Part 2
- Lecture 32 - Opposition to Patents
- Lecture 33 - Infringement of Patent
- Lecture 34 - Defences to Patent Infringement
- Lecture 35 - Intellectual Property Appellate Board
- Lecture 36 - Declaratory Suits
- Lecture 37 - Limitations of Patent Rights - Compulsory License
- Lecture 38 - Limitations of Patent Rights - Govt Use
- Lecture 39 - Trade Marks
- Lecture 40 - Case Study - Frozen Desserts
- Lecture 41 - Amul Advertisement
- Lecture 42 - Kwality Wallâ s Advertisement
- Lecture 43 - International Arrangements
- Lecture 44 - Trade marks in India
- Lecture 45 - What can be protected?
- Lecture 46 - Registration of Trade Mark
- Lecture 47 - Rights and Defences
- Lecture 48 - Introduction to Copyright
- Lecture 49 - Origin and Evolution of Copyright
- Lecture 50 - Copyright in India
- Lecture 51 - Criteria of Protection
- Lecture 52 - Subject matter
- Lecture 53 - Rights and Infringement
- Lecture 54 - Educational Exceptions
- Lecture 55 - Confidential Information Introduction
- Lecture 56 - Confidential Information Requirements
- Lecture 57 - Geographical Indications
- Lecture 58 - Designs
- Lecture 59 - Enforcement of IP
- Lecture 60 - Infringement
- Lecture 61 - Remedies
- Lecture 62 - Alternate Dispute Resolution
- Lecture 63 - Compulsory Licenses
- Lecture 64 - Managing IP
- Lecture 65 - Case Study Dolby
- Lecture 66 - Case Study Disney
- Lecture 67 - Case Study AstraZeneca
- Lecture 68 - IP and Competition

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Valuing IP
- Lecture 70 - Universities and IP
- Lecture 71 - Publish or Patent
- Lecture 72 - Managing IP at Universities
- Lecture 73 - Indian Universities and Patents
- Lecture 74 - IP in Creative and Entertainment Industries
- Lecture 75 - Piracy in the Film Industry
- Lecture 76 - Government's Role in Fostering IP System
- Lecture 77 - Teaching Intellectual Property
- Lecture 78 - Q and A - Discussion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Short Fiction in Indian Literature

Subject Co-ordinator - Prof. Divya.A

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Plotting the Story world of In the Flood by Thakazhi Sivasankara Pillai
- Lecture 2 - Plotting the Story world of In the Flood by Thakazhi Sivasankara Pillai
- Lecture 3 - Narrative Patterns in In the Flood
- Lecture 4 - Narrative Patterns in In the Flood
- Lecture 5 - Narrative point of View and Setting in In the Flood
- Lecture 6 - Close reading Kamala Das Summer Vacation
- Lecture 7 - Close reading Kamala Das Summer Vacation
- Lecture 8 - Summer Vacation Overview
- Lecture 9 - Plotting Tagore's Story Kabuliwala (1892)
- Lecture 10 - Plotting Tagore's Story Kabuliwala
- Lecture 11 - Plotting the Spatiality of Tagore's Kabuliwala
- Lecture 12 - Plotting the spatiality of Tagore's Kabuliwala
- Lecture 13 - Realism, Gender in Tagore's Kabuliwala
- Lecture 14 - How to write an Effective Paragraph
- Lecture 15 - Plotting downfall in Khuswant Singh's Karma
- Lecture 16 - Plotting downfall in Khuswant Singh's Karma
- Lecture 17 - Narrative aspects in Khuswant Singh's Karma
- Lecture 18 - Khuswant Singh's Karma Overview
- Lecture 19 - Plotting Sundara Ramaswamy's Reflowering
- Lecture 20 - Reading the Plot for themes in Sundara Ramaswamy's Reflowering
- Lecture 21 - Reading the Plot for themes in Sundara Ramaswamy's Reflowering (Continued...)
- Lecture 22 - Narrative Devices in Sundara Ramaswamy's Reflowering
- Lecture 23 - Plotting Sundara Ramaswamy's Reflowering Overview
- Lecture 24 - Short Genre and Premchand's The Chess Players
- Lecture 25 - Short Story Genre and Premchand's The Chess Players
- Lecture 26 - Short Story Structure and Premchand's The Chess Players
- Lecture 27 - The Chess Players Overview
- Lecture 28 - Psychological Climax in Premchand's The Shroud
- Lecture 29 - Psychological Climax in Premchand's The Shroud (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Psychological Climax in Premchand's The Shroud (Continued...)
- Lecture 31 - Premchand's The Shroud
- Lecture 32 - The Shroud Overview
- Lecture 33 - Patriarchal Culture in A Kitchen in the Corner of the House - I
- Lecture 34 - Patriarchal Culture in A Kitchen in the Corner of the House - II
- Lecture 35 - Patriarchal Culture in Ambai's A Kitchen in the Corner of the House - I
- Lecture 36 - Patriarchal Culture in Ambai's A Kitchen in the Corner of the House - II
- Lecture 37 - Patriarchal Culture in Ambai's A Kitchen in the Corner of the House - III
- Lecture 38 - Catharsis in Mulk Raj Anand's The Price of Bananas - I
- Lecture 39 - Catharsis in Mulk Raj Anand's The Price of Bananas - II
- Lecture 40 - Catharsis in Mulk Raj Anand's The Price of Bananas - III
- Lecture 41 - Catharsis in Mulk Raj Anand's The Price of Bananas - Overview
- Lecture 42 - Short Fiction in Indian Literature - vignesh - 12
- Lecture 43 - Hidden Fractures in Ruskin Bond's The Blue Umbrella - II
- Lecture 44 - Hidden Fractures in Ruskin Bond's The Blue Umbrella - III
- Lecture 45 - Hidden Fractures in Ruskin Bond's The Blue Umbrella - Overview
- Lecture 46 - Plotting and Ideology in RK Narayan's A Horse and Two Goats - I
- Lecture 47 - Plotting and Ideology in RK Narayan's A Horse and Two Goats - Overview
- Lecture 48 - Plotting and Ideology in RK Narayan's A Horse and Two Goats - Overview
- Lecture 49 - Childhood anxiety at Play in Anita Desai's Games at Twilight - I
- Lecture 50 - Childhood anxiety at Play in Anita Desai's Games at Twilight - II
- Lecture 51 - Childhood anxiety at Play in Anita Desai's Games at Twilight - III
- Lecture 52 - Childhood anxiety at Play in Anita Desai's Games at Twilight - Overview
- Lecture 53 - Short Fiction In Indian Literature - Overview I
- Lecture 54 - Short Fiction In Indian Literature - Overview II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Time value of money-Concepts and Calculations

Subject Co-ordinator - Dr.Bikash Mohanty

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Interest Rate

Lecture 3 - Simple interest

Lecture 4 - Compounding techniques - I & II

Lecture 5 - Discrete annually compounding - I & II

Lecture 6 - Continuous compounding

Lecture 7 - Comparison of all compounding methods

Lecture 8 - Present value

Lecture 9 - Future Value

Lecture 10 - Annuities - I & II

Lecture 11 - Perpetuity

Lecture 12 - Amortization

Lecture 13 - Multiple cash flow - I & II

Lecture 14 - Valuation of bond - I & II

Lecture 15 - Valuation of ordinary shares

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Depreciation, Alternate Investment and Profitability

Subject Co-ordinator - Prof. Bikash Mohanty

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to course
- Lecture 2 - Introduction to depreciation and Straight line method
- Lecture 3 - Declining balance method
- Lecture 4 - Double-declining balance method
- Lecture 5 - Sum-of-the-digits method
- Lecture 6 - Sinking fund method and Repair provision method
- Lecture 7 - Accelerated cost recovery method - I
- Lecture 8 - Accelerated cost recovery method - II
- Lecture 9 - Introduction to alternate investment
- Lecture 10 - Introduction to alternate investment
- Lecture 11 - Present worth method
- Lecture 12 - Rate of return method
- Lecture 13 - Incremental rate of return
- Lecture 14 - Perpetuity method
- Lecture 15 - Minimum return as cost
- Lecture 16 - Introduction to profitability analysis and Payback period
- Lecture 17 - Return on investment
- Lecture 18 - Net Return
- Lecture 19 - Discounted cash flow - I
- Lecture 20 - Discounted cash flow - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Soft Skills

Subject Co-ordinator - Prof. Binod Mishra

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Soft Skills
- Lecture 2 - Aspects of Soft Skills
- Lecture 3 - Effective Communication Skills
- Lecture 4 - Classification of Communication
- Lecture 5 - Personality Development
- Lecture 6 - Positive Thinking
- Lecture 7 - Telephonic Communication Skills - Part I
- Lecture 8 - Telephonic Communication Skills - Part II
- Lecture 9 - Communicating Without Words
- Lecture 10 - Paralanguage
- Lecture 11 - Proxemics
- Lecture 12 - Haptics
- Lecture 13 - Meta-communication
- Lecture 14 - Listening Skills
- Lecture 15 - Types of Listening
- Lecture 16 - Negotiation Skills - I
- Lecture 17 - Negotiation Skills - II
- Lecture 18 - Culture as Communication
- Lecture 19 - Communicating across Cultures
- Lecture 20 - Organizational Communication
- Lecture 21 - Communication Breakdown - Part I
- Lecture 22 - Communication Breakdown - Part II
- Lecture 23 - Advanced Writing Skills
- Lecture 24 - Principles of Business Writing
- Lecture 25 - Types of Business Writing - Part I
- Lecture 26 - Types of Business Writing - Part II
- Lecture 27 - Business Letters
- Lecture 28 - Business Letters
- Lecture 29 - Types of Business Letters - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Types of Business Letters - Part II
- Lecture 31 - Report Writing
- Lecture 32 - Types of Reports
- Lecture 33 - Strategies for Report Writing - Part I
- Lecture 34 - Strategies for Report Writing - Part II
- Lecture 35 - Evaluation and Organization of Data
- Lecture 36 - Structure of Reports - Part I
- Lecture 37 - Structure of Reports - Part II
- Lecture 38 - Report Style - Part I
- Lecture 39 - Report Style - Part II
- Lecture 40 - Group Communication
- Lecture 41 - Leadership Skills
- Lecture 42 - Group Discussion - Part I
- Lecture 43 - Group Discussion - Part II
- Lecture 44 - Meeting Management
- Lecture 45 - Adaptability and Work Ethics
- Lecture 46 - Advanced Speaking Skills
- Lecture 47 - Oral Presentations, Speeches, and Debates
- Lecture 48 - Combating Nervousness
- Lecture 49 - Patterns and Methods of Presentation
- Lecture 50 - Oral Presentation
- Lecture 51 - Making Effective Presentations
- Lecture 52 - Speeches for Various Occasions
- Lecture 53 - Interviews
- Lecture 54 - Planning and Preparation - Part I
- Lecture 55 - Planning and Preparation - Part II
- Lecture 56 - Drafting an Effective Resum 
- Lecture 57 - Facing Job Interviews - Part I
- Lecture 58 - Facing Job Interviews - Part II
- Lecture 59 - Emotional Intelligence and Critical Thinking
- Lecture 60 - Applied Grammar



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Sociology of Science

Subject Co-ordinator - Dr. Aninday Jayant Mishra

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sociology
- Lecture 2 - Sociology
- Lecture 3 - History of Science
- Lecture 4 - HSS in Technology Institutes
- Lecture 5 - HSS in Technology Institutes
- Lecture 6 - Ethos of Science - I
- Lecture 7 - Ethos of Science - II
- Lecture 8 - Science and Economy of 17th Century England
- Lecture 9 - Matthew Effect - Part 1
- Lecture 10 - Matthew Effect - Part 2
- Lecture 11 - Matthew Effect - Part 3
- Lecture 12 - Thomas Kuhn - Part 1
- Lecture 13 - Thomas Kuhn - Part 2
- Lecture 14 - Karl Popper - Part 1
- Lecture 15 - Karl Popper - Part 2
- Lecture 16 - Scientist as Indexical Reasoner - Part 1
- Lecture 17 - Scientist as Indexical Reasoner - Part 2
- Lecture 18 - Science technology and Colonial Power - Part 1
- Lecture 19 - Science Technology and Colonial Power - Part 2
- Lecture 20 - Large Community but Few Peers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC: Perspectives on Neurolinguistic

Subject Co-ordinator - Prof. Smita Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Scope of Neurolinguistic Programming
- Lecture 3 - NLP Communicating Model
- Lecture 4 - NLP Filters
- Lecture 5 - Causes and Effect
- Lecture 6 - Four Pillars of NLP
- Lecture 7 - Sensory Acuity
- Lecture 8 - Rapport
- Lecture 9 - Flexibility
- Lecture 10 - Useful NLP Techniques
- Lecture 11 - Presuppositions of NLP
- Lecture 12 - Four Stages of Competence
- Lecture 13 - Metacognition
- Lecture 14 - Outcome and Ecology
- Lecture 15 - Introducing Frames
- Lecture 16 - Negotiation
- Lecture 17 - Persuasion
- Lecture 18 - Emotionality
- Lecture 19 - Stage Fear - I
- Lecture 20 - Stage Fear - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Managerial Accounting

Subject Co-ordinator - Dr. Varadraj Bapat

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Management Accounting
- Lecture 2 - Double Entry System, Forms of Organisation
- Lecture 3 - Financial Statements
- Lecture 4 - Balance Sheet
- Lecture 5 - Profit and Loss Account
- Lecture 6 - Company Account
- Lecture 7 - Accounting Concepts, Standards, IFRS
- Lecture 8 - Depreciation, Inventory, Goodwill
- Lecture 9 - Inventory Valuation, Cash Flow
- Lecture 10 - Cash Flow Statement Cases
- Lecture 11 - Cash Flow Statement Cases
- Lecture 12 - Cash Flow Statement Cases-Part II
- Lecture 13 - Fund Flow Statement Cases
- Lecture 14 - Common-size, Comparative Statement Analysis
- Lecture 15 - Ratio Analysis
- Lecture 16 - Financial Statements Analysis
- Lecture 17 - Comparative, Common-size and Ratio Analysis
- Lecture 18 - Financial Statements Analysis - Colgate Palmolive Case
- Lecture 19 - Financial Statements Analysis - Dabur India Case
- Lecture 20 - Types of Costs
- Lecture 21 - Accounting for Costs
- Lecture 22 - Cost Allocation, Absorption
- Lecture 23 - Job and Process Accounting
- Lecture 24 - Job and Process Accounting including cost sheet and equivalent production
- Lecture 25 - Equivalent production and Activity Based Costing
- Lecture 26 - Activity Based Costing and Management
- Lecture 27 - Cost Volume Profit Analysis
- Lecture 28 - Relevant and Sunk Cost in Decision Making
- Lecture 29 - New Product, Shut Down and Joint Products

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Budget and Budgetary control
- Lecture 31 - Budgeting and Standard Costing
- Lecture 32 - Standard Costing - Material, Labour and Overhead Variances
- Lecture 33 - Standard Costing - Mix, Yield, Sales and Fixed Overhead Variances
- Lecture 34 - Standard Costing - Mix, Yield and Fixed Overhead Variances
- Lecture 35 - Cost Volume Profit and Break-Even Point Analysis
- Lecture 36 - Cost Volume Profit Analysis - Cost Indifference Point and Leverage
- Lecture 37 - Cash Flow Advanced Cases
- Lecture 38 - Cash Flow Advanced Cases-Part II
- Lecture 39 - Financial Statements Analysis Advanced
- Lecture 40 - Financial Statement- Forecasting and Valuation - Dabur Case
- Lecture 41 - Financial Statement- Forecasting and use of Adjusted data - Pfizer and Merck Case

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Managerial Economics

Subject Co-ordinator - Dr. Trupti Mishra

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Managerial Economics
- Lecture 2 - Introduction to Managerial Economics (Continued...)
- Lecture 3 - Introduction to Managerial Economics (Continued...)
- Lecture 4 - Basic Tools of Economic Analysis and Optimization Techniques
- Lecture 5 - Basic Tools of Economic Analysis and Optimization Techniques (Continued...)
- Lecture 6 - Basic Tools of Economic Analysis and Optimization Techniques (Continued...)
- Lecture 7 - Basic Tools of Economic Analysis and Optimization Techniques (Continued...)
- Lecture 8 - Theory of Demand
- Lecture 9 - Theory of Demand (Continued...)
- Lecture 10 - Theory of Demand (Continued...)
- Lecture 11 - Theory of Demand (Continued...)
- Lecture 12 - Consumer Behaviour
- Lecture 13 - Consumer Behaviour (Continued...)
- Lecture 14 - Elasticity of Supply
- Lecture 15 - Demand Forecasting
- Lecture 16 - Demand Forecasting (Continued...)
- Lecture 17 - Theory of Production
- Lecture 18 - Theory of Production (Continued...)
- Lecture 19 - Theory of Production (Continued...)
- Lecture 20 - Theory of Cost
- Lecture 21 - Theory of Cost (Continued...)
- Lecture 22 - Theory of Cost (Continued...)
- Lecture 23 - Theory of Cost (Continued...)
- Lecture 24 - Theory of Market
- Lecture 25 - Perfect Competition
- Lecture 26 - Perfect Competition (Continued...)
- Lecture 27 - Monopoly
- Lecture 28 - Monopoly (Continued...)
- Lecture 29 - Monopoly (Continued...)

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- Lecture 30 - Monopolistic
- Lecture 31 - Oligopoly
- Lecture 32 - Oligopoly (Continued...)
- Lecture 33 - Oligopoly (Continued...)
- Lecture 34 - Oligopoly (Continued...)
- Lecture 35 - Oligopoly and Game Theory
- Lecture 36 - Oligopoly and Game Theory (Continued...)
- Lecture 37 - Game Theory / Product Pricing
- Lecture 38 - Product Pricing
- Lecture 39 - Product Pricing (Continued...)
- Lecture 40 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Organisation Management

Subject Co-ordinator - Prof. Vinayshil Gautam

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Organization Management, Nature, Scope and Complexity
- Lecture 2 - Longitudinal thinking and legacy factor
- Lecture 3 - Longitudinal thinking and legacy factor
- Lecture 4 - Longitudinal thinking and legacy factor
- Lecture 5 - Theory and majors schools of Thought and Framework of Organizational Analysis
- Lecture 6 - Theory and majors schools of thought and framework of organizational analysis (Continued...)
- Lecture 7 - Theory and majors schools of thought and framework of organizational analysis (Continued...)
- Lecture 8 - Systems contingency approach to organization theory and practice; techniques of organizational di
- Lecture 9 - Systems contingency approach to organization theory and practice; techniques of organizational di
- Lecture 10 - Systems contingency approach to organization theory and practice; techniques of organizational d
- Lecture 11 - Theory of organizational structures - nature and consequence of structure
- Lecture 12 - Theory of organizational structures - nature and consequence of structure (Continued...)
- Lecture 13 - Socio-culture dimension of work and behavior
- Lecture 14 - Socio-culture dimension of work and behavior (Continued...)
- Lecture 15 - Socio-culture dimension of work and behavior (Continued...)
- Lecture 16 - Impact of environment and cultural variables on organization structure & style
- Lecture 17 - Impact of environment and cultural variables on organization structure & style (Continued...)
- Lecture 18 - Impact of environment and cultural variables on organization structure & style (Continued...)
- Lecture 19 - Organization Change and Organisation Development
- Lecture 20 - Organization Change and Organisation Development (Continued...)
- Lecture 21 - Intervention strategies for organization development - individual, Group and Interpersonal Inter
- Lecture 22 - Intervention strategies for organization development - individual, Group & interpersonal interve
- Lecture 23 - Intervention strategies for organization development - individual, Group & interpersonal interve
- Lecture 24 - Total System Intervention & Stabilizing Change Management by Objectives
- Lecture 25 - Total System Intervention & Stabilizing Change Management by Objectives (Continued...)
- Lecture 26 - Total System Intervention & Stabilizing Change Management by Objectives (Continued...)
- Lecture 27 - Nature of Organisational Processes
- Lecture 28 - Nature of Organisational Processes (Continued...)
- Lecture 29 - Nature of Organisational Processes (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Environmental analysis Techniques and impact for organizational growth
- Lecture 31 - Environmental analysis Techniques and impact for organizational growth (Continued...)
- Lecture 32 - Environmental analysis Techniques and impact for organizational growth (Continued...)
- Lecture 33 - Issues of Mechnisation, Automation and Computerisation
- Lecture 34 - Issues of Mechnisation, Automation and Computerisation (Continued...)
- Lecture 35 - Organisation Interdependence
- Lecture 36 - Organisation Interdependence (Continued...)
- Lecture 37 - Organisation Interdependence (Continued...)
- Lecture 38 - Organisation Evaluation
- Lecture 39 - Organisation Evaluation (Continued...)
- Lecture 40 - Organisation Evaluation (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Organisation of Engineering Systems and Human Resources Management

Subject Co-ordinator - Prof. Vinayshil Gautam

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the subject and the course

Lecture 2 - Understanding organizations

Lecture 3 - Understanding organizations

Lecture 4 - Concerns of organising engineering business and systems

Lecture 5 - Concerns of organising engineering business and systems (Continued...)

Lecture 6 - Concerns of organising engineering business and systems (Continued...)

Lecture 7 - Structure and process issues in running organisations

Lecture 8 - Structure and process issues in running organisations (Continued...)

Lecture 9 - Design issues in running organisations

Lecture 10 - Design issues in running organisations (Continued...)

Lecture 11 - Operating organizations

Lecture 12 - Operating organizations (Continued...)

Lecture 13 - Operating organizations (Continued...)

Lecture 14 - Cybernetics and systems framework

Lecture 15 - Cybernetics and systems framework (Continued...)

Lecture 16 - Socio-technical systems

Lecture 17 - Socio-technical systems (Continued...)

Lecture 18 - Socio-technical systems (Continued...)

Lecture 19 - Dealing with efficiency and excellence

Lecture 20 - Dealing with efficiency and excellence (Continued...)

Lecture 21 - Dealing with efficiency and excellence (Continued...)

Lecture 22 - Man-machine relationship

Lecture 23 - Man-machine relationship (Continued...)

Lecture 24 - Longitudinal Thinking

Lecture 25 - Longitudinal Thinking (Continued...)

Lecture 26 - Concerns of recruitment, selection, skill formation and redeployment

Lecture 27 - Concerns of recruitment, selection, skill formation and redeployment (Continued...)

Lecture 28 - Concerns of recruitment, selection, skill formation and redeployment (Continued...)

Lecture 29 - Developing teams and leadership

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Developing teams and leadership (Continued...)
- Lecture 31 - Understanding motivation
- Lecture 32 - Understanding motivation (Continued...)
- Lecture 33 - Elements of human resources planning
- Lecture 34 - Elements of human resources planning (Continued...)
- Lecture 35 - Elements of human resources planning (Continued...)
- Lecture 36 - Indian Industrial Law and managing industrial
- Lecture 37 - Indian Industrial Law and managing industrial (Continued...)
- Lecture 38 - Indian Industrial Law and managing industrial (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Economic Growth and Development

Subject Co-ordinator - Prof. Rajshree Bedamatta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concepts of Economic Growth and Development
- Lecture 2 - Structural features of developed and underdeveloped countries
- Lecture 3 - The Global North and the Global South
- Lecture 4 - Growth versus Development - some indices of economic development
- Lecture 5 - Modern Economic Growth
- Lecture 6 - Strategies of economic development and growth - I
- Lecture 7 - Strategies of economic development and growth - II
- Lecture 8 - Strategies of economic development and growth - III
- Lecture 9 - Strategies of economic development and growth - IV
- Lecture 10 - Strategies of economic development and growth - V
- Lecture 11 - Strategies of economic development and growth - VI
- Lecture 12 - Growth and Inequality
- Lecture 13 - Economic Growth and Public Support
- Lecture 14 - Measures of Inequality
- Lecture 15 - Introduction to Human Development-Putting People First
- Lecture 16 - The Human Development and Capability Approach
- Lecture 17 - Utilitarianism, Basic Needs Approach and the Capability Approach
- Lecture 18 - Measuring Human Development - I
- Lecture 19 - Measuring Human Development - II
- Lecture 20 - Other Human Development Indices
- Lecture 21 - Multidimensional Poverty, MDGs and SDGs
- Lecture 22 - Gender mainstreaming and Gender budgeting
- Lecture 23 - In Conclusion

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Strategic Marketing - Contemporary Issues

Subject Co-ordinator - Prof. Jayanta Chatterjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Strategic Marketing  
Lecture 2 - Strategic Marketing  
Lecture 3 - Strategic Marketing  
Lecture 4 - Strategic Marketing  
Lecture 5 - Strategic Marketing  
Lecture 6 - Strategic Marketing  
Lecture 7 - Strategic Marketing  
Lecture 8 - Strategic Marketing  
Lecture 9 - Strategic Marketing  
Lecture 10 - Strategic Marketing  
Lecture 11 - Strategic Marketing  
Lecture 12 - Strategic Marketing  
Lecture 13 - Strategic Marketing  
Lecture 14 - Strategic Marketing  
Lecture 15 - Strategic Marketing  
Lecture 16 - Strategic Marketing  
Lecture 17 - Strategic Marketing  
Lecture 18 - Strategic Marketing  
Lecture 19 - Strategic Marketing  
Lecture 20 - Strategic Marketing  
Lecture 21 - Strategic Marketing  
Lecture 22 - Strategic Marketing  
Lecture 23 - Strategic Marketing  
Lecture 24 - Strategic Marketing  
Lecture 25 - Strategic Marketing  
Lecture 26 - Strategic Marketing  
Lecture 27 - Strategic Marketing  
Lecture 28 - Strategic Marketing  
Lecture 29 - Strategic Marketing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Strategic Marketing  
Lecture 31 - Strategic Marketing  
Lecture 32 - Strategic Marketing  
Lecture 33 - Strategic Marketing  
Lecture 34 - Strategic Marketing  
Lecture 35 - Strategic Marketing  
Lecture 36 - Strategic Marketing  
Lecture 37 - Strategic Marketing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Strategy: An Introduction to game Theory

Subject Co-ordinator - Prof. Aditya K. Jagannatham, Dr. Vimal Kumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction Examples
- Lecture 2 - Prisonersâ Dilemma
- Lecture 3 - Best Response and Nash Equilibrium
- Lecture 4 - Another Example
- Lecture 5 - Dominant Strategies
- Lecture 6 - Stag Hunt â Coordination and Bank Runs
- Lecture 7 - Battle of Sexes and Multiple Nash Equilibria
- Lecture 8 - Tragedy of Commons
- Lecture 9 - Tragedy of Commons
- Lecture 10 - Cournot Duopoly
- Lecture 11 - Cournot Duopoly
- Lecture 12 - Mixed Strategies
- Lecture 13 - Battle of Sexes
- Lecture 14 - Battle of Sexes
- Lecture 15 - Paying Taxes
- Lecture 16 - Portfolio Management Game
- Lecture 17 - Rationality, Choice and Common Knowledge
- Lecture 18 - Iterated Elimination of Domination Strategies
- Lecture 19 - Auction
- Lecture 20 - Auction
- Lecture 21 - Traffic at Equilibrium and Braesss Paradox
- Lecture 22 - Linear Markets
- Lecture 23 - Extensive Form Games
- Lecture 24 - Game Tree and Information Sets
- Lecture 25 - Strategies in Extensive form Games
- Lecture 26 - Extensive form Games with Simultaneous Moves and Their Normal Form Representation
- Lecture 27 - Sub Game Perfect Equilibrium Part-I
- Lecture 28 - Sub Game Perfect Equilibrium Part-II
- Lecture 29 - The Art of War

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- Lecture 30 - Ultimatum Game
- Lecture 31 - Stackelberg Model
- Lecture 32 - Bayesian Games
- Lecture 33 - Bayesian Game
- Lecture 34 - Bayesian Nash Equilibrium
- Lecture 35 - Yield vs Fight
- Lecture 36 - Yield vs. Fight
- Lecture 37 - Bayesian Cournot Game
- Lecture 38 - Bayesian Games with mixed strategies
- Lecture 39 - Auctions
- Lecture 40 - Sealed Bid First Price Auction
- Lecture 41 - Expected Revenue
- Lecture 42 - Bayesian Second Price Auction
- Lecture 43 - Expected Revenue
- Lecture 44 - All Pay Auction
- Lecture 45 - A Hawk-Dove Game
- Lecture 46 - Evolutionary Biology
- Lecture 47 - Evolutionary stable Strategy (ESS)
- Lecture 48 - ESS and NE
- Lecture 49 - Repeated Games
- Lecture 50 - Finitely Repeated Game having Multiple Equilibriums
- Lecture 51 - Chain-Store Paradox
- Lecture 52 - Infinitely Repeated Game
- Lecture 53 - Non Cooperative Bargaining
- Lecture 54 - Axiomatic Bargaining
- Lecture 55 - Extensive Form Game with Incomplete Information
- Lecture 56 - Introduction to perfect Bayesian Equilibrium
- Lecture 57 - Obtaining PBE
- Lecture 58 - Gift Game

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Managing Services

Subject Co-ordinator - Prof. Jayanta Chatterjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Service?
- Lecture 2 - Evolving Service Markets
- Lecture 3 - The Service Customers
- Lecture 4 - Product Service Systems
- Lecture 5 - The Service Act
- Lecture 6 - Seamless Service
- Lecture 7 - Service Management Elements
- Lecture 8 - Core Vs. Supplementary Services
- Lecture 9 - Intangibility of Services
- Lecture 10 - Response to IHIP Challenges
- Lecture 11 - Process & Promotion
- Lecture 12 - Process Issues in Service
- Lecture 13 - Challenges of Services-1
- Lecture 14 - Service Uniqueness-2
- Lecture 15 - Consumer in the Services Flow-1
- Lecture 16 - Service Consumer Behavior-2
- Lecture 17 - Customer Co Creation of Services-1
- Lecture 18 - Customer Co Creation of Services-2
- Lecture 19 - Current Service Map to New Service Design
- Lecture 20 - Current Service Map to New Service Design.
- Lecture 21 - Case Study on Service Excellence-1
- Lecture 22 - Case Study on Service Excellence-2
- Lecture 23 - Services Excellence - Culture
- Lecture 24 - People in Services
- Lecture 25 - Position - Value Proposition-1
- Lecture 26 - Position - Value Proposition-2
- Lecture 27 - Branding Services-1
- Lecture 28 - Distributing Services
- Lecture 29 - Distributing Services

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Network of Services
- Lecture 31 - Strategy for Service Businesses
- Lecture 32 - Strategy for Service Businesses.
- Lecture 33 - Strategy for Service Businesses..
- Lecture 34 - Pricing - Basic Concepts
- Lecture 35 - Service Pricing
- Lecture 36 - Service Pricing.
- Lecture 37 - Service Quality-I
- Lecture 38 - Service Quality-II
- Lecture 39 - Service Quality-III
- Lecture 40 - Service Complaints and Recovery Strategies
- Lecture 41 - Loyalty - Relationship-I
- Lecture 42 - Loyalty - Relationship-II
- Lecture 43 - Strategy Canvas - Service Portfolio Analysis
- Lecture 44 - Loyalty - Relationship
- Lecture 45 - Managing Partner Relationships
- Lecture 46 - Global Service Ecosystem - Contemporary Issues
- Lecture 47 - Service Ecosystem - Service Innovation
- Lecture 48 - Services as Systems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Quantitative Finance

Subject Co-ordinator - Dr. Raghu Nandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 2 (Continued) - Part 1

Lecture 2 (Continued) - Part 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25

Lecture 26

Lecture 27

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Lecture 28  
Lecture 29  
Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44  
Lecture 45  
Lecture 46  
Lecture 47  
Lecture 48

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Marketing Management-I

Subject Co-ordinator - Prof. Jayanta Chatterjee, Dr. Shashi Shekhar Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Defining Marketing
- Lecture 2 - Core Concepts in Marketing
- Lecture 3 - Case Studies
- Lecture 4 - Marketing of Services
- Lecture 5 - Evolution of Marketing
- Lecture 6 - Contemporary Issues in Modern Marketing Practices
- Lecture 7 - Introduction to Competitor Analysis
- Lecture 8 - Marketing Objectives
- Lecture 9 - Strategy and Core Competency
- Lecture 10 - PESTEL Framework
- Lecture 11 - Competitive Analysis
- Lecture 12 - Case Study
- Lecture 13 - Introduction To Marketing Information System
- Lecture 14 - Components of a Marketing Information System
- Lecture 15 - Marketing Research Process
- Lecture 16 - MDP and MRP
- Lecture 17 - Exploratory Research
- Lecture 18 - Exploratory Research (Continued...)
- Lecture 19 - Causal Research
- Lecture 20 - Measurement and Scaling
- Lecture 21 - Questionnaire and Sampling
- Lecture 22 - Sampling Techniques
- Lecture 23 - Data Collection, Preparation and Analysis
- Lecture 24 - Multivariate Data Analysis
- Lecture 25 - Introduction to Consumer Behaviour and Need Recognition
- Lecture 26 - Information Search
- Lecture 27 - Socio-Cultural Influences on the Consumer Buying Process
- Lecture 28 - Psychological Influences on Consumer Buying Process
- Lecture 29 - Evaluation of Alternatives

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Purchase and Post Purchase Evaluation
- Lecture 31 - Service Consumption
- Lecture 32 - Structural Models of Attitude
- Lecture 33 - Industrial Buyer Behaviour - I
- Lecture 34 - Industrial Buyer Behaviour - II
- Lecture 35 - Industrial Marketing Program and Buying Process
- Lecture 36 - Three Dimension of Industrial Buyer Behaviour
- Lecture 37 - Consumer Decision-Making Process Revisited
- Lecture 38 - Identifying and Choosing Opportunities
- Lecture 39 - Market Segmentation - I
- Lecture 40 - Market Segmentation - II
- Lecture 41 - Segmentation and Targeting
- Lecture 42 - Segmentation and Post Segmentation Strategies
- Lecture 43 - Introduction to Marketing Strategy
- Lecture 44 - Positioning
- Lecture 45 - Segmentation and Targeting in B2B Market
- Lecture 46 - Crafting the Positioning and Branding Effectively

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Marketing Management-II

Subject Co-ordinator - Prof. Jayanta Chatterjee, Dr. Shashi Shekhar Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Brief Recap of Basic Concepts from Marketing Management 1 - I
- Lecture 2 - Brief Recap of Basic Concepts from Marketing Management 1 - II
- Lecture 3 - Product - An Important Component of the 4P
- Lecture 4 - New Product Development - I
- Lecture 5 - New Product Development - II
- Lecture 6 - Entrepreneurial Marketing
- Lecture 7 - Screening New Product Ideas
- Lecture 8 - Diffusion of Innovation
- Lecture 9 - Product Life Cycle and Introduction to Strategy
- Lecture 10 - Strategy for New Product Introduction - I
- Lecture 11 - Strategy for New Product Introduction - II
- Lecture 12 - Marketing Strategies for Different Stages in PLC
- Lecture 13 - Introduction to Brand, Branding and Brand Equity
- Lecture 14 - Strategic Brand Management Process
- Lecture 15 - Brand Building - I
- Lecture 16 - Brand Building - II
- Lecture 17 - Secondary Associations of a Brand and Advantages of Brand
- Lecture 18 - Measuring Brand Equity and other Brand Related Constructs
- Lecture 19 - Global Dimensions of Brands
- Lecture 20 - Brand Message and Advantage of Brand
- Lecture 21 - Branding Strategies - I
- Lecture 22 - Branding Strategies - II
- Lecture 23 - Strategic Brand Management
- Lecture 24 - Creating a Powerful Brand
- Lecture 25 - Introduction to Pricing
- Lecture 26 - Considerations for Setting the Price
- Lecture 27 - Determining the Demand and Cost Estimation
- Lecture 28 - Cost Estimation and Break Even Analysis
- Lecture 29 - Different Methods of Pricing - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Different Methods of Pricing - II
- Lecture 31 - Introduction to Distribution
- Lecture 32 - Types of Channel and their Dynamics
- Lecture 33 - Different Channel Options
- Lecture 34 - Integrated Marketing Channel
- Lecture 35 - Retailing and Wholesaling - I
- Lecture 36 - Retailing and Wholesaling - II
- Lecture 37 - Retail Marketing Management
- Lecture 38 - Choosing Retail Location and Layout
- Lecture 39 - Introduction to Integrated Marketing Communications
- Lecture 40 - Models of Communication
- Lecture 41 - Designing and Implementing Marketing Communication
- Lecture 42 - Digital Marketing Communication
- Lecture 43 - Introduction to Services Marketing
- Lecture 44 - Characteristics of Services
- Lecture 45 - Failure of Service and Solutions
- Lecture 46 - Service Quality
- Lecture 47 - Recap of Important Concepts - I
- Lecture 48 - Recap of Important Concepts - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Project Management

Subject Co-ordinator - Prof. Raghunandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Project Management
- Lecture 2 - Introduction to Agile Project Management
- Lecture 3 - Project Management Process for a Project - I
- Lecture 4 - Project Management Process for a Project - II
- Lecture 5 - Project Management Process for a Project - III
- Lecture 6 - Project Stakeholder and Risk Management
- Lecture 7 - Project Risk Management
- Lecture 8 - Solving Project Management Decision Problems
- Lecture 9 - Project Risk Management Analysis - I
- Lecture 10 - Project Risk Management Analysis - II
- Lecture 11 - Analytic Hierarchy Process for Project Selection
- Lecture 12 - Decision Tree Analysis
- Lecture 13 - Decision Tree Analysis and Risk Management
- Lecture 14 - Application of Utility Theory in Project Management - I
- Lecture 15 - Application of Utility Theory in Project Management - II
- Lecture 16 - Application of Utility Theory in Project Management - III
- Lecture 17 - Application of Utility Theory in Project Management - IV
- Lecture 18 - Other Criteria used for Project Selection
- Lecture 19 - Work Breakdown Structure in Project Management
- Lecture 20 - Activity Networks used in Project Management
- Lecture 21 - Concept of Critical Path Method (CPM) and Introduction to PERT
- Lecture 22 - Program Evaluation Review Technique (PERT) - I
- Lecture 23 - Program Evaluation Review Technique (PERT) - II
- Lecture 24 - Aspects and applications of CPM and PERT
- Lecture 25 - Concepts of a Project Life Cycle
- Lecture 26 - Discounting Rates and Project Pricing
- Lecture 27 - Concept of Forward Rates and Payback Time
- Lecture 28 - Important Example of PERT Network involving Probabilistic time and variance
- Lecture 29 - Scheduling and Crashing of Jobs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Resource levelling and resource constraint
- Lecture 31 - Detailed Explanation on Crashing of Jobs
- Lecture 32 - Project scheduling and Crashing - An Example
- Lecture 33 - Earned Value Management
- Lecture 34 - Key components of Earned Value Management
- Lecture 35 - Introduction to Graphical Evaluation and Review Technique (GERT) - I
- Lecture 36 - Graphical Evaluation and Review Technique (GERT) - II
- Lecture 37 - Graphical Evaluation and Review Technique (GERT) - III
- Lecture 38 - Graphical Evaluation and Review Technique (GERT) - IV
- Lecture 39 - Graphical Evaluation and Review Technique (GERT) - V
- Lecture 40 - Q-GERT

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Systems Engineering: Theory and Practice

Subject Co-ordinator - Dr. Deepu Philip

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Systems Engineering - What is, origin and examples
- Lecture 2 - Systems Engineering as a profession
- Lecture 3 - Systems Engineering Management (SEM)
- Lecture 4 - SEM - Lifecycle Integration
- Lecture 5 - Systems Engineering - Modern Version
- Lecture 6 - Overview of Systems Engineering Process
- Lecture 7 - System Design Process
- Lecture 8 - Systems View Point
- Lecture 9 - Complex Systems and System Development Process
- Lecture 10 - System Environments
- Lecture 11 - System Interfaces and Interactions
- Lecture 12 - System Development Process
- Lecture 13 - System Engineering Life Cycle Stages
- Lecture 14 - System Engineering Life Cycle Stages (Continued...)
- Lecture 15 - Requirement Analysis
- Lecture 16 - Requirement Analysis (Continued...)
- Lecture 17 - Unmanned Aerial Systems - A Systems Engineering Case Study
- Lecture 18 - Discussion about Systems Engineering and System Thinking with Professor Ian Angell
- Lecture 19 - Demonstration of real life systems by the Indian Army
- Lecture 20 - Need Analysis
- Lecture 21 - Functional Analysis
- Lecture 22 - Functional Flow Block Diagram
- Lecture 23 - Quality Function Deployment
- Lecture 24 - Timeline Analysis Sheet and Requirement Allocation Sheet
- Lecture 25 - Design Synthesis
- Lecture 26 - Design Synthesis (Continued...)
- Lecture 27 - Design Synthesis Tools

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Total Quality Management - I

Subject Co-ordinator - Prof. Raghunandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Quality and its Dimensions
- Lecture 2 - Quality and Variability
- Lecture 3 - History of Quality Control
- Lecture 4 - Management Aspects of Quality - I
- Lecture 5 - Management aspects of Quality - II
- Lecture 6 - Introduction to Concepts of Probability
- Lecture 7 - Six Sigma Overview
- Lecture 8 - DMAIC for Problem Solving
- Lecture 9 - DMAIC exmaples and DMADV
- Lecture 10 - Quality Improvement
- Lecture 11 - 7 Old Tools for Quality Assurance
- Lecture 12 - 7 New Tools for Quality Assurance
- Lecture 13 - CPM, PDPC and Introduction To House of Quality
- Lecture 14 - Building the House of Quality
- Lecture 15 - Introduction to Acceptance Sampling
- Lecture 16 - The Operating Characteristic Curve
- Lecture 17 - The OC curve and Sampling Plans
- Lecture 18 - Double Sampling
- Lecture 19 - Sequential Sampling, Military Standard and Introduction to R
- Lecture 20 - Basic Understanding of R and Introduction to Control Charts
- Lecture 21 - Basics of X bar and R chart
- Lecture 22 - Usage of X bar chart and R chart
- Lecture 23 - Variable Sample Size in X bar and R chart
- Lecture 24 - Patterns in Charts
- Lecture 25 - S chart and OC curve
- Lecture 26 - S square chart and MR chart
- Lecture 27 - Attribute charts- The p chart
- Lecture 28 - np control chart
- Lecture 29 - Estimating control limits with varying sample size

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - OC curve, c and u charts
- Lecture 31 - u, g and h chart
- Lecture 32 - Introduction to Process Capability Analysis
- Lecture 33 - PCR calculation and Gauge Capability
- Lecture 34 - Introduction to ISO 9000

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Management of New Products and Services

Subject Co-ordinator - Prof. Jayanta Chatterjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Similarities and Differences

Lecture 2 - Theoretical Foundations I Competitive Strategy

Lecture 3 - Theoretical Foundations II Product Strategy

Lecture 4 - Theoretical Foundations III Understanding Customer Behaviour

Lecture 5 - Theoretical Foundations IV Product Life Cycle (PLC) and Chasm

Lecture 6 - Theoretical Foundations V Product Platforms and Portfolios

Lecture 7 - Theoretical Foundations VI Understanding Customers (STP)

Lecture 8 - STP continued

Lecture 9 - Understanding Product Platforms

Lecture 10 - The Idea Generation process

Lecture 11 - Creating Customer Value Proposition

Lecture 12 - Lean Product Process

Lecture 13 - Estimating Marketing and Sales Potential

Lecture 14 - Introduction to New Product Forecasting Techniques

Lecture 15 - Diffusion process and Product Life Cycle

Lecture 16 - Technology Adoption Life Cycle and Crossing the Chasm

Lecture 17 - Managing New Products in Large Organizations

Lecture 18 - Introduction to the Stage Gate model

Lecture 19 - What is a Lean Startup

Lecture 20 - The Business Model Canvas

Lecture 21 - Introduction to Intellectual Property Rights

Lecture 22 - Taking the Product to the Market - Deployment Strategies

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Total Quality Management-II

Subject Co-ordinator - Prof. Raghunandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Statistics
- Lecture 2 - Introduction to Probability Theory
- Lecture 3 - Distribution of a Random Variable - I
- Lecture 4 - Distribution of a Random Variable - II
- Lecture 5 - Part-I
- Lecture 6 - Part-II
- Lecture 7 - Confidence Interval III and the introduction to Hypothesis Testing
- Lecture 8 - Hypothesis Testing
- Lecture 9 - The Analysis of Variance (ANOVA) - I
- Lecture 10 - The Analysis of Variance (ANOVA) - II
- Lecture 11 - The Analysis of Variance (ANOVA) - III
- Lecture 12 - The Analysis of Variance (ANOVA) - IV
- Lecture 13 - The Analysis of Variance (ANOVA) - V
- Lecture 14 - The Analysis of Variance (ANOVA) - VI
- Lecture 15 - The Analysis of Variance (ANOVA) - VII and Introduction to Factorial Design
- Lecture 16 - Factorial Designs - I
- Lecture 17 - Factorial Designs - II
- Lecture 18 - Factorial Designs - III
- Lecture 19 - Factorial Designs - IV
- Lecture 20 - Factorial Designs - V
- Lecture 21 - Factorial Designs - VI
- Lecture 22 - Factorial Designs - VII
- Lecture 23 - Factorial Designs - VIII
- Lecture 24 - Two level Fractional Factorial Design - I
- Lecture 25 - Two level Fractional Factorial Design - II
- Lecture 26 - Two level Fractional Factorial Design - III
- Lecture 27 - Two level Fractional Factorial Design - IV
- Lecture 28 - Two level Fractional Factorial Design - V
- Lecture 29 - Two level Fractional Factorial Design - VI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Two level Fractional Factorial Design - VII
- Lecture 31 - Additional Design and Analysis Topics for Factorial and Fractional Factorial Designs - I
- Lecture 32 - Additional Design and Analysis Topics for Factorial and Fractional Factorial Designs - II
- Lecture 33 - Confounding in the  $3^k$  Factorial Design - I
- Lecture 34 - Confounding in the  $3^k$  Factorial Design - II
- Lecture 35 - Fractional Replication of the  $3^k$  Factorial Design
- Lecture 36 - Fitting Regression Models - I
- Lecture 37 - Fitting Regression Models - II
- Lecture 38 - Fitting Regression Models - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Practitioners Course In Descriptive, Predictive and Prescriptive Analyt

Subject Co-ordinator - Dr. Amandeep Singh, Dr. Deepu Philip

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Analytics for Decision Making Support

Lecture 3 - Decision Needs and Analytics

Lecture 4 - Systems, Models and Modeling Process

Lecture 5 - Types of Models

Lecture 6 - Data and its Types

Lecture 7 - Overview of Probability

Lecture 8 - Statistics and Analytics (Private)

Lecture 9 - Descriptive Statistics & Graphical Tools (Private)

Lecture 10 - Frequency Distribution and Histogram

Lecture 11 - Stem and Leaf Plot

Lecture 12 - Box Plots

Lecture 13 - Business Intelligence and Analytics

Lecture 14 - Normal Distribution

Lecture 15 - Sampling

Lecture 16 - Sampling Techniques

Lecture 17 - Hypothesis Testing

Lecture 18 - Hypothesis Testing continued

Lecture 19 - Machine Learning

Lecture 20 - Correlation

Lecture 21 - Correlation continued

Lecture 22 - Regression

Lecture 23 - Analysis of Variance (ANOVA) - Part 1

Lecture 24 - Analysis of Variance (ANOVA) - Part 2

Lecture 25 - Machine Learning - Part 2

Lecture 26 - Machine Learning - Part 3

Lecture 27 - Machine Learning - Part 4

Lecture 28 - Machine Learning - Part 5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Microeconomics: Theory and Applications

Subject Co-ordinator - Prof. Deep Mukerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Major themes in Microeconomics - Part 1
- Lecture 3 - Major themes in Microeconomics - Part 2
- Lecture 4 - Basic differential calculus
- Lecture 5 - Demand Function
- Lecture 6 - Comparative Statics and Marshallian Consumer Theory
- Lecture 7 - Marshallian Consumer Theory (Continued...)
- Lecture 8 - Optimization Theory and Techniques - Part 1
- Lecture 9 - Optimization Theory and Techniques - Part 2
- Lecture 10 - Practice Session
- Lecture 11 - Indifference Curves - Part 1
- Lecture 12 - Indifference Curves - Part 2
- Lecture 13 - Consumer Equilibrium - Part 1
- Lecture 14 - Consumer Equilibrium - Part 2
- Lecture 15 - Income consumption curve (ICC) and related issues
- Lecture 16 - Price consumption curves and related issues
- Lecture 17 - Slutsky Equation
- Lecture 18 - Price Change and Consumer Welfare - Part 1
- Lecture 19 - Price Change and Consumer Welfare - Part 2
- Lecture 20 - Price Change and Consumer Welfare - Part 3
- Lecture 21 - Intertemporal Choice - Part 1
- Lecture 22 - Intertemporal Choice - Part 2
- Lecture 23 - Introduction to Risk
- Lecture 24 - Consumer Choice Involving Risk - Part 1
- Lecture 25 - Consumer Choice Involving Risk - Part 2
- Lecture 26 - Neoclassical Production Function
- Lecture 27 - Isoquants - Part 1
- Lecture 28 - Isoquants - Part 2
- Lecture 29 - Cobb-Douglass production function

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- Lecture 30 - Firm's Optimization Problems - Part 1
- Lecture 31 - Firm's Optimization Problems - Part 2
- Lecture 32 - Cost Function - Part 1
- Lecture 33 - Cost function - Part 2
- Lecture 34 - Short-run Cost Curves
- Lecture 35 - Long-run Cost Curves
- Lecture 36 - Short-run Equilibrium of firm
- Lecture 37 - Short-run equilibrium of firm and supply function
- Lecture 38 - Long-run equilibrium of a competitive firm - Part 1
- Lecture 39 - Long-run equilibrium of a competitive firm - Part 2
- Lecture 40 - Long-run Equilibrium of Competitive Industry
- Lecture 41 - Welfare Analysis of Competitive Market
- Lecture 42 - Welfare Analysis of Government Intervention on Competitive Market - Part 1
- Lecture 43 - Welfare Analysis of Government Intervention in Competitive Market - Part 2
- Lecture 44 - Monopoly - Part 1
- Lecture 45 - Monopoly - Part 2
- Lecture 46 - Discriminating Monopoly
- Lecture 47 - Practice session (Monopoly)
- Lecture 48 - Oligopoly - Part 1
- Lecture 49 - Oligopoly - Part 2
- Lecture 50 - Model for Cartel Behaviour
- Lecture 51 - Practice session (Oligopoly)
- Lecture 52 - Externality and Market Failure - Part 1
- Lecture 53 - Externality and Market Failure - Part 2
- Lecture 54 - Linear Programming - Part 1
- Lecture 55 - Linear Programming - Part 2
- Lecture 56 - Linear Programming - Part 3
- Lecture 57 - Linear Programming - Part 4
- Lecture 58 - Linear Regression - Part 1
- Lecture 59 - Linear Regression - Part 2
- Lecture 60 - Linear Regression - Part 3
- Lecture 61 - Linear Regression - Part 4

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Data Analysis and Decision Making-I

Subject Co-ordinator - Prof. Raghunandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Data Representation and Frequency
- Lecture 3 - Frequency Table and Mean
- Lecture 4 - Descriptive Statistics
- Lecture 5 - Introduction To Probability
- Lecture 6 - Conditional Probability
- Lecture 7 - Baye'S Theorem And Distributions
- Lecture 8 - Binomial Distribution
- Lecture 9 - Hypergeometric, Poisson, Normal Distribution
- Lecture 10 - Distribution Function
- Lecture 11 - Normal Distribution
- Lecture 12 - Sampling
- Lecture 13 - Some Distributions
- Lecture 14 - More on Distributions
- Lecture 15 - Estimators
- Lecture 16 - MLE
- Lecture 17 - Statistical Inference
- Lecture 18 - Hypothesis Testing
- Lecture 19 - Hypothesis Testing
- Lecture 20 - Hypothesis Testing
- Lecture 21
- Lecture 22
- Lecture 23
- Lecture 24
- Lecture 25
- Lecture 26 - Forecasting
- Lecture 27 - Forecasting
- Lecture 28 - Data Properties
- Lecture 29 - Multivariate Statistical Analysis

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- Lecture 30 - Multivariate Statistical Analysis
- Lecture 31 - Multivariate Statistical Analysis
- Lecture 32 - Multivariate Statistical Analysis
- Lecture 33 - Multivariate Distribution
- Lecture 34 - Multivariate Extreme Value Distribution
- Lecture 35 - Mle Estimates
- Lecture 36 - Mle Estimates
- Lecture 37 - Copula Theory
- Lecture 38 - PCA
- Lecture 39 - PCA
- Lecture 40 - Factor Analysis
- Lecture 41 - Factor Analysis
- Lecture 42 - Introduction to Utility Theory
- Lecture 43 - Utility Analysis
- Lecture 44 - Decision Sciences
- Lecture 45 - Utility Functions
- Lecture 46 - Exponential Utility Function
- Lecture 47 - Risk Concepts
- Lecture 48 - Utility Theory Axioms
- Lecture 49 - Utility Analysis
- Lecture 50 - Chebyshev'S Inequality
- Lecture 51 - Loss Function
- Lecture 52 - Loss Function
- Lecture 53 - Loss Function and MLR
- Lecture 54 - MLR
- Lecture 55 - Loss Function
- Lecture 56 - Cannonical Correlation
- Lecture 57 - cannonical Correlation (Continued...)
- Lecture 58 - Structural Equation Modeling (SEM)
- Lecture 59 - SEM
- Lecture 60 - SEM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Economics of Health and Health Care

Subject Co-ordinator - Prof. Deep Mukerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Health
- Lecture 2 - Health Economics Map and Health Expenditure
- Lecture 3 - Utility
- Lecture 4 - Indifference Curve
- Lecture 5 - Budget Line
- Lecture 6 - Theory of Demand
- Lecture 7 - Theory of Supply
- Lecture 8 - Price Elasticity of Demand
- Lecture 9 - Income Elasticity of Demand and Price Elasticity of Supply
- Lecture 10 - Production Function
- Lecture 11 - Relationship Between AP, MP and Law of Diminishing Marginal Returns
- Lecture 12 - Long Run Production Function and Isoquant
- Lecture 13 - Returns to Scale
- Lecture 14 - Iso-Cost Curve and Co-production
- Lecture 15 - Introduction to Cost Theory
- Lecture 16 - Break-even Point and Long Run Cost Curve
- Lecture 17 - Cost-Volume-Profit Analysis
- Lecture 18 - Costing in a Hospital System
- Lecture 19 - Choice in Healthcare
- Lecture 20 - Measurements based on Choices
- Lecture 21 - Grossman's Demand Model
- Lecture 22 - Market Structures and Perfect Competition
- Lecture 23 - Market Imperfection
- Lecture 24 - Ideal Healthcare Market Conditions
- Lecture 25 - Imperfect in Healthcare Markets
- Lecture 26 - Building Blocks of Health Systems and Health Financing
- Lecture 27 - Mechanisms of Health Financing
- Lecture 28 - Introduction to health insurance
- Lecture 29 - Important concepts of health insurance

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- Lecture 30 - Strategies for Private Health Insurance companies
- Lecture 31 - Types of health insurance and Death Spiral
- Lecture 32 - Third Party Administrator.
- Lecture 33 - Managed Care Organizations
- Lecture 34 - Reinsurance
- Lecture 35 - What is Economic Evaluation?
- Lecture 36 - Cost Minimization Analysis and Cost Effectiveness Analysis
- Lecture 37 - Cost-utility Analysis
- Lecture 38 - Cost-Benefit Analysis
- Lecture 39 - Types of Goods- Excludability and Rivalry in Consumption
- Lecture 40 - Public Goods, Common Resources and decision making based on Cost-Benefit Analysis
- Lecture 41 - Tragedy of Commons and Evaluation Framework
- Lecture 42 - Fundamental concepts of economic externalities
- Lecture 43 - External cost, external benefit and efficient output
- Lecture 44 - External cost, external benefit and efficient output
- Lecture 45 - Economics of Health and Healthcare
- Lecture 46 - Development Indices
- Lecture 47 - Social Determinants of Health
- Lecture 48 - Fundamental Concepts and Theories Related to Population, Health and Development
- Lecture 49 - Population Composition and demographic Dividend
- Lecture 50 - Theories Related to Fertility, Population Growth and Socio-Economic Advancements
- Lecture 51 - Underwriting

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Simulation of Business Systems: An Applied Approach

Subject Co-ordinator - Dr. Deepu Philip

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Simulation
- Lecture 2 - Terminologies in Simulation
- Lecture 3 - How to Built Simulation Model
- Lecture 4 - Components of Discrete Event Simulation
- Lecture 5 - A Simple Example
- Lecture 6 - Terminologies and Like Approaches
- Lecture 7 - Monte-Carlo Simulation
- Lecture 8 - How to build Simulation? - Major considerations
- Lecture 9 - Basic Simulation terms and Illustrative examples
- Lecture 10 - Steps in a Simulation Study
- Lecture 11 - An introduction to ARENA
- Lecture 12 - Simulation experiments using ARENA
- Lecture 13 - Probability and Statistics for simulation
- Lecture 14 - Pareto Analysis
- Lecture 15 - Frequency Distribution
- Lecture 16 - Simulation of Tandem Queues using ARENA
- Lecture 17 - Simulation with ARENA
- Lecture 18 - Simulation with ARENA
- Lecture 19 - Simulation with ARENA
- Lecture 20 - Stem and Leaf Display
- Lecture 21 - Tecnomatix
- Lecture 22 - Tecnomatix
- Lecture 23 - Tecnomatix
- Lecture 24 - Probability Distributions - I
- Lecture 25 - Probability Distributions - II
- Lecture 26 - Valid Model for Input Data

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Econometric Modelling

Subject Co-ordinator - Dr. Rudra P. Pradhan

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Econometric Modelling
- Lecture 2 - Structure of Econometric Modelling
- Lecture 3 - Univariate Econometric Modelling
- Lecture 4 - Bivariate Econometric Modelling
- Lecture 5 - Bivariate Econometric Modelling (Continued...)
- Lecture 6 - Probability
- Lecture 7 - Bivariate Econometric Modelling
- Lecture 8 - Bivariate Econometric Modelling (Continued...)
- Lecture 9 - Reliability BEM
- Lecture 10 - Reliability BEM (Continued...1)
- Lecture 11 - Reliability BEM (Continued...2)
- Lecture 12 - ANOVA for Bivariate Econometric Modelling
- Lecture 13 - Trivariate Econometric Modelling
- Lecture 14 - Trivariate Econometric Modelling (Continued...)
- Lecture 15 - Reliability of Trivariate Econometric Modelling
- Lecture 16 - Multivariate Econometric Modelling
- Lecture 17 - Multivariate Econometric Modelling (Continued...)
- Lecture 18 - Matrix Approach to Econometric Modelling
- Lecture 19 - Matrix Approach to Econometric Modelling (Continued...)
- Lecture 20 - Multicollinearity Problem
- Lecture 21 - Multicollinearity Problem (Continued...)
- Lecture 22 - Autocorrelation Problem
- Lecture 23 - Autocorrelation Problem (Continued...)
- Lecture 24 - Heteroscedasticity Problem
- Lecture 25 - Heteroscedasticity Problem (Continued...)
- Lecture 26 - Dummy Modelling
- Lecture 27 - Dummy Modelling (Continued...)
- Lecture 28 - LOGIT and PROBIT Model
- Lecture 29 - LOGIT and PROBIT Model (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Panel Data Modelling
- Lecture 31 - Panel Data Modelling (Continued...)
- Lecture 32 - Simultaneous Equation Modelling
- Lecture 33 - Simultaneous Equation Modelling (Continued...)
- Lecture 34 - Structural Equation Modelling
- Lecture 35 - Structural Equation Modelling (Continued...)
- Lecture 36 - Time Series Modelling
- Lecture 37 - Time Series Modelling (Continued...)
- Lecture 38 - Unit Root
- Lecture 39 - Cointegration
- Lecture 40 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Organizational Behaviour

Subject Co-ordinator - Dr. Susmita Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Understanding Organizational Behaviour
- Lecture 2 - Effectiveness in Organizations
- Lecture 3 - Social System and Organizational Culture
- Lecture 4 - Social System and Organizational Culture (Continued...)
- Lecture 5 - Individual differences and work behaviour
- Lecture 6 - Personality
- Lecture 7 - Personality (Continued...)
- Lecture 8 - Attitudes
- Lecture 9 - Attitudes (Continued...)
- Lecture 10 - Attitudes (Continued...)
- Lecture 11 - Perceptions and Attributions
- Lecture 12 - Perceptions and Attributions (Continued...)
- Lecture 13 - Motivation
- Lecture 14 - Motivation (Continued...)
- Lecture 15 - Job Design, Work and Motivation
- Lecture 16 - Job Design, Work and Motivation (Continued...)
- Lecture 17 - Evaluation, Feedback and Rewards
- Lecture 18 - Evaluation, Feedback and Rewards (Continued...)
- Lecture 19 - Managing Misbehaviour
- Lecture 20 - Stress
- Lecture 21 - Counseling
- Lecture 22 - Informal and Formal Groups
- Lecture 23 - Teams and Teambuilding
- Lecture 24 - Managing Conflict and Negotiation
- Lecture 25 - Managing Conflict and Negotiation (Continued...)
- Lecture 26 - Power and Politics
- Lecture 27 - Empowerment and Participation
- Lecture 28 - Assertive Behaviour and Transactional Analysis
- Lecture 29 - Communication

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Communication (Continued...)
- Lecture 31 - Decision Making
- Lecture 32 - Decision Making (Continued...)
- Lecture 33 - Leadership
- Lecture 34 - Leadership (Continued...)
- Lecture 35 - Leadership (Continued...)
- Lecture 36 - Organizational structure and Design
- Lecture 37 - Organizational structure and Design (Continued...)
- Lecture 38 - Organizational structure and Design (Continued...)
- Lecture 39 - Change and Innovation
- Lecture 40 - Change and Innovation (Continued...)
- Lecture 41 - Organizational behaviour across cultures

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Security Analysis and Portfolio Management

Subject Co-ordinator - Dr. Jitendra Mahakud, Dr. Chandra Sekhar Mishra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Investment Management
- Lecture 2 - Markets for Investment
- Lecture 3 - Risk and Return
- Lecture 4 - Risk and Return (Continued...)
- Lecture 5 - Organization and Function of Equity and Debt Markets
- Lecture 6 - Mutual Funds
- Lecture 7 - Market Efficiency - Concepts and forms of efficiency
- Lecture 8 - Testing Market Efficiency
- Lecture 9 - Financial Statement Analysis
- Lecture 10 - Financial Statement Analysis (Continued...)
- Lecture 11 - Valuation of Equity Shares - I
- Lecture 12 - Valuation of Equity Shares - II
- Lecture 13 - Economic Analysis - I
- Lecture 14 - Economic Analysis - II
- Lecture 15 - Industry Analysis - I
- Lecture 16 - Industry Analysis - II
- Lecture 17 - Company Analysis - I
- Lecture 18 - Company Analysis - II
- Lecture 19 - Technical Analysis - I
- Lecture 20 - Technical Analysis - II
- Lecture 21 - Introduction to Portfolio Management
- Lecture 22 - Introduction to Portfolio Management (Continued...)
- Lecture 23 - Capital Market Theory - I
- Lecture 24 - Capital Market Theory - II
- Lecture 25 - Arbitrage Pricing Theory
- Lecture 26 - Multifactor Pricing Model
- Lecture 27 - Markowitz Optimal Portfolio Selection Model
- Lecture 28 - Other Optimal Portfolio Selection Models
- Lecture 29 - Equity Portfolio Management Strategies - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equity Portfolio Management Strategies - II
- Lecture 31 - Introduction to Bond Analysis
- Lecture 32 - Bond Pricing and Yield
- Lecture 33 - Interest Rate
- Lecture 34 - Bond Price Volatility
- Lecture 35 - Bond Portfolio Management Strategies - I
- Lecture 36 - Bond Portfolio Management Strategies - II
- Lecture 37 - Derivatives - I
- Lecture 38 - Derivatives - II
- Lecture 39 - Portfolio Performance Evaluation - I
- Lecture 40 - Portfolio Performance Evaluation - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Six Sigma

Subject Co-ordinator - Prof. Tapan P. Bagchi

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Concepts in Quality Management - I  
Lecture 2 - Concepts in Quality Management - II  
Lecture 3 - Concepts in Quality Management - III  
Lecture 4 - Initiating Six Sigma  
Lecture 5 - Review of Probability and Statistics - I  
Lecture 6 - Review of Probability and Statistics - II  
Lecture 7 - Review of Probability and Statistics - III  
Lecture 8 - Review of Probability and Statistics - IV  
Lecture 9 - QM Systems Overview  
Lecture 10 - Cost of Quality and TQM Tools  
Lecture 11 - QFD and ISO 9000  
Lecture 12 - QS 9000 and Awards  
Lecture 13 - Competing Through Service Quality  
Lecture 14 - Introduction to Project Management  
Lecture 15 - Project Life Cycle  
Lecture 16 - Critical Path Method  
Lecture 17 - Measurement System Analysis  
Lecture 18 - Acceptance Sampling  
Lecture 19 - Design of Sampling Plans  
Lecture 20 - MIL-STD-105E Sampling Plan  
Lecture 21 - Introduction to SPC  
Lecture 22 - Control Chart Examples  
Lecture 23 - Control Charts by Excel  
Lecture 24 - Process Capability  
Lecture 25 - Quality Function Deployment  
Lecture 26 - Design of Experiments - Overview  
Lecture 27 - Planning for DOE  
Lecture 28 - Factor Effect Calculations  
Lecture 29 - ANOVA in DOE

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Benchmarking in Six Sigma
- Lecture 31 - How to Benchmark
- Lecture 32 - Six Sigma in Supply Chains
- Lecture 33 - Taguchi Methods
- Lecture 34 - Robust Design
- Lecture 35 - The Journey to Six Sigma
- Lecture 36 - A Case Study of Defect Reduction
- Lecture 37 - DFM & Reliability
- Lecture 38 - Failure Modes & Effects Analysis (FMEA)
- Lecture 39 - Implementing Six Sigma
- Lecture 40 - Getting Results From Six Sigma

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - International Business Communication

Subject Co-ordinator - Prof. A. Malic

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Definitions & Concepts
- Lecture 3 - Communicative Competence - I
- Lecture 4 - Communicative Competence - II
- Lecture 5 - Communicative Competence - III
- Lecture 6 - Intercultural Communication - I
- Lecture 7 - Intercultural Communication - II
- Lecture 8 - Intercultural Communication - III
- Lecture 9 - Intercultural Communication - Thought and Speech
- Lecture 10 - Intercultural Communication - Thought and Speech (Continued...)
- Lecture 11 - Intercultural Communication
- Lecture 12 - Nonverbal Communication
- Lecture 13 - Barriers to Communication
- Lecture 14 - Barriers to Communication (Continued...)
- Lecture 15 - Barriers to Communication (Continued...) & Listening
- Lecture 16 - Listening (Continued...)
- Lecture 17 - Communication Rules
- Lecture 18 - Communication Style
- Lecture 19 - Interpersonal Communication
- Lecture 20 - Interpersonal Communication (Continued...)
- Lecture 21 - Relational Communication
- Lecture 22 - Relational Communication (Continued...)
- Lecture 23 - Organizational Communication
- Lecture 24 - Organizational Communication (Continued...)
- Lecture 25 - Collaboration
- Lecture 26 - Communication in Groups and Teams
- Lecture 27 - Communication in Groups and Teams (Continued...1)
- Lecture 28 - Communication in Groups and Teams (Continued...2)
- Lecture 29 - Persuasive Communication

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Persuasive Communication (Continued...)
- Lecture 31 - Negotiation and Conflict Management
- Lecture 32 - Negotiation and Conflict Management (Continued...)
- Lecture 33 - Leadership
- Lecture 34 - Written Communication in International Business
- Lecture 35 - Role of Technology in international Business Communication
- Lecture 36 - Moving to Another Culture
- Lecture 37 - Re-entry
- Lecture 38 - Crisis Communication
- Lecture 39 - Ethics in Business Communication
- Lecture 40 - Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Consumer Behaviour

Subject Co-ordinator - Dr. Sangeeta Sahney

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Study of Consumer Behaviour
- Lecture 2 - Introduction to the Study of Consumer Behaviour (Continued...)
- Lecture 3 - Market Research and Consumer Behaviour
- Lecture 4 - Market Research and Consumer Behaviour (Continued...)
- Lecture 5 - Market Segmentation and Positioning
- Lecture 6 - Market Segmentation and Positioning (Continued...)
- Lecture 7 - The Consumer Decision Making Process
- Lecture 8 - The Consumer Decision Making Process (Continued...)
- Lecture 9 - Models of Consumers and Models of Consumer Behaviour
- Lecture 10 - Models of Consumers and Models of Consumer Behaviour (Continued...)
- Lecture 11 - Models of Consumers and Models of Consumer Behaviour (Continued...)
- Lecture 12 - Models of Consumers and Models of Consumer Behaviour (Continued...)
- Lecture 13 - Consumer Needs and Motivation, Emotions and Mood, Consumer Involvement
- Lecture 14 - Consumer Needs and Motivation, Emotions and Mood, Consumer Involvement (Continued...)
- Lecture 15 - Consumer Needs and Motivation, Emotions and Mood, Consumer Involvement (Continued...)
- Lecture 16 - Consumer Needs and Motivation, Emotions and Mood, Consumer Involvement (Continued...)
- Lecture 17 - Consumer Needs and Motivation, Emotions and Mood, Consumer Involvement (Continued...)
- Lecture 18 - Consumer Learning
- Lecture 19 - Consumer Learning (Continued...)
- Lecture 20 - Consumer Learning (Continued...)
- Lecture 21 - Consumer Learning (Continued...)
- Lecture 22 - Personality, Self Concept and Self Image
- Lecture 23 - Personality, Self Concept and Self Image (Continued...)
- Lecture 24 - Consumer Perception, Risk and Imagery
- Lecture 25 - Consumer Perception, Risk and Imagery (Continued...)
- Lecture 26 - Consumer Perception, Risk and Imagery (Continued...)
- Lecture 27 - Consumer Attitudes
- Lecture 28 - Consumer Attitudes (Continued...)
- Lecture 29 - Consumer Attitudes (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Consumer Communication
- Lecture 31 - Consumer Communication (Continued...)
- Lecture 32 - Consumer Groups and Reference Groups
- Lecture 33 - Family and Family Life Cycle
- Lecture 34 - Social Class and Mobility, Lifestyle Analysis
- Lecture 35 - Culture, Sub-Culture and Cross-Culture
- Lecture 36 - Culture, Sub-Culture and Cross-Culture (Continued...)
- Lecture 37 - Interpersonal Communication and Influence
- Lecture 38 - Opinion Leadership
- Lecture 39 - Diffusion of Innovation
- Lecture 40 - Diffusion of Innovation (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - International Finance

Subject Co-ordinator - Dr. Arun K. Misra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - International Financial Environment

Lecture 2 - International Financial Transactions

Lecture 3 - Gold Standard

Lecture 4 - Purchasing Power Parity

Lecture 5 - Floating and Fixed Exchange Rate Regimes

Lecture 6 - Currency Boards and Currency Basket Systems

Lecture 7 - Features of Foreign Exchange Market

Lecture 8 - Exchange Rate Arithmetic

Lecture 9 - Understanding Merchant Rates

Lecture 10 - Foreign Exchange Forward Contracts

Lecture 11 - Value at Risk for Foreign Exchange Market

Lecture 12 - International Parity Conditions and Movement Exchange Rate

Lecture 13 - Exchange Rate Determination and Forecasting

Lecture 14 - Development of Foreign Exchange Market in India

Lecture 15 - Foreign Exchange Exposures

Lecture 16 - Transaction Exposure Management

Lecture 17 - Foreign Exchange Futures Market for Transaction Exposure Management

Lecture 18 - Foreign Currency Options

Lecture 19 - Interest Rate Swaps

Lecture 20 - Currency Swaps

Lecture 21 - Operating Exposure Assessment

Lecture 22 - Operating Exposure Management

Lecture 23 - International Capital Structure and Capital Assets Pricing Model

Lecture 24 - International Capital Budgeting

Lecture 25 - Evaluation of Foreign Direct Investment

Lecture 26 - Cross Listing of Shares

Lecture 27 - International Financial Integration

Lecture 28 - World Trade Organisation

Lecture 29 - India's Forex Reserves Composition and Determinants of Optimum Reserves

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Movement of Exchange Rates in India
- Lecture 31 - International Trade Theory
- Lecture 32 - International Bond Market
- Lecture 33 - India's Foreign Trade - Direction and Composition
- Lecture 34 - Financial Stability
- Lecture 35 - Test-1
- Lecture 36 - Money and Forex Market Interaction
- Lecture 37 - Test-2
- Lecture 38 - Characteristics of Indian Foreign Exchange Market
- Lecture 39 - Test-3
- Lecture 40 - Test-4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Applied Multivariate Statistical Modeling

Subject Co-ordinator - Dr. J. Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to multivariate statistical modeling
- Lecture 2 - Introduction to multivariate statistical modeling (Continued...)
- Lecture 3 - Univariate descriptive statistics
- Lecture 4 - Sampling distribution
- Lecture 5 - Estimation
- Lecture 6 - Estimation (Continued...)
- Lecture 7 - Hypothesis testing
- Lecture 8 - Multivariate descriptive statistics
- Lecture 9 - Multivariate descriptive statistics (Continued...)
- Lecture 10 - Multivariate normal distribution
- Lecture 11 - Multivariate normal distribution (Continued...)
- Lecture 12 - Multivariate Inferential Statistics
- Lecture 13 - Multivariate Inferential Statistics (Continued...)
- Lecture 14 - ANOVA (Analysis of Variance)
- Lecture 15 - Analysis of Variance (Continued...)
- Lecture 16 - Multivariate Analysis of Variance (MANOVA)
- Lecture 17 - MANOVA (Continued...)
- Lecture 18 - Tutorial - ANOVA
- Lecture 19 - Tutorial ANOVA (Continued...)
- Lecture 20 - MANOVA - Case Study
- Lecture 21 - Multiple Regression  $\hat{\beta}$  Introduction
- Lecture 22 - MLR - Sampling distribution of regression coefficients
- Lecture 23 - MLR - Model adequacy tests
- Lecture 24 - MLR - Test of assumptions
- Lecture 25 - MLR - Model diagnostics
- Lecture 26 - MLR - Case Study
- Lecture 27 - Multivariate Linear Regression
- Lecture 28 - Multivariate Linear Regression - Estimation
- Lecture 29 - Multivariate Linear Regression - Model Adequacy tests

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- Lecture 30 - Principal Component Analysis (PCA)
- Lecture 31 - PCA - Model Adequacy & Interpretation
- Lecture 32 - Regression Modeling using SPSS
- Lecture 33 - Factor Analysis
- Lecture 34 - Factor Analysis - Estimation & Model Adequacy testing
- Lecture 35 - Factor Analysis - Model Adequacy, rotation, factor scores & case study
- Lecture 36 - Cluster Analysis
- Lecture 37 - Cluster Analysis (Continued...)
- Lecture 38 - Introduction to Structural Equation Modeling (SEM)
- Lecture 39 - SEM - Measurement Model
- Lecture 40 - SEM - Structural Model
- Lecture 41 - Correspondence Analysis
- Lecture 42 - Correspondence Analysis (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Nanotechnology - Economics, Management, Entrepreneurship

Subject Co-ordinator - Prof. P.K.J. Mohapatra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Market Equilibrium
- Lecture 3 - Elasticity of Demand
- Lecture 4 - Demand Forecasting
- Lecture 5 - Production
- Lecture 6 - Exercises on Economics
- Lecture 7 - Cost - Volume - Profit Relationships
- Lecture 8 - Cost Management Systems and Activity Costing Systems
- Lecture 9 - Relevant Information and Decision Making
- Lecture 10 - Cost Allocation
- Lecture 11 - Exercises on Economics (Continued...)
- Lecture 12 - Double - Entry Bookkeeping
- Lecture 13 - Job Costing
- Lecture 14 - Process Costing
- Lecture 15 - The Master Budget
- Lecture 16 - Flexible Budget and Variance Analysis
- Lecture 17 - Financial Statements
- Lecture 18 - Financial Statements (Continued...)
- Lecture 19 - Analysis of Financial Statements
- Lecture 20 - Exercises (Continued...)
- Lecture 21 - Time Value of Money
- Lecture 22 - Comparison of Alternatives
- Lecture 23 - Comparison of Alternatives (Continued...)
- Lecture 24 - Comparison of Alternatives (Continued...)
- Lecture 25 - Depreciation Accounting
- Lecture 26 - Depreciation Accounting (Continued...)
- Lecture 27 - Exercises
- Lecture 28 - Evolution of Management Thoughts
- Lecture 29 - Functions of Management

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Functions of Management (Continued...)
- Lecture 31 - Functions of Management (Continued...)
- Lecture 32 - Directing
- Lecture 33 - Product Development
- Lecture 34 - Forecasting Revisited
- Lecture 35 - Forecasting Revisited (Continued...)
- Lecture 36 - Forecasting Revisited (Continued...)
- Lecture 37 - Capacity Planning
- Lecture 38 - Capacity Planning (Continued...) and Plant Location
- Lecture 39 - Product Service Strategies and Plant Layout
- Lecture 40 - Plant Layout (Continued...) and Production Planning and Control
- Lecture 41 - Production Planning and Control (Continued...)
- Lecture 42 - Inventory Management
- Lecture 43 - Inventory Management (Continued...)
- Lecture 44 - Supply Chain Management
- Lecture 45 - Supply Chain Management (Continued...) and Marketing Management
- Lecture 46 - Marketing Management (Continued...)
- Lecture 47 - Forms of Ownership
- Lecture 48 - Starting a New Company and Small - scale Industrial Undertakings
- Lecture 49 - Capital Financing
- Lecture 50 - Entrepreneurship - Final Words

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Principles of Human Resource Management

Subject Co-ordinator - Prof. A Malik

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to HRM
- Lecture 2 - Job Analysis and Design
- Lecture 3 - Employee testing and selection
- Lecture 4 - Performance appraisal
- Lecture 5 - Performance evaluation and feedback
- Lecture 6 - The Training process
- Lecture 7 - General and Specific Training and Evaluation of Training
- Lecture 8 - Career Management and planning
- Lecture 9 - Career Development
- Lecture 10 - Compensation
- Lecture 11 - Pay for performance systems
- Lecture 12 - Pay and Reward systems
- Lecture 13 - Benefits
- Lecture 14 - Separation and Administration of Benefits
- Lecture 15 - Business Ethics
- Lecture 16 - Ethical Aspects of HRM Activities
- Lecture 17 - Employee Health
- Lecture 18 - Employee Wellbeing in the Workplace
- Lecture 19 - Organized Labor
- Lecture 20 - Managing the Labor Relations Process
- Lecture 21 - International HRM
- Lecture 22 - Global Employment Law, Industrial Relations and International Ethics
- Lecture 23 - Challenges to International HRM
- Lecture 24 - Strategic HRM
- Lecture 25 - Multilevel Model of Strategic HRM
- Lecture 26 - Strategic HRM in a Networked World
- Lecture 27 - Sustainable HRM
- Lecture 28 - HR Measurement and Accountability
- Lecture 29 - Types of Score Cards

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discipline in Organizations
- Lecture 31 - Dealing with Difficult Employees
- Lecture 32 - Using HRM to Prevent the Need for Discipline

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Commodity Derivatives and Risk Management

Subject Co-ordinator - Dr. Prabina Rajib

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Commodity Derivatives and Risk Management
- Lecture 2 - Introduction to Commodity Derivatives and Risk Management (Continued...)
- Lecture 3 - Futures Contract Specifications
- Lecture 4 - Futures Contract Specifications (Continued...)
- Lecture 5 - Futures Contract - Mark-to-Market Margin
- Lecture 6 - Commodity Options and Commodity Spreads
- Lecture 7 - Pricing and Valuations of Futures Contract
- Lecture 8 - Pricing and Valuations of Futures Contract (Continued...)
- Lecture 9 - Convenience Field, Contango-Backwardation
- Lecture 10 - Commodity Basic Risk - Part I
- Lecture 11 - Commodity Basic Risk - Part II
- Lecture 12 - Minimum Variance Hedge Ratio - Part I
- Lecture 13 - Minimum Variance Hedge Ratio - Part II
- Lecture 14 - Commodity Indexes - Part I
- Lecture 15 - Commodity Indexes - Part II
- Lecture 16 - Agri-Commodity Price Risk Management - Part I
- Lecture 17 - Agri-Commodity Price Risk Management - Part II
- Lecture 18 - Seasonality in Agri-Commodity, Contango and Backwardation - Part I
- Lecture 19 - Seasonality in Agri-Commodity, Contango and Backwardation - Part II
- Lecture 20 - Commodity Prices Determination - Part I
- Lecture 21 - Commodity Prices Determination - Part II
- Lecture 22 - Crude Oil Derivatives - Part I
- Lecture 23 - Crude Oil Price Determination
- Lecture 24 - Spot-Futures Relationship in Crude Oil - Part I
- Lecture 25 - Spot-Futures Relationship in Crude Oil - Part II
- Lecture 26 - Hedging of Crude Oil and Refined Product Price Risk - Part I
- Lecture 27 - Hedging of Crude Oil and Refined Product Price Risk - Part II
- Lecture 28 - Introduction to Gold and Gold Derivatives
- Lecture 29 - LBMA, Gold Spot Price and Gold Derivatives

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - OTC Contracts on Gold and Gold Dehedge
- Lecture 31 - Spot Trading of Electricity in India - Part I
- Lecture 32 - Spot Trading of Electricity in India - Part II
- Lecture 33 - Weather Derivatives - Part I
- Lecture 34 - Weather Derivatives - Part II
- Lecture 35 - Introduction to Carbon Credit Market
- Lecture 36 - Carbon Derivatives
- Lecture 37 - Physical Market for Freight, Freight Exchanges, Freight Indexes
- Lecture 38 - Hedging Freight rate Risk with Freight Rate Derivatives
- Lecture 39 - Metal Derivatives and London Metal Exchange (LME)
- Lecture 40 - Real Estate Derivatives

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Strategic Communication for Sustainable Development

Subject Co-ordinator - Prof. A Malik

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Models for Public Participation in Sustainable Development
- Lecture 3 - Role of Communication in Sustainable Development
- Lecture 4 - Sustainability Communication
- Lecture 5 - Approaches to Sustainability Communication
- Lecture 6 - Approaches to Sustainability Communication
- Lecture 7 - Sociological Perspectives on Sustainability Communication
- Lecture 8 - Psychological Perspectives on Sustainability Communication
- Lecture 9 - Psychological Perspectives on Sustainability Communication (Continued...)
- Lecture 10 - Steyn and Puth's Model for Communication Strategy
- Lecture 11 - Application of Steyn and Puth's Model to Development
- Lecture 12 - Tools of Strategic Communication for Sustainable Development
- Lecture 13 - Role of Strategic Communication for Sustainable Development
- Lecture 14 - Role of Stakeholders in Strategic Communication for Sustainable Development
- Lecture 15 - Systems Approach to Identifying Decisive Information
- Lecture 16 - Adapting CSR Communication Strategies to Sustainable Development
- Lecture 17 - Strategic Conversations
- Lecture 18 - Creating a Strategic Communication Plan
- Lecture 19 - Communication for Behavioral Impact (COMBI) for Sustainable Development
- Lecture 20 - Media and Sustainability Communication
- Lecture 21 - ICTs in Sustainable Development
- Lecture 22 - Community Informatics
- Lecture 23 - Challenges to the use of ICTs in Sustainable Development Efforts
- Lecture 24 - Wrap up and Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Consumer Behaviour

Subject Co-ordinator - Prof. Srabanti Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Consumer Behaviour  
Lecture 2 - The Changing Patterns of Consumer Behaviour  
Lecture 3 - Dimensions of Consumerism  
Lecture 4 - Use of Market Segmentation in Consumer Behaviour  
Lecture 5 - Process of Motivation  
Lecture 6 - Theories of Motivation  
Lecture 7 - Consumer Involvement  
Lecture 8 - Case Study on Motivation and Involvement  
Lecture 9 - Concept and Levels of Perception  
Lecture 10 - Process of Perception  
Lecture 11 - Theories of Personality - I  
Lecture 12 - Theories of Personality - II  
Lecture 13 - Brand Personality and Self concept  
Lecture 14 - Theories of Learning  
Lecture 15 - Attitude Formation - I  
Lecture 16 - Attitude Formation - II  
Lecture 17 - Changing Attitude  
Lecture 18 - Exercise on Attitude Formation and Change  
Lecture 19 - Values  
Lecture 20 - AIO Classification  
Lecture 21 - VALS - I Typology  
Lecture 22 - VALS - TM Typology  
Lecture 23  
Lecture 24  
Lecture 25 - Group Influences on Consumption  
Lecture 26 - Role of Celebrity Endorsement  
Lecture 27 - Concept of Family and Family Life Cycle  
Lecture 28 - Family Buying Decisions  
Lecture 29 - Diffusion of Innovations - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diffusion of Innovations - II
- Lecture 31 - Influencing Factors for Adoption and Opinion Leadership
- Lecture 32 - Consumer Decision Making
- Lecture 33 - Consumer Black Box Model
- Lecture 34 - Models of Consumer Behaviour - I
- Lecture 35 - Models of Consumer Behaviour - II
- Lecture 36 - Models of Consumer Behaviour - III
- Lecture 37 - Models of Consumer Behaviour - IV
- Lecture 38 - Organisational Buying Behaviour - I
- Lecture 39 - Organisational Buying Behaviour - II
- Lecture 40 - Dimensions of Consumer Research



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Foundation Course in Managerial Economics

Subject Co-ordinator - Prof. Barnali Nag

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Principles of Economics
- Lecture 2 - Demand - Supply Framework
- Lecture 3 - Determinants of Demand
- Lecture 4 - Supply Curve, Determinants of Supply Curve
- Lecture 5 - Demand Supply Equilibrium
- Lecture 6 - Elasticity of Demand and Supply
- Lecture 7 - Determinants of Elasticity of Demand
- Lecture 8 - Elasticity and Revenue
- Lecture 9 - Elasticity of Supply
- Lecture 10 - Demand Supply and Government Policies
- Lecture 11 - Demand Supply and Government Policies (Continued...)
- Lecture 12 - Taxes and Demand and Supply Framework
- Lecture 13 - Elasticity and Taxes
- Lecture 14 - Efficiency and Market Equilibrium
- Lecture 15 - Production and Cost
- Lecture 16 - Costs
- Lecture 17 - Cost Curves
- Lecture 18 - LR and SR Cost Curves
- Lecture 19 - Market Structures
- Lecture 20 - Perfect Competition
- Lecture 21 - Perfect Competition and Profit Maximization
- Lecture 22 - Supply Curve of Firm in Perfect Competition
- Lecture 23 - Supply Curve of Market in Perfect Competition
- Lecture 24 - Market Supply (Continued...)
- Lecture 25 - Monopoly
- Lecture 26 - Monopoly - Determination of Price and Quality
- Lecture 27 - Monopoly - Supply and Efficiency
- Lecture 28 - Price Discrimination
- Lecture 29 - Public Policy and Regulation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Monopolistic Competition
- Lecture 31 - Monopolistic Competition - Determining P and K
- Lecture 32 - Monopolistic Competition - Efficiency and Welfare
- Lecture 33 - Monopolistic Competition - Advertising
- Lecture 34 - Oligopoly
- Lecture 35 - Oligopoly - Determining P and Q
- Lecture 36 - Oligopoly - P and Q Outcomes with Example
- Lecture 37 - Difference between Market Outcomes
- Lecture 38 - Oligopoly - Game Theory
- Lecture 39 - Oligopoly - Game Theory (Continued...)
- Lecture 40 - Oligopoly Pricing
- Lecture 41 - Public Policy in Oligopoly

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Knowledge Management

Subject Co-ordinator - Prof. K. B. L. Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to KM
- Lecture 2 - Introduction to KM (Continued...)
- Lecture 3 - Why KM ?
- Lecture 4 - KM System Life Cycle (KSLC)
- Lecture 5 - Aligning KM and business strategy
- Lecture 6 - Process and models of KM cycle
- Lecture 7 - Process and models of KM cycle (Continued...)
- Lecture 8 - Knowledge creation and architecture
- Lecture 9 - Capturing tacit knowledge
- Lecture 10 - Capturing tacit knowledge (Continued...)
- Lecture 11 - Knowledge codification
- Lecture 12 - Knowledge codification
- Lecture 13 - System development
- Lecture 14 - System development
- Lecture 15 - Knowledge transfer and knowledge sharing
- Lecture 16 - Knowledge infrastructure
- Lecture 17 - Knowledge infrastructure (Continued...)
- Lecture 18 - Knowledge audit
- Lecture 19 - The knowledge team
- Lecture 20 - The knowledge team (Continued...)
- Lecture 21 - Analysis, design of KM system
- Lecture 22 - Analysis, design of KM system
- Lecture 23 - Developing the KM system
- Lecture 24 - Prototyping and deployment
- Lecture 25 - Prototyping and deployment
- Lecture 26 - Inferences from data
- Lecture 27 - Inferences from data
- Lecture 28 - Data mining
- Lecture 29 - Data Management

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Knowledge portals
- Lecture 31 - Evaluation of KM effectiveness
- Lecture 32 - Metrics
- Lecture 33 - Legal issues
- Lecture 34 - Ethical Issues
- Lecture 35 - Managerial issues
- Lecture 36 - KM. Experiences form Indian companies
- Lecture 37 - KM practices of select industries
- Lecture 38 - KM practices of select industries
- Lecture 39 - Linking KM with innovation and learning organization
- Lecture 40 - Future of KM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Services Marketing: A Practical Approach

Subject Co-ordinator - Dr. Biplab Datta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Why Study Services Marketing Management?
- Lecture 3 - The Service System
- Lecture 4 - Characteristics of Services
- Lecture 5 - Understanding the Macro-Environment - I
- Lecture 6 - Understanding the Macro-Environment - II
- Lecture 7 - Understanding the Macro-Environment - III and Understanding the Micro-Environment - I
- Lecture 8 - Understanding the Micro-Environment - II
- Lecture 9 - Services Marketing Process
- Lecture 10 - Exploring Marketing Opportunities - I
- Lecture 11 - Exploring Marketing Opportunities - II
- Lecture 12 - Segmenting the Market, Targeting and Positioning
- Lecture 13 - Services Marketing Research
- Lecture 14 - Understanding Consumer Behaviour
- Lecture 15 - New Service Development
- Lecture 16 - The Service Product
- Lecture 17 - Service Quality - I
- Lecture 18 - Service Quality - II
- Lecture 19 - Designing the Service Process - I
- Lecture 20 - Designing the Service Process - II
- Lecture 21 - Developing Service Personnel
- Lecture 22 - Educating Customers
- Lecture 23 - Managing Service Delivery Channels
- Lecture 24 - Managing Channel Conflict
- Lecture 25 - Managing Demand and Capacity - I
- Lecture 26 - Managing Demand and Capacity - II
- Lecture 27 - Designing the Physical Evidence
- Lecture 28 - Managing Integrated Marketing Communications - I
- Lecture 29 - Managing Integrated Marketing Communications - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pricing the Service
- Lecture 31 - Managing Customers
- Lecture 32 - Managing Service Recovery
- Lecture 33 - Providing Service Guarantees
- Lecture 34 - Consumer Protection
- Lecture 35 - Case Study - I
- Lecture 36 - Case Study - II
- Lecture 37 - Case Study - III
- Lecture 38 - Case Study - IV
- Lecture 39 - Case Study - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Ethics

Subject Co-ordinator - Dr. Susmita Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is Business Ethics? Why Business Ethics is important?

Lecture 2 - Business Ethics in different organizational contexts

Lecture 3 - Globalization

Lecture 4 - Sustainability

Lecture 5 - What is Corporation?

Lecture 6 - Corporate Social Responsibility

Lecture 7 - Stakeholder theory of the firm

Lecture 8 - Corporate accountability

Lecture 9 - Corporate citizenship

Lecture 10 - Normative ethical theories and descriptive ethical theories, western modernist ethical theories

Lecture 11 - Western modernist ethical theories (Continued...)

Lecture 12 - Alternative perspectives on ethical theories

Lecture 13 - Indian perspective on Ethics

Lecture 14 - Models of ethical decision making and individual influences on ethical decision making

Lecture 15 - Situational influences on ethical decision making

Lecture 16 - Case Study 1

Lecture 17 - What is Business Ethics Management?

Lecture 18 - Setting standards of ethical behavior

Lecture 19 - Managing stakeholder relationship

Lecture 20 - Assessing ethical performance

Lecture 21 - Organizing for business ethics

Lecture 22 - Shareholders as stakeholders

Lecture 23 - Ethical issues in corporate governance

Lecture 24 - Shareholders as citizens of corporation

Lecture 25 - Shareholding for sustainability

Lecture 26 - Financial Management

Lecture 27 - Models of organizations

Lecture 28 - Firm-employee relationship

Lecture 29 - Firm-employee relationship (Continued...)

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- Lecture 30 - Globalization and employment
- Lecture 31 - Towards sustainable employment
- Lecture 32 - Case Study 2
- Lecture 33 - Consumers as stakeholders
- Lecture 34 - Ethical issues, marketing and the consumer
- Lecture 35 - Globalization and consumers
- Lecture 36 - Consumers and corporate citizenship
- Lecture 37 - Sustainable consumption
- Lecture 38 - Suppliers and competitors as stakeholders
- Lecture 39 - Ethical issues and competitors
- Lecture 40 - Globalization, suppliers and competitors
- Lecture 41 - The corporate citizen in the business community
- Lecture 42 - Sustainability and business relationship
- Lecture 43 - Civil society and business ethics
- Lecture 44 - Ethical issues and CSOs
- Lecture 45 - Globalization and CSOs
- Lecture 46 - Corporate citizenship and civil society
- Lecture 47 - Civil society, business and sustainability
- Lecture 48 - Government, regulation and business ethics
- Lecture 49 - Ethical issues in the relation between business and government
- Lecture 50 - Globalization and business-government relations
- Lecture 51 - Corporate citizenship and regulation
- Lecture 52 - Governments, business and sustainability
- Lecture 53 - Case Study 3
- Lecture 54 - Environment and business ethics
- Lecture 55 - Ethics of pollution control
- Lecture 56 - Ethics of conserving depletable resources
- Lecture 57 - Sustainability
- Lecture 58 - Information technology and business ethics
- Lecture 59 - Data identity and security
- Lecture 60 - Computer crimes and IPR
- Lecture 61 - TRIPS in India



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Gender Justice and Workplace Security

Subject Co-ordinator - Prof. Dipa Dube

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Gender Justice
- Lecture 2 - Introduction to Gender Justice (Continued...)
- Lecture 3 - Introduction to Gender Justice (Continued...)
- Lecture 4 - Introduction to Gender Justice (Continued...)
- Lecture 5 - International and Constitutional Perspectives
- Lecture 6 - International Perspectives
- Lecture 7 - Constitutional Perspectives
- Lecture 8 - Constitutional Perspectives (Continued...)
- Lecture 9 - Constitutional Perspectives (Continued...)
- Lecture 10 - Women at workplace
- Lecture 11 - Women at workplace (Continued...)
- Lecture 12 - Women at workplace (Continued...)
- Lecture 13 - Women at workplace (Continued...)
- Lecture 14 - Gender Violence- Within and Beyond
- Lecture 15 - Gender Violence- Within and Beyond (Continued...)
- Lecture 16 - Gender Violence- Within and Beyond (Continued...)
- Lecture 17 - Gender Violence- Within and Beyond (Continued...)
- Lecture 18 - Gender Violence- Within and Beyond (Continued...)
- Lecture 19 - Role of different agencies
- Lecture 20 - Role of different agencies (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Corporate Social Responsibility

Subject Co-ordinator - Prof. Aradhna Malik

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the Course  
Lecture 2 - What is CSR?  
Lecture 3 - Why CSR?  
Lecture 4 - Theories of CSR  
Lecture 5 - Theories of CSR (Continued...)  
Lecture 6 - Theories of CSR (Continued...)  
Lecture 7 - Evolution of CSR  
Lecture 8 - Evolution of CSR (Continued...)  
Lecture 9 - CSR-Global Timeline  
Lecture 10 - CSR-Global Timeline (Continued...)  
Lecture 11 - CSR in India  
Lecture 12 - CSR in India (Continued...)  
Lecture 13 - Who are Stakeholders?  
Lecture 14 - The Stakeholder Approach  
Lecture 15 - Stakeholders and CSR  
Lecture 16 - Stakeholders Theory Perspectives  
Lecture 17 - Stakeholder Theory in Action  
Lecture 18 - Stakeholder Identification  
Lecture 19 - Stakeholder Salience  
Lecture 20 - Stakeholder Management  
Lecture 21 - Stakeholder Dialogue  
Lecture 22 - Management of Stakeholder Dialogue  
Lecture 23 - Planning of CSR Activities  
Lecture 24 - CSR Design and Implementation  
Lecture 25 - CSR Design and Implementation  
Lecture 26 - CSR Activities  
Lecture 27 - CSR Design and Implementation  
Lecture 28 - CSR Activities  
Lecture 29 - Bases for Evaluation of CSR Activities

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Measurement of CSR
- Lecture 31 - An Example of CSR Evaluation
- Lecture 32 - CSR in India
- Lecture 33 - What is Corporate Governance?
- Lecture 34 - Theories of Corporate Governance
- Lecture 35 - Why Corporate Governance?
- Lecture 36 - Models and Systems of Corporate Governance
- Lecture 37 - Implementing Corporate Governance
- Lecture 38 - Board of Directors
- Lecture 39 - Board of Directors (Continued...)
- Lecture 40 - Principles of Corporate Governance
- Lecture 41 - Corporate Governance and Corporate Social Responsibility
- Lecture 42 - Corporate Governance and Corporate Social Responsibility (Continued...)
- Lecture 43 - What is Corporate Citizenship?
- Lecture 44 - Stages of Corporate Citizenship
- Lecture 45 - Why Corporate Citizenship?
- Lecture 46 - Corporate Citizenship and CSR
- Lecture 47 - What is Sustainable Development?
- Lecture 48 - Corporate Sustainability and CSR
- Lecture 49 - Integration of Corporate Sustainability with CSR
- Lecture 50 - Integration of Corporate Sustainability with CSR (Continued...)
- Lecture 51 - SDG Compass
- Lecture 52 - SDG Compass (Continued...)
- Lecture 53 - CSR Public Policies
- Lecture 54 - CSR Public Policies
- Lecture 55 - Consumer Social Responsibility (CnSR)
- Lecture 56 - Corporate Social Irresponsibility (CSiR)
- Lecture 57 - Future of CSR
- Lecture 58 - Wrap-Up

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Decision Modeling

Subject Co-ordinator - Prof. Biswajit Mahanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Decision Analysis
- Lecture 2 - Payoff Matrix
- Lecture 3 - Decision Making Under Risk
- Lecture 4 - Value of Information
- Lecture 5 - Probability Concepts
- Lecture 6 - Bayes Theorem
- Lecture 7 - Decision Tree
- Lecture 8 - Decision Problem with Experimentation
- Lecture 9 - Decision Problem with Experimentation (Continued...)
- Lecture 10 - Decision Problem Example
- Lecture 11 - Introduction to Waiting Lines
- Lecture 12 - Poisson and Exponential Distribution
- Lecture 13 - Birth and Death Process
- Lecture 14 - M/M/1 Queuing Model
- Lecture 15 - Queuing Examples
- Lecture 16 - Queuing Examples (Continued...)
- Lecture 17 - M/D/1 and M/M/s Queuing Models
- Lecture 18 - M/M/s and M/M/infinity Models
- Lecture 19 - Finite Queue Space and Queuing Cost Models
- Lecture 20 - Queuing Cost, Priority and Networking Models
- Lecture 21 - Introduction to Simulation
- Lecture 22 - Discrete-Event and Monte-Carlo Simulation
- Lecture 23 - Pseudo random Numbers
- Lecture 24 - Simulation Examples
- Lecture 25 - Generation of Random Variates
- Lecture 26 - Simulation Examples (Continued...)
- Lecture 27 - Monte-Carlo Simulation and Output Analysis
- Lecture 28 - Variance Reduction and Simulation Software
- Lecture 29 - Continuous Simulation and System Dynamics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - System Dynamics Example
- Lecture 31 - Introduction to Graph Theory
- Lecture 32 - Introduction (Continued...)
- Lecture 33 - Operations on a Graph, Tree and Spanning Tree
- Lecture 34 - Minimal Spanning Tree
- Lecture 35 - Cutsets
- Lecture 36 - Fundamental Circuits and Network Simplex Method
- Lecture 37 - Maximal Flow Problems
- Lecture 38 - Maximal Flow Problems (Continued...)
- Lecture 39 - Shortest Path Problems
- Lecture 40 - Shortest Path Problems (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:E-Business

Subject Co-ordinator - Prof. Mamata Jenamani

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Types of e-business transactions
- Lecture 3 - Business Models on the web
- Lecture 4 - Business Models on the web (Continued...)
- Lecture 5 - Innovative E-Business models for Bricks and Mortar firms
- Lecture 6 - Inter and Intra Organizational Business Processes
- Lecture 7 - Information system foundations
- Lecture 8 - Types of business information system
- Lecture 9 - Decision support for the management
- Lecture 10 - Enterprise Resource planning
- Lecture 11 - Connecting with stakeholders
- Lecture 12 - E-procurement - Reengineering the traditional procurement process
- Lecture 13 - E-procurement - New paradigms in the procurement process
- Lecture 14 - E-procurement - e-procurement Implementation issues and risks
- Lecture 15 - Customer relationship management
- Lecture 16 - E-Marketing
- Lecture 17 - E-Marketing (Continued...)
- Lecture 18 - Supply Chain Management - I - The Information flow
- Lecture 19 - Supply Chain Management - II - Tntegration
- Lecture 20 - Supply Chain Management - III - Interoperability
- Lecture 21 - Supply Chain Management - IV - Logistics and distribution
- Lecture 22 - Supply Chain Management - V - E-Commerce supply chain
- Lecture 23 - Components of E-Business Infrastructure
- Lecture 24 - Internet and the Web
- Lecture 25 - Networking resources
- Lecture 26 - Hardware and software resources
- Lecture 27 - Data resources
- Lecture 28 - Security categories
- Lecture 29 - Security terminologies

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- Lecture 30 - Digital signature
- Lecture 31 - Protocols for security
- Lecture 32 - Impact of security protocol on server performance
- Lecture 33 - Digital Payment systems
- Lecture 34 - Interoperability of information system
- Lecture 35 - Electronic data interchange (EDI)
- Lecture 36 - Fundamentals of web services
- Lecture 37 - Fundamentals of cloud based systems
- Lecture 38 - Automatic data capture using RFID
- Lecture 39 - Automatic data capture using RFID and its applications
- Lecture 40 - Automatic data capture using RFID and its applications (Continued...)
- Lecture 41 - GPS and GIS in supply chain
- Lecture 42 - Sensors and IOT
- Lecture 43 - Business Analytics and Big data
- Lecture 44 - Decision support Concepts
- Lecture 45 - Understanding the web log - I
- Lecture 46 - Understanding the web log - II
- Lecture 47 - Using the Web log
- Lecture 48 - User behaviour modelling from web log
- Lecture 49 - User behaviour modelling from web log (Continued...)
- Lecture 50 - E-Business Capacity Planning
- Lecture 51 - E-Business Capacity Planning (Continued...)
- Lecture 52 - Introduction to Recommender System
- Lecture 53 - Content Based Recommender System
- Lecture 54 - Collaborative Filtering Based Recommender System
- Lecture 55 - Association and Demographics Based Recommended System
- Lecture 56 - Dynamic Pricing
- Lecture 57 - Introduction to Auction
- Lecture 58 - Economic Considerations in Auction
- Lecture 59 - Winner Determination Problem
- Lecture 60 - Online auction issues

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Design and Analysis of Experiments

Subject Co-ordinator - Prof. Jhareswar Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Factorial Experiments
- Lecture 31 - Statistical Analysis of Factorial Experiments
- Lecture 32 - Estimation of parameters and model adequacy test for factorial experiment
- Lecture 33 - Full\_Factorial\_Single\_Replicate
- Lecture 34 - General\_Full\_factorial\_design
- Lecture 35 - Blocking\_Factorial\_design
- Lecture 36 - Two\_level\_Factorial\_Experiment
- Lecture 37 - Statistical analysis of  $2^k$  factorial design
- Lecture 38 -  $2_k$  Factorial Design Single Replicate
- Lecture 39 -  $2_k$  Factorial Design Centre Points
- Lecture 40 -  $2_k$  Factorial Design Optimality Issues
- Lecture 41 -  $2_k$  Factorial Design - Issues with Coded Design Variables
- Lecture 42 - Blocking and Confounding in  $2_k$  Factorial Design
- Lecture 43 - Blocking and Confounding in  $2_k$  Factorial Design (Continued...)
- Lecture 44 - Blocking and Confounding in  $2_k$  Factorial Design (Continued...)
- Lecture 45 - Fractional factorial design
- Lecture 46 - Fractional factorial design
- Lecture 47 - Fractional factorial design
- Lecture 48 - Alias Structure in Fractional factorial design
- Lecture 49 - General  $2^{(k-p)}$  Fractional Factorial Design
- Lecture 50 - Fractional factorial design
- Lecture 51 - Plackett-Burman Designs
- Lecture 52 - Response Surface Methodology (RSM) - First Order Model
- Lecture 53 - Response Surface Methodology (RSM) - First Order Model (Continued...)
- Lecture 54 - Experimental Design for Fitting Response Surfaces
- Lecture 55 - Response Surface Methodology (RSM)
- Lecture 56 - Analysis of Second Order Response Surface
- Lecture 57 - ANOVA using MINITAB
- Lecture 58 - Factorial Design using MINITAB
- Lecture 59 - Fractional Factorial Design using MINITAB
- Lecture 60 - Response Surface Methodology using MINITAB

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Quality Design and Control

Subject Co-ordinator - Prof. Pradip Kumar Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - History and Evolution of Quality Control and Management  
Lecture 2 - History and Evolution of Quality Control and Management  
Lecture 3 - History and Evolution of Quality Control and Management  
Lecture 4 - History and Evolution of Quality Control and Management  
Lecture 5 - History and Evolution of Quality Control and Management  
Lecture 6 - Management of Quality - I  
Lecture 7 - Management of Quality - I  
Lecture 8 - Management of Quality - I  
Lecture 9 - Management of Quality - I  
Lecture 10 - Management of Quality - I  
Lecture 11 - Management of Quality - II  
Lecture 12 - Management of Quality - II  
Lecture 13 - Management of Quality - II  
Lecture 14 - Management of Quality - II  
Lecture 15 - Management of Quality - II  
Lecture 16 - Statistical Process Control - I  
Lecture 17 - Statistical Process Control - I  
Lecture 18 - Statistical Process Control - I  
Lecture 19 - Statistical Process Control - I  
Lecture 20 - Statistical Process Control - I  
Lecture 21 - Statistical Process Control - II  
Lecture 22 - Statistical Process Control - II (Continued...)  
Lecture 23 - Statistical Process Control - II (Continued...)  
Lecture 24 - Statistical Process Control - II (Continued...)  
Lecture 25 - Statistical Process Control - II (Continued...)  
Lecture 26 - Process Capability Analysis  
Lecture 27 - Process Capability Analysis (Continued...)  
Lecture 28 - Process Capability Analysis (Continued...)  
Lecture 29 - Process Capability Analysis (Continued...)

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- Lecture 30 - Process Capability Analysis (Continued...)
- Lecture 31 - Acceptance Sampling - I
- Lecture 32 - Acceptance Sampling - I
- Lecture 33 - Acceptance Sampling - I
- Lecture 34 - Acceptance Sampling - I (Continued...)
- Lecture 35 - Acceptance Sampling - I (Continued...)
- Lecture 36 - Acceptance Sampling - II
- Lecture 37 - Acceptance Sampling - II (Continued...)
- Lecture 38 - Acceptance Sampling - II (Continued...)
- Lecture 39 - Acceptance Sampling - II (Continued...)
- Lecture 40 - Acceptance Sampling - II (Continued...)
- Lecture 41 - Design for Reliability - I
- Lecture 42 - Design for Reliability - I (Continued...)
- Lecture 43 - Design for Reliability - I (Continued...)
- Lecture 44 - Design for Reliability - I (Continued...)
- Lecture 45 - Design for Reliability - I (Continued...)
- Lecture 46 - Design for Reliability - II
- Lecture 47 - Design for Reliability - II (Continued...)
- Lecture 48 - Design for Reliability - II (Continued...)
- Lecture 49 - Design for Reliability - II (Continued...)
- Lecture 50 - Design for Reliability - II (Continued...)
- Lecture 51 - Quality by Experimental Design
- Lecture 52 - Quality by Experimental Design (Continued...)
- Lecture 53 - Quality by Experimental Design (Continued...)
- Lecture 54 - Quality by Experimental Design (Continued...)
- Lecture 55 - Quality by Experimental Design (Continued...)
- Lecture 56 - Robust Design and Taguchi Method
- Lecture 57 - Robust Design and Taguchi Method (Continued...)
- Lecture 58 - Robust Design and Taguchi Method (Continued...)
- Lecture 59 - Robust Design and Taguchi Method (Continued...)
- Lecture 60 - Robust Design and Taguchi Method (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Analytics for Management Decision

Subject Co-ordinator - Dr. Rudra P. Pradhan

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16 - Statistical inference

Lecture 17 - Testing of Hypothesis

Lecture 18 - Testing of Hypothesis (Continued...)

Lecture 19 - Confidence Interval

Lecture 20 - Confidence Interval 2

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25

Lecture 26

Lecture 27

Lecture 28

Lecture 29

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- Lecture 30
- Lecture 31 - Dummy Modelling
- Lecture 32 - Dummy Modelling (Continued...)
- Lecture 33 - Panel Data Model
- Lecture 34 - Panel Data Model (Continued...)
- Lecture 35 - Time Series Forecasting
- Lecture 36 - Time Series Forecasting (Continued...)
- Lecture 37 - Machine Learning
- Lecture 38 - Machine Learning (Continued...)
- Lecture 39 - Data Mining
- Lecture 40 - Simulation
- Lecture 41 - Basics
- Lecture 42 - Linear Programming 1
- Lecture 43 - Linear Programming 2
- Lecture 44 - Special Issues of Linear Programming
- Lecture 45 - Simplex Method of Linear Programming
- Lecture 46
- Lecture 47
- Lecture 48
- Lecture 49
- Lecture 50
- Lecture 51
- Lecture 52
- Lecture 53
- Lecture 54
- Lecture 55
- Lecture 56 - Introduction to decision theory
- Lecture 57 - Decision making under uncertainty
- Lecture 58 - Decision making under certainty
- Lecture 59 - Decision tree
- Lecture 60 - The value of information and utility theory

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Soft Skills for Business Negotiations and Marketing Strategies

Subject Co-ordinator - Prof. Uttam Kumar Bannerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by Linuxpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44  
Lecture 45  
Lecture 46  
Lecture 47 - Basics of negotiation  
Lecture 48 - Process sequence phase frequency  
Lecture 49 - Managing the process, tricks of countering  
Lecture 50 - Barriers to agreements, ending of negotiation  
Lecture 51 - Common mistakes  
Lecture 52  
Lecture 53  
Lecture 54  
Lecture 55  
Lecture 56

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Research Writing

Subject Co-ordinator - Prof. Aradhna Malik

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - What is research writing
- Lecture 3 - The Writing Process
- Lecture 4 - The Writing Process - 2
- Lecture 5 - Finding what to read
- Lecture 6 - Reading research documents
- Lecture 7 - Paying attention to what you read
- Lecture 8 - Reviewing Literature
- Lecture 9 - Reviewing Literature (Continued...)
- Lecture 10 - Elements of writing
- Lecture 11 - Reviewing literature
- Lecture 12 - Literature review
- Lecture 13 - Shaping your appeal
- Lecture 14 - Outlining
- Lecture 15 - Organizing an argument
- Lecture 16 - Methodology
- Lecture 17 - Tools for writing up literature reviews and methodology
- Lecture 18 - Presenting quantitative data
- Lecture 19 - Presenting qualitative data
- Lecture 20 - Writing the results section
- Lecture 21 - Discussion of Results
- Lecture 22 - Writing the conclusion section
- Lecture 23 - Academic Integrity
- Lecture 24 - Using and acknowledging sources
- Lecture 25 - Writers Block
- Lecture 26 - Revising
- Lecture 27 - Mistakes and Fallacies
- Lecture 28 - Editing and Proofreading
- Lecture 29 - Choosing a journal to publish in

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Responding to reviewer comments

Lecture 31 - Wrap up

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Engineering Econometrics

Subject Co-ordinator - Dr. Rudra P. Pradhan

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Engineering Econometrics
- Lecture 2 - Introduction to Engineering Econometrics (Continued...)
- Lecture 3 - Introduction to Engineering Econometrics (Continued...)
- Lecture 4 - Introduction to Engineering Econometrics (Continued...)
- Lecture 5 - Introduction to Engineering Econometrics (Continued...)
- Lecture 6 - Exploring Data on Spreadsheets
- Lecture 7 - Exploring Data on Spreadsheets (Continued...)
- Lecture 8 - Exploring Data on Spreadsheets (Continued...)
- Lecture 9 - Exploring Data on Spreadsheets (Continued...)
- Lecture 10 - Exploring Data on Spreadsheets (Continued...)
- Lecture 11 - Descriptive Econometrics
- Lecture 12 - Descriptive Econometrics (Continued...)
- Lecture 13 - Descriptive Econometrics (Continued...)
- Lecture 14 - Descriptive Econometrics (Continued...)
- Lecture 15 - Descriptive Econometrics (Continued...)
- Lecture 16 - Linear Regression Modelling
- Lecture 17 - Linear Regression Modelling (Continued...)
- Lecture 18 - Linear Regression Modelling (Continued...)
- Lecture 19 - Linear Regression Modelling (Continued...)
- Lecture 20 - Linear Regression Modelling (Continued...)
- Lecture 21 - Linear Regression Modelling (Continued...)
- Lecture 22 - Linear Regression Modelling (Continued...)
- Lecture 23 - Modelling Diagnostics
- Lecture 24 - Modelling Diagnostics (Continued...)
- Lecture 25 - Modelling Diagnostics (Continued...)
- Lecture 26 - Multicollinearity problem - III
- Lecture 27 - Autocorrelation problem - I
- Lecture 28 - Autocorrelation problem - II
- Lecture 29 - Heteroskedasticity problem - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heteroskedasticity problem - II
- Lecture 31 - Model Specification- Choosing the Independent Variables
- Lecture 32 - Model Specification- Choosing the Independent Variables
- Lecture 33 - Non-Linear Regression Modelling - Dummy-Variable Regression Modelling
- Lecture 34 - Non-Linear Regression Modelling - Interactive Regression Modelling
- Lecture 35 - Non-Linear Regression Modelling - Polynomial (Curvilinear) Regression Model
- Lecture 36 - Non-Linear Regression Modelling - Model Transformation
- Lecture 37 - Extension of Dummy Regression Modelling
- Lecture 38 - Extension of Dummy Regression Modelling - Dummy Independent Variable Modelling
- Lecture 39 - Extension of Dummy Regression Modelling - Dummy Dependent Variable Modelling
- Lecture 40 - Extension of Dummy Regression Modelling - Dummy Independent Variable Modelling
- Lecture 41 - Time Series Modelling - Basics
- Lecture 42 - Time Series Modelling - Trend Analysis
- Lecture 43 - Time Series Modelling - Trend Analysis (Least Squares Method)
- Lecture 44 - Time Series Modelling - Forecasting
- Lecture 45 - Time Series Modelling - Stationarity
- Lecture 46 - Time Series Modelling - Volatility Modelling
- Lecture 47 - Time Series Modelling - Volatility Modelling
- Lecture 48 - Time Series Modelling - Volatility Modelling
- Lecture 49 - Time Series Modelling - Volatility Modelling
- Lecture 50 - Time Series Modelling - Volatility Modelling
- Lecture 51 - Time Series Modelling - VAR modelling
- Lecture 52 - Time Series Modelling - VAR modelling
- Lecture 53 - Panel Data Modelling
- Lecture 54 - Panel Data Modelling (Continued...)
- Lecture 55 - Panel Data Modelling (Continued...)
- Lecture 56 - Panel Data Modelling
- Lecture 57 - Fitting Models to Data
- Lecture 58 - Fitting Models to Data (Continued...)
- Lecture 59 - Fitting Models to Data (Continued...)
- Lecture 60 - Fitting Models to Data (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Industrial Safety Engineering

Subject Co-ordinator - Prof. Jhareswar Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Industrial Safety Engineering
- Lecture 2 - Key concepts and terminologies
- Lecture 3 - Key concepts and terminologies-Safety domain ontology
- Lecture 4 - Key concepts and terminologies-Risk Assessment and Control
- Lecture 5 - Safety Engineering and Accident causing mechanisms
- Lecture 6 - Preliminary Hazard List
- Lecture 7 - Preliminary Hazard Analysis
- Lecture 8 - Hazard and operability study (HAZOP)
- Lecture 9 - Failure Modes and Effects Analysis (FMEA)- Identification of Failure Modes
- Lecture 10 - Failure Modes and Effects Analysis (FMEA) (Continued...)
- Lecture 11 - Application of Hazard Identification Techniques
- Lecture 12 - Fault Tree Analysis (FTA) - Construction
- Lecture 13 - Fault Tree Analysis (FTA) - Gate by Gate method
- Lecture 14 - Fault Tree Analysis (FTA) - Cut-set method
- Lecture 15 - Fault Tree Analysis (FTA) - Importance measures
- Lecture 16 - Event Tree Analysis (ETA)
- Lecture 17 - Bowtie Tool
- Lecture 18 - Bow-tie
- Lecture 19 - Bow-tie
- Lecture 20 - Bow-tie
- Lecture 21 - Bow-tie
- Lecture 22 - Risk Assessment
- Lecture 23 - Consequence Assessment
- Lecture 24 - Energy Control Model and Hazard Control Hierarchy
- Lecture 25 - Safety Function Deployment
- Lecture 26 - Ranking of Design Solutions
- Lecture 27 - Quantification of Basic Events for Non-repairable Components
- Lecture 28 - Quantification of Basic Events
- Lecture 29 - Quantification of Basic Events

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quantification of Basic Events
- Lecture 31 - Quantification of Basic Events
- Lecture 32 - Quantification of Basic Events
- Lecture 33 - Quantification of Basic Events
- Lecture 34 - Computation of combined process parameters
- Lecture 35 - Computation of combined process parameters
- Lecture 36 - Quantification of Systems Safety and Reliability Block Diagram
- Lecture 37 - Systems Safety Quantification
- Lecture 38 - Systems Safety Quantification
- Lecture 39 - Systems Safety Quantification
- Lecture 40 - Systems Safety Quantification
- Lecture 41 - Human Error, Classification and Causes
- Lecture 42 - Human Error, Classification and Causes (Continued...)
- Lecture 43 - Human Error Identification
- Lecture 44 - Human Reliability Assessment
- Lecture 45 - Human Error Quantification from Expertsâ opinions â Fuzzy Set Approach
- Lecture 46 - Accident Investigation
- Lecture 47 - Accident Investigation and Analysis
- Lecture 48 - Control Chart Analysis
- Lecture 49 - Accident Data Analysis
- Lecture 50 - Accident Data Analysis
- Lecture 51 - Occupational Health and Safety Management Systems(OH&SMS) and OHSAS 18001 - Part I
- Lecture 52 - Occupational Health and Safety Management Systems(OH&SMS) and OHSAS 18001 - Part II
- Lecture 53 - Occupational Health and Safety Management Systems(OH&SMS) and OHSAS 18001 - Part III
- Lecture 54 - Safety Performance Indicators - Part I
- Lecture 55 - Safety Performance Indicators - Part II
- Lecture 56 - Energy Isolations
- Lecture 57 - Virtual Reality - Introduction
- Lecture 58 - Geometry of virtual world
- Lecture 59 - VR roadmap - A case study
- Lecture 60 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Management of Inventory Systems

Subject Co-ordinator - Prof. PK Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Inventory and Materials Management
- Lecture 2 - Introduction to Inventory and Materials Management (Continued...)
- Lecture 3 - Introduction to Inventory and Materials Management (Continued...)
- Lecture 4 - Introduction to Inventory and Materials Management (Continued...)
- Lecture 5 - Introduction to Inventory and Materials Management (Continued...)
- Lecture 6 - Inventory Problems and Selective Inventory Management
- Lecture 7 - Inventory Problems and Selective Inventory Management (Continued...)
- Lecture 8 - Inventory Problems and Selective Inventory Management (Continued...)
- Lecture 9 - Inventory Problems and Selective Inventory Management (Continued...)
- Lecture 10 - Inventory Problems and Selective Inventory Management (Continued...)
- Lecture 11 - Static Inventory Problem under Risk
- Lecture 12 - Static Inventory Problem under Risk (Continued...)
- Lecture 13 - Static Inventory Problem under Risk (Continued...)
- Lecture 14 - Static Inventory Problem under Risk (Continued...)
- Lecture 15 - Static Inventory Problem under Risk (Continued...)
- Lecture 16 - Static Inventory Problems under Uncertainty
- Lecture 17 - Static Inventory Problems under Uncertainty (Continued...)
- Lecture 18 - Static Inventory Problems under Uncertainty (Continued...)
- Lecture 19 - Static Inventory Problems under Uncertainty (Continued...)
- Lecture 20 - Static Inventory Problems under Uncertainty (Continued...)
- Lecture 21 - Dynamic Inventory Problems under Certainty
- Lecture 22 - Dynamic Inventory Problems under Certainty (Continued...)
- Lecture 23 - Dynamic Inventory Problems under Certainty (Continued...)
- Lecture 24 - Dynamic Inventory Problems under Certainty (Continued...)
- Lecture 25 - Dynamic Inventory Problems under Certainty (Continued...)
- Lecture 26 - Dynamic Inventory Problems under Risk
- Lecture 27 - Dynamic Inventory Problems under Risk (Continued...)
- Lecture 28 - Dynamic Inventory Problems under Risk (Continued...)
- Lecture 29 - Dynamic Inventory Problems under Risk (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dynamic Inventory Problems under Risk (Continued...)
- Lecture 31 - MRP, MRP-II and DRP
- Lecture 32 - MRP, MRP-II and DRP (Continued...)
- Lecture 33 - MRP, MRP-II and DRP (Continued...)
- Lecture 34 - MRP, MRP-II and DRP (Continued...)
- Lecture 35 - MRP, MRP-II and DRP (Continued...)
- Lecture 36 - JIT-based Approaches for Materials Management
- Lecture 37 - JIT-based Approaches for Materials Management (Continued...)
- Lecture 38 - JIT-based Approaches for Materials Management (Continued...)
- Lecture 39 - JIT-based Approaches for Materials Management (Continued...)
- Lecture 40 - JIT-based Approaches for Materials Management (Continued...)
- Lecture 41 - Basics of Purchasing Management
- Lecture 42 - Basics of Purchasing Management (Continued...)
- Lecture 43 - Basics of Purchasing Management (Continued...)
- Lecture 44 - Basics of Purchasing Management (Continued...)
- Lecture 45 - Basics of Purchasing Management (Continued...)
- Lecture 46 - Theory of Constraints and Materials Management
- Lecture 47 - Theory of Constraints and Materials Management (Continued...)
- Lecture 48 - Theory of Constraints and Materials Management (Continued...)
- Lecture 49 - Theory of Constraints and Materials Management (Continued...)
- Lecture 50 - Theory of Constraints and Materials Management (Continued...)
- Lecture 51 - Value Engineering/Analysis and Stores Management
- Lecture 52 - Value Engineering/Analysis and Stores Management (Continued...)
- Lecture 53 - Value Engineering/Analysis and Stores Management (Continued...)
- Lecture 54 - Value Engineering/Analysis and Stores Management (Continued...)
- Lecture 55 - Value Engineering/Analysis and Stores Management (Continued...)
- Lecture 56 - Logistics and Supply Chain Management
- Lecture 57 - Logistics and Supply Chain Management (Continued...)
- Lecture 58 - Logistics and Supply Chain Management (Continued...)
- Lecture 59 - Logistics and Supply Chain Management (Continued...)
- Lecture 60 - Logistics and Supply Chain Management (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Selected Topics in Decision Modeling

Subject Co-ordinator - Prof. Biswajit Mahanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Dynamic Programming
- Lecture 2 - Stagecoach Problem
- Lecture 3 - An Investment Problem
- Lecture 4 - An Investment Problem (Continued...)
- Lecture 5 - Further Examples
- Lecture 6 - Machine Allocation and Cargo Loading Problem
- Lecture 7 - Knapsack Problem
- Lecture 8 - Probabilistic Dynamic Programming
- Lecture 9 - Probabilistic Dynamic Programming (Continued...)
- Lecture 10 - Dijkstra's Algorithm
- Lecture 11 - Integer Programming
- Lecture 12 - Integer Programming
- Lecture 13 - Integer Programming
- Lecture 14 - Integer Linear Programming
- Lecture 15 - Cutting Plane Method
- Lecture 16 - Exhaustive Enumeration and Branch and Bound Techniques
- Lecture 17 - Branch and Bound Technique
- Lecture 18 - Assignment and Travelling Salesman Problem
- Lecture 19 - Travelling Salesman Problem (Continued...)
- Lecture 20 - Heuristic Methods for Integer Programming
- Lecture 21 - Non-Linear Programming
- Lecture 22 - Single-Variable Unconstrained Optimization
- Lecture 23 - Multi-variable Unconstrained NLP
- Lecture 24 - Solving Unconstrained NLP
- Lecture 25 - Numerical Methods for Unconstrained NLP
- Lecture 26 - Constrained NLP
- Lecture 27 - Constrained NLP
- Lecture 28 - Constrained NLP
- Lecture 29 - Quadratic Programming

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Example problems on Constrained NLP
- Lecture 31 - Introduction to Metaheuristics
- Lecture 32 - Genetic Algorithms
- Lecture 33 - Genetic Algorithm Process
- Lecture 34 - Genetic Algorithm Process (Continued...)
- Lecture 35 - Genetic Algorithm Examples
- Lecture 36 - Simulated Annealing
- Lecture 37 - Tabu Search
- Lecture 38 - Particle Swarm Optimization
- Lecture 39 - Multi-Objective Optimization
- Lecture 40 - NSGA-II Examples

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Ethics in Engineering Practice

Subject Co-ordinator - Dr. Susmita Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Ethical Reasoning and Engineering Ethics
- Lecture 2 - Introduction to Ethical Reasoning and Engineering Ethics (Continued...)
- Lecture 3 - Introduction to Ethical Reasoning and Engineering Ethics (Continued...)
- Lecture 4 - Professional practice in engineering
- Lecture 5 - Professional practice in engineering (Continued...)
- Lecture 6 - Central Professional responsibilities of engineers
- Lecture 7 - Central Professional responsibilities of engineers (Continued...)
- Lecture 8 - Workplace Rights and Responsibilities
- Lecture 9 - Workplace Rights and Responsibilities (Continued...)
- Lecture 10 - Ethics as Design doing Justice to Moral Problems
- Lecture 11 - Ethics as Design doing Justice to Moral Problems (Continued...)
- Lecture 12 - Intellectual Property Rights and Ethics
- Lecture 13 - Intellectual Property Rights and Ethics (Continued...)
- Lecture 14 - Trade related Intellectual Property Rights
- Lecture 15 - Trade related Intellectual Property Rights in India
- Lecture 16 - A brief on Paris Convention, 1967 and The Berne Contract, 1971
- Lecture 17 - Computer Software and Digital Information
- Lecture 18 - Computer Software and Digital Information (Continued...)
- Lecture 19 - Engineers, Nuclear Testing and Weapons
- Lecture 20 - Engineers, Nuclear Testing and Weapons (Continued...)
- Lecture 21 - Responsibility to Environment
- Lecture 22 - Responsibility to Environment (Continued...)
- Lecture 23 - Environmental Ethics and Spirituality
- Lecture 24 - Engineering as Social Experimentation
- Lecture 25 - Research Ethics
- Lecture 26 - Research Ethics (Continued...)
- Lecture 27 - Engineers as Managers Consultants and Leaders
- Lecture 28 - Engineers as Managers Consultants and Leaders (Continued...)
- Lecture 29 - Engineers as Managers Consultants and Leaders (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Key Questions - Ethical Conduct of Engineers
- Lecture 31 - Key Questions - Ethical Conduct of Engineers (Continued...)
- Lecture 32 - Key Questions - Central Professional Responsibilities of Engineers
- Lecture 33 - Key Questions - Central Professional Responsibilities of Engineers (Continued...)
- Lecture 34 - Key Questions - Relating to Rights and Responsibilities regarding IPR
- Lecture 35 - Key Questions - Relating to Rights and Responsibilities regarding IPR (Continued...)
- Lecture 36 - Key Questions - Relating to Rights and Responsibilities regarding IPR (Continued...)
- Lecture 37 - Key Questions - Related to Engineers Rights and Duties and Ethics
- Lecture 38 - Key Questions - Related to Engineers Rights and Duties and Ethics (Continued...)
- Lecture 39 - Leadership Styles and Ethical Conduct
- Lecture 40 - Leadership Styles and Ethical Conduct (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Infrastructure Finance

Subject Co-ordinator - Dr. A. Thillai Rajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Overview on Infrastructure Financing Sources
- Lecture 3 - Basics of Financial Management - Part-1
- Lecture 4 - Basics of Financial Management - Part-2
- Lecture 5 - Basics of Financial Management - Part-3
- Lecture 6 - Basics of Financial Management - Part-4
- Lecture 7 - Analysis of company Performance - Part-1
- Lecture 8 - Analysis of company Performance - Part-2
- Lecture 9 - Analysis of Project Viability Time value of money
- Lecture 10 - Analysis of Project Viability Cost of Capital
- Lecture 11 - Analysis of Project Viability Capital Budgeting Techniques - I
- Lecture 12 - Analysis of Project Viability Capital Budgeting Guidelines - II
- Lecture 13 - Analysis of Project Viability Capital Budgeting Guidelines - III
- Lecture 14 - Analysis of Project Viability Capital Budgeting Guidelines - IV
- Lecture 15 - Overview and introduction to project finance
- Lecture 16 - Project Financing Attributes and Motivations - I
- Lecture 17 - Project Financing Attributes and Motivations - II
- Lecture 18 - Project Finance Markets - I
- Lecture 19 - Project Finance Markets - II
- Lecture 20 - Project Finance Markets - III
- Lecture 21 - Project Finance Markets Mezzanine / Sub-ordinated Debt
- Lecture 22 - Project Finance Markets - Type of Debt and Leasing
- Lecture 23 - Project Finance Markets - Financial Intermediation
- Lecture 24 - Project Finance Markets - Loan Refinancing
- Lecture 25 - Project Finance Markets - Project Bonds - I
- Lecture 26 - Project Finance Markets - Project Bonds - II
- Lecture 27 - Public Private Partnerships
- Lecture 28 - Risk Management - I
- Lecture 29 - Risk Management - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Risk Management - III
- Lecture 31 - Risk Management - Market Risks
- Lecture 32 - Risk Management - Country / Political risks - I
- Lecture 33 - Risk Management - Country / Political risks - II
- Lecture 34 - Risk Management - Country / Political risks - III
- Lecture 35 - Risk Management - Country / Political risks - IV
- Lecture 36 - Context of infrastructure development - I
- Lecture 37 - Context of infrastructure development - II
- Lecture 38 - Context of infrastructure development - III
- Lecture 39 - Context of infrastructure development - IV
- Lecture 40 - Context of infrastructure development - V

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Manufacturing Systems Management

Subject Co-ordinator - Prof. G. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Manufacturing Systems Management
- Lecture 2 - Different types of Manufacturing Systems
- Lecture 3 - Introduction to Cellular Manufacturing
- Lecture 4 - Cellular Manufacturing Applications, Production Flow Analysis
- Lecture 5 - Production Flow Analysis
- Lecture 6 - Cellular Manufacturing - Unidirectional flow, Capacity Planning, Layout
- Lecture 7 - Exercise on Production Flow Analysis
- Lecture 8 - Rank Order Clustering, Similarity Coefficient based algorithm
- Lecture 9 - Similarity Coefficient based clustering algorithm
- Lecture 10 - Hierarchical and Non hierarchical clustering algorithms
- Lecture 11 - Optimization based algorithms
- Lecture 12 - Optimization based algorithms, Assignment based algorithm
- Lecture 13 - Assignment model, Algorithm considering sequence of visit of machines
- Lecture 14 - Algorithm considering sequence of visit of machines
- Lecture 15 - Algorithm considering cell load data, alternate process plans
- Lecture 16 - Reducing Intercell moves
- Lecture 17 - Part subcontracting, Incremental cell formation
- Lecture 18 - Product based cells
- Lecture 19 - Branching algorithm for product based cells, Operator and task assignment
- Lecture 20 - Operator and task assignment
- Lecture 21 - Operator and task assignment continued
- Lecture 22 - Static and dynamic Operator allocation, Multiple products and incremental cells
- Lecture 23 - Cell scheduling and sequencing
- Lecture 24 - Cell scheduling and sequencing continued
- Lecture 25 - Single piece transportation
- Lecture 26 - Cell Layout, Introduction to Just-in-time manufacturing
- Lecture 27 - Cell control and JIT
- Lecture 28 - Basic elements of JIT, Kanban systems
- Lecture 29 - Role of basic elements, Critical success factors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Models in JIT
- Lecture 31 - Models in JIT continued
- Lecture 32 - CONWIP, Introduction to synchronous manufacturing
- Lecture 33 - Theory of constraints, Product mix problem
- Lecture 34 - Statistical Fluctuations, Random events, principles of SM
- Lecture 35 - Scheduling in SM
- Lecture 36 - Drum Buffer Rope system
- Lecture 37 - Flexible Manufacturing System, Part selection problem
- Lecture 38 - FMS Loading problem
- Lecture 39 - FMS Loading, multiple batches and changeover times
- Lecture 40 - FMS Loading and scheduling, Summary of the course contents

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Operations and Supply Chain Management

Subject Co-ordinator - Prof. G. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - (Challenges, Methodologies)
- Lecture 2 - Forecasting - Time series models - Simple Exponential smoothing
- Lecture 3 - Forecasting - Linear Models, Regression, Holt's, seasonality
- Lecture 4 - Forecasting - Winter's model, causal models, Goodness of forecast, Aggregate Planning, Tabular
- Lecture 5 - Aggregate Planning, Tabular method, Linear Programming
- Lecture 6 - Aggregate Planning, Transportation model
- Lecture 7 - Aggregate Planning, Dynamic Programming, backordering
- Lecture 8 - Aggregate Planning, Quadratic model, Demand and capacity planning
- Lecture 9 - Inventory Models - Costs, EOQ model
- Lecture 10 - Inventory - EOQ model graphs, with backordering
- Lecture 11 - Inventory - Models for all quantity and marginal quantity Discount
- Lecture 12 - Multiple Quantity Discount, Multiple item inventory - Constraint on numbers of orders
- Lecture 13 - Multiple item inventory - Constraint on money value, space, equal number of orders
- Lecture 14 - Multiple item inventory - combining orders, production consumption model
- Lecture 15 - Inventory - Production consumption model with backordering, Economic lot scheduling problem
- Lecture 16 - Economic lot scheduling problem, Supply Chain inventory
- Lecture 17 - Lot sizing
- Lecture 18 - Lot sizing - heuristics
- Lecture 19 - Disaggregation
- Lecture 20 - Disaggregation - time varying demand, Safety stock - ROL for discrete demand distribution
- Lecture 21 - Safety stock - ROL for normal distribution of lead time demand
- Lecture 22 - Integrated model, ROL for normal distribution of LTD and given mean
- Lecture 23 - Safety stock reduction - delayed Product differentiation, substitution. MOM
- Lecture 24 - Sequencing and scheduling - Assumptions, objectives and shop settings
- Lecture 25 - Single machine sequencing. Two machine flow shop - Johnson's algorithm
- Lecture 26 - Flow shop scheduling - Three machines, Johnson's algorithm and Branch and bound algorithm
- Lecture 27 - Flow shop scheduling - heuristics - Palmer, Campbell Dudek Smith algorithm
- Lecture 28 - Job shop scheduling - Gantt chart, Different dispatching rules
- Lecture 29 - Job shop scheduling - Shifting bottleneck heuristic

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- Lecture 30 - Job shop scheduling - Shifting bottleneck heuristic. Line Balancing
- Lecture 31 - Line Balancing
- Lecture 32 - Location problems - p median problem, Fixed charge problem
- Lecture 33 - Location allocation problems in supply chain. Layout
- Lecture 34 - Quantitative models for layout, Summary
- Lecture 35 - Introduction to Supply Chain Management
- Lecture 36 - Location Problems
- Lecture 37 - Transportation and Distribution Models
- Lecture 38 - Transportation and Distribution Models(continued)
- Lecture 39 - Bin Packing and Travelling Salesman Problems
- Lecture 40 - Vehicle Routeing Problems
- Lecture 41 - Value of Information

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Business Analysis for Engineers

Subject Co-ordinator - Dr. S. Vaidhyasubramaniam

Co-ordinating Institute - SASTRA University

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Business Analysis for Engineers
- Lecture 2 - Introduction to Accounting
- Lecture 3 - Accounting Principles - 1
- Lecture 4 - Balance Sheet Fundamentals
- Lecture 5 - Balance Sheet Fundamentals
- Lecture 6 - Accounting Principles - 2
- Lecture 7 - Introduction to Income Statement & Double Entry
- Lecture 8 - Double Entry Examples - 1
- Lecture 9 - Double Entry Examples - 2
- Lecture 10 - Preparation of Financial Statement
- Lecture 11 - Cash Flow Statement - 1
- Lecture 12 - Cash Flow Statement - 2
- Lecture 13 - Special Accounts Illustrations
- Lecture 14 - Final Illustrative Example
- Lecture 15 - Summary of Financial Accounting
- Lecture 16 - Introduction to Management Accounting & Behaviour of Cost
- Lecture 17 - Cost-Volume Relationship
- Lecture 18 - Cost-Objects & Variance
- Lecture 19 - Labour & Over Heads Variance Analysis
- Lecture 20 - Cash Conversion Cycle
- Lecture 21 - Inventory Management
- Lecture 22 - What is Strategy?
- Lecture 23 - Porter's Diamond Model
- Lecture 24 - Industry Analysis
- Lecture 25 - Industry Analysis & Sources of Strategy
- Lecture 26 - The Need for Value
- Lecture 27 - Value Chain Analysis
- Lecture 28 - Corporate Portfolio Analysis
- Lecture 29 - External & Internal Environ Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Models for Strategy, Ansoff matrix
- Lecture 31 - Porter's Generic Strategy
- Lecture 32 - Prahlad's Core Competency
- Lecture 33 - Case study to understand strategy
- Lecture 34 - Case study to understand strategy
- Lecture 35 - Blue ocean and conclusion
- Lecture 36 - Introduction to Economics
- Lecture 37 - Introduction to GDP
- Lecture 38 - Supply vs Demand
- Lecture 39 - Price & Income Elasticity and Utility
- Lecture 40 - Macroeconomic Variables
- Lecture 41 - Fiscal & Monetary Policy
- Lecture 42 - Union Budget & Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Introduction to Operations Research

Subject Co-ordinator - Prof. G. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Linear Programming Introduction and formulations - Product Mix problem and Notations
- Lecture 2 - Linear Programming Introduction and formulations - Manpower and Production planning formulations
- Lecture 3 - Linear Programming Introduction and formulations - Media selection problem and Bicycle problem
- Lecture 4 - Linear Programming Introduction and formulations - Caterer problem
- Lecture 5 - Linear Programming Introduction and formulations - Maximum flow and bin packing problems
- Lecture 6 - Graphical and Algebraic methods - Graphical method (maximization)
- Lecture 7 - Graphical and Algebraic methods - Graphical method (minimization)
- Lecture 8 - Graphical and Algebraic methods - Algebraic method (maximization)
- Lecture 9 - Graphical and Algebraic methods - Algebraic method (minimization)
- Lecture 10 - Graphical and Algebraic methods - Comparing graphical and algebraic methods
- Lecture 11 - Simplex Algorithm - Algebraic form of simplex algorithm
- Lecture 12 - Simplex Algorithm - Tabular form of simplex (maximization)
- Lecture 13 - Simplex Algorithm - Tabular form (minimization)
- Lecture 14 - Simplex Algorithm - Unboundedness
- Lecture 15 - Simplex Algorithm - Infeasibility
- Lecture 16 - Dual - Motivation to the dual
- Lecture 17 - Dual - Writing the dual for a general LP
- Lecture 18 - Dual - Writing the dual for a general LP (Continued...)
- Lecture 19 - Dual - Duality theorems
- Lecture 20 - Dual - Complimentary slackness theorem
- Lecture 21 - Primal dual relationships - Dual solution using complimentary slackness
- Lecture 22 - Primal dual relationships - Dual solution from simplex table; economic interpretation of dual
- Lecture 23 - Primal dual relationships - Economic Interpretation of the dual; Dual Simplex algorithm
- Lecture 24 - Primal dual relationships - Solving LPs with mixed type of constraints
- Lecture 25 - Primal dual relationships - Matrix method for LP problems
- Lecture 26 - Introducing the transportation problem
- Lecture 27 - North West corner Rule and minimum cost method
- Lecture 28 - Penalty cost method
- Lecture 29 - Stepping stone method and Modified Distribution method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - MODI method; Dual of the transportation problem and the optimality of the MODI method
- Lecture 31 - Introducing the Assignment problem
- Lecture 32 - Solving the Assignment problem
- Lecture 33 - Hungarian algorithm; Alternate optimum
- Lecture 34 - Unequal number of rows and columns; Dual of the assignment problem
- Lecture 35 - Optimality of the Hungarian algorithm
- Lecture 36 - Setting up the problem and solving simple LP problems
- Lecture 37 - Unboundedness and infeasibility
- Lecture 38 - Solving other formulations
- Lecture 39 - Solving a transportation problem
- Lecture 40 - Solving an assignment problem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Introduction to Data Analytics

Subject Co-ordinator - Dr. Nandan Sudarsanam, Dr. Balaraman Ravindran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Overview
- Lecture 2 - Course Overview (Continued...)
- Lecture 3 - Descriptive Statistics - Graphical Approaches
- Lecture 4 - Descriptive Statistics - Measures of Central Tendency
- Lecture 5 - Descriptive Statistics - Measures of Dispersion
- Lecture 6 - Random Variables and Probability Distributions
- Lecture 7 - Probability Distributions (Continued...)
- Lecture 8 - Probability Distributions (Continued...)
- Lecture 9 - Inferential Statistics - Motivation
- Lecture 10 - Inferential Statistics - Single sample tests
- Lecture 11 - Two Sample tests
- Lecture 12 - Type 1 and Type 2 Errors
- Lecture 13 - Confidence Intervals
- Lecture 14 - ANOVA and Test of Independence
- Lecture 15 - Short Introduction to Regression
- Lecture 16 - Introduction to Machine Learning
- Lecture 17 - Supervised Learning
- Lecture 18 - Unsupervised Learning
- Lecture 19 - Ordinary Least Squares Regression
- Lecture 20 - Simple and Multiple Regression in Excel and Matlab
- Lecture 21 - Regularization/ Coefficients Shrinkage
- Lecture 22 - Data Modelling and Algorithmic Modelling Approaches
- Lecture 23 - Logistic Regression
- Lecture 24 - Training a Logistic Regression Classifier
- Lecture 25 - Classification and Regression Trees
- Lecture 26 - Classification and Regression Trees (Continued...)
- Lecture 27 - Bias Variance Dichotomy
- Lecture 28 - Model Assessment and Selection
- Lecture 29 - Support Vector Machines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Support Vector Machines (Continued...)
- Lecture 31 - Support Vector Machines for Non Linearly Separable Data
- Lecture 32 - Support Vector Machines and Kernel Transformations
- Lecture 33 - Ensemble Methods and Random Forests
- Lecture 34 - Artificial Neural Networks
- Lecture 35 - Artificial Neural Networks (Continued...)
- Lecture 36 - Deep Learning
- Lecture 37 - Associative Rule Mining
- Lecture 38 - Association Rule Mining (Continued...)
- Lecture 39 - Big Data - A small introduction
- Lecture 40 - Big Data - A small introduction (Continued...)
- Lecture 41 - Clustering Analysis
- Lecture 42 - Clustering Analysis (Continued...)
- Lecture 43 - Introduction to Experimentation and Active Learning
- Lecture 44 - Introduction to Experimentation and Active Learning (Continued...)
- Lecture 45 - An Introduction to Online Learning - Reinforcement Learning
- Lecture 46 - An Introduction to Online Learning - Reinforcement Learning (Continued...)
- Lecture 47 - Summary + Insights into the Final Exam
- Lecture 48 - Tutorial on weka
- Lecture 49 - Tutorial on Decision Trees
- Lecture 50 - Big Data - A Small Introduction (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Introduction to Data analytics

Subject Co-ordinator - Dr. Nandan Sudarsanam, Dr. Balaraman Ravindran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Overview
- Lecture 2 - Course Overview (Continued...)
- Lecture 3 - Descriptive Statistics - Graphical Approaches
- Lecture 4 - Descriptive Statistics - Measures of Central Tendency
- Lecture 5 - Descriptive Statistics - Measures of Dispersion
- Lecture 6 - Random Variables and Probability Distributions
- Lecture 7 - Probability Distributions (Continued...)
- Lecture 8 - Probability Distributions (Continued...)
- Lecture 9 - Inferential Statistics - Motivation
- Lecture 10 - Inferential Statistics - Single sample tests
- Lecture 11 - Two Sample tests
- Lecture 12 - Type 1 and Type 2 Errors
- Lecture 13 - Confidence Intervals
- Lecture 14 - ANOVA and Test of Independence
- Lecture 15 - Short Introduction to Regression
- Lecture 16 - Introduction to Machine Learning
- Lecture 17 - Supervised Learning
- Lecture 18 - Unsupervised Learning
- Lecture 19 - Ordinary Least Squares Regression
- Lecture 20 - Simple and Multiple Regression in Excel and Matlab
- Lecture 21 - Regularization/ Coefficients Shrinkage
- Lecture 22 - Data Modelling and Algorithmic Modelling Approaches
- Lecture 23 - Logistic Regression
- Lecture 24 - Training a Logistic Regression Classifier
- Lecture 25 - Classification and Regression Trees
- Lecture 26 - Classification and Regression Trees (Continued...)
- Lecture 27 - Bias Variance Dichotomy
- Lecture 28 - Model Assessment and Selection
- Lecture 29 - Support Vector Machines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Support Vector Machines (Continued...)
- Lecture 31 - Support Vector Machines for Non Linearly Separable Data
- Lecture 32 - Support Vector Machines and Kernel Transformations
- Lecture 33 - Ensemble Methods and Random Forests
- Lecture 34 - Artificial Neural Networks
- Lecture 35 - Artificial Neural Networks (Continued...)
- Lecture 36 - Deep Learning
- Lecture 37 - Associative Rule Mining
- Lecture 38 - Association Rule Mining (Continued...)
- Lecture 39 - Big Data, A small introduction
- Lecture 40 - Big Data, A small introduction (Continued...)
- Lecture 41 - Clustering Analysis
- Lecture 42 - Clustering Analysis (Continued...)
- Lecture 43 - Introduction to Experimentation and Active Learning
- Lecture 44 - Introduction to Experimentation and Active Learning (Continued...)
- Lecture 45 - An Introduction to Online Learning - Reinforcement Learning
- Lecture 46 - An Introduction to Online Learning - Reinforcement Learning (Continued...)
- Lecture 47 - Summary - Insights into the Final Exam
- Lecture 48 - Tutorial on weka
- Lecture 49 - Tutorial on Decision Trees
- Lecture 50 - Big Data - A Small Introduction (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Patent Law for Engineers and Scientists

Subject Co-ordinator - Prof. Feroze Ali

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Patent Law as Concepts
- Lecture 2 - Understanding the Patents Act and the Rules
- Lecture 3 - Preliminary Sections
- Lecture 4 - Preliminary Rules
- Lecture 5 - Patents (Amendment) Rules, 2016
- Lecture 6 - Easy way to read the Patents Act and Rules
- Lecture 7 - What can be Patented?
- Lecture 8 - Inventions not Patentable
- Lecture 9 - Novelty
- Lecture 10 - Anticipation
- Lecture 11 - Inventive Step
- Lecture 12 - Capable of Industrial Application
- Lecture 13 - Person Skilled in the Art
- Lecture 14 - Complete and Provisional Specifications
- Lecture 15 - Contents of Specifications
- Lecture 16 - Structure of a Patent Specification
- Lecture 17 - Reading a Patent Specification
- Lecture 18 - Introduction to Patent Drafting
- Lecture 19 - Introduction to Patent Drafting
- Lecture 20 - Who Can Apply for a Patent?
- Lecture 21 - Form of Application
- Lecture 22 - Patent Application
- Lecture 23 - Powers of Controller
- Lecture 24 - Patents of Addition
- Lecture 25 - Priority Dates
- Lecture 26 - Professor's Interaction 01
- Lecture 27 - Publication of Application
- Lecture 28 - Request for Examination
- Lecture 29 - Examination of Application

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- Lecture 30 - Expedited Examination of Application
- Lecture 31 - Search for Anticipation
- Lecture 32 - Procedure in case of Anticipation
- Lecture 33 - Consideration of Report of Examiner
- Lecture 34 - Refuse, Require Amendment, and Division of Applications
- Lecture 35 - Dating of Application and Anticipation
- Lecture 36 - Potential Infringement
- Lecture 37 - Orders Regarding Substitution of Applicants
- Lecture 38 - Putting Applications in Order for Grant
- Lecture 39 - Amendments during Prosecution
- Lecture 40 - Introduction to Opposition to Grant of Patents
- Lecture 41 - Pre-Grant Opposition
- Lecture 42 - Post-Grant Opposition
- Lecture 43 - Obtained Invention
- Lecture 44 - Mention of Inventor
- Lecture 45 - Opposition in General
- Lecture 46 - Secrecy Provisions
- Lecture 47 - Grant of Patents
- Lecture 48 - Rights conferred by Grant
- Lecture 49 - Rights of Co-Owners of Patents and Power of Controller to give directions
- Lecture 50 - Patent obtained by Fraud of True and First Inventor
- Lecture 51 - Term of Patent
- Lecture 52 - Restoration of Lapsed Patents
- Lecture 53 - Surrender of Patents
- Lecture 54 - Revocation of Patents
- Lecture 55 - Register of Patents
- Lecture 56 - Patent Office and its Establishment
- Lecture 57 - Patent Agents
- Lecture 58 - Use and Acquisition by Government
- Lecture 59 - Penalties
- Lecture 60 - Introduction to Compulsory Licensing
- Lecture 61 - Working of Patents
- Lecture 62 - Compulsory Licenses
- Lecture 63 - Revocation of Patents 1
- Lecture 64 - Powers of Controller
- Lecture 65 - Licensing of Related Patents
- Lecture 66 - Compulsory License on Notification by Central Government
- Lecture 67 - Compulsory License for Export of Pharma Products
- Lecture 68 - Termination of Compulsory License, Related Rules

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- Lecture 69 - Intellectual Property Appellate Board
- Lecture 70 - Infringement Suits and Defences
- Lecture 71 - Reliefs in Suit for Infringement
- Lecture 72 - Declaration as to Non-Infringement
- Lecture 73 - Groundless threat of Infringement Proceedings
- Lecture 74 - Certificate of Validity
- Lecture 75 - Scientific Advisors
- Lecture 76 - International Arrangements
- Lecture 77 - Miscellaneous
- Lecture 78 - Fees

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Financial Statement Analysis and Reporting

Subject Co-ordinator - Prof. Anil K. Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Accounting Process

Lecture 3 - Accounting Concepts

Lecture 4 - Trial Balance and its Relevance

Lecture 5 - Relevant Accounting Statements

Lecture 6 - Journal (Part-I) - The first and original book of accounting

Lecture 7 - Journal (Part-II) - The first and original book of accounting

Lecture 8 - Ledger-The second book of accounts

Lecture 9 - Financial Statements

Lecture 10 - Financial Statements - Income Statement

Lecture 11 - Financial Statements - Balance Sheet

Lecture 12 - Financial Statements with Adjustments (Part-1)

Lecture 13 - Financial Statements with Adjustments (Part-2)

Lecture 14 - Financial Statements with Adjustments (Part-3)

Lecture 15 - Financial Statements with Adjustments (Part-4)

Lecture 16 - Financial Statements with Adjustments (Part-5)

Lecture 17 - Financial Statements with Adjustments (Part-6)

Lecture 18 - Financial Statements with Adjustments (Part-7)

Lecture 19 - Financial Statements with Adjustments (Part-8)

Lecture 20 - Financial Statements with Adjustments (Part-9)

Lecture 21 - Financial Statements with Adjustments (Part-10)

Lecture 22 - Financial Statements with Adjustments (Part-11)

Lecture 23 - Financial Statements with Adjustments (Part-12)

Lecture 24 - Financial Statements with Adjustments (Part-13)

Lecture 25 - Corporate Financial Statements (Part-1)

Lecture 26 - Corporate Financial Statements (Part-2)

Lecture 27 - Corporate Financial Statements (Part-3)

Lecture 28 - Corporate Financial Statements (Part-4)

Lecture 29 - Corporate Financial Statements (Part-5)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Corporate Financial Statements (Part-6)
- Lecture 31 - Corporate Financial Statements (Part-7)
- Lecture 32 - Corporate Financial Statements (Part-8)
- Lecture 33 - Corporate Financial Statements (Part-9)
- Lecture 34 - Financial Statement Analysis
- Lecture 35 - Ratio Analysis (Part-1)
- Lecture 36 - Ratio Analysis (Part-2)
- Lecture 37 - Ratio Analysis (Part-3)
- Lecture 38 - Different Sets of Ratios (Part-1)
- Lecture 39 - Different Sets of Ratios (Part-2)
- Lecture 40 - Ratio Analysis - A case of Grasim Industries (Part-1)
- Lecture 41 - Ratio Analysis - A case of Grasim Industries (Part-2)
- Lecture 42 - Liquidity Ratios - Grasim Industries (Part-1)
- Lecture 43 - Liquidity Ratios - Grasim Industries (Part-2)
- Lecture 44 - Liquidity Ratios - Grasim Industries (Part-3)
- Lecture 45 - Profitability Ratios- Grasim Industries (Part-1)
- Lecture 46 - Profitability Ratios- Grasim Industries (Part-2)
- Lecture 47 - Profitability Ratios- Grasim Industries (Part-3)
- Lecture 48 - DuPont Ratios (Part-1)
- Lecture 49 - DuPont Ratios (Part-2)
- Lecture 50 - Valuation or Capital Market Ratios (Part-1)
- Lecture 51 - Valuation or Capital Market Ratios (Part-2)
- Lecture 52 - Cash Flow Statement - Introduction (Part-1)
- Lecture 53 - Cash Flow Statement (Part-2)
- Lecture 54 - Preparation of Cash Flow Statement- Basic Cash Flow Statement
- Lecture 55 - Cash Flow Statement - Further Analysis (Part-1)
- Lecture 56 - Cash Flow Statement - Further Analysis (Part-2)
- Lecture 57 - Final Cash Flow Statement (Part-1)
- Lecture 58 - Final Cash Flow Statement (Part-2)
- Lecture 59 - Financial Reporting (Part-1)
- Lecture 60 - Financial Reporting (Part-2)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Supply Chain Analytics

Subject Co-ordinator - Prof. Rajat Agrawal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Supply Chain Management

Lecture 2 - Evolution of Supply Chain Management

Lecture 3 - Analytics in Supply Chain Management

Lecture 4 - Supply Chain Planning

Lecture 5 - Different views of Supply Chain

Lecture 6 - Supply Chain Strategy

Lecture 7 - Supply Chain Drivers

Lecture 8 - Developing Supply Chain Strategy

Lecture 9 - Strategic Fit in Supply Chain

Lecture 10 - Demand Forecasting in Supply Chain

Lecture 11 - Bullwhip Effect and Time Series Analysis

Lecture 12 - Exponential Smoothing Method of Forecasting

Lecture 13 - Measures of Forecasting Errors

Lecture 14 - Tracking Signal and Seasonality Models

Lecture 15 - Forecasting using multiple characteristics in Demand Data and Inventory Management in Supply Chain

Lecture 16 - Inventory Management in Supply Chain

Lecture 17 - Multi echelon Inventory Management

Lecture 18 - Multi echelon Inventory Management (Continued...)

Lecture 19 - Multi echelon Inventory Management for four stations

Lecture 20 - Multi echelon Inventory Management for four stations (Numerical Example)

Lecture 21 - Multi echelon Inventory Management for four stations (Numerical Example) (Continued...)

Lecture 22 - Network Design in Supply Chain

Lecture 23 - Network Design of Global Supply Chain

Lecture 24 - Alternative channels of Distribution

Lecture 25 - Location Decisions in Supply Chain

Lecture 26 - Network Optimization Models

Lecture 27 - Using Excel Solver for Network Optimization

Lecture 28 - Uncertainty in Network Design

Lecture 29 - Network Design in Uncertain Environment and Flexibility

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Flexibility in Supply Chain
- Lecture 31 - Optimal Level of Product Availability in Supply chain
- Lecture 32 - Time Value of money in Supply Chain
- Lecture 33 - Different types of Analytics in Supply Chain
- Lecture 34 - Predictive Modelling in Forecasting in Supply Chain
- Lecture 35 - Representation on Uncertainty in Supply Chain
- Lecture 36 - Using Decision Tree for handling Uncertainty
- Lecture 37 - Example of using Decision Tree incorporating Uncertainty in Single Factor
- Lecture 38 - Example of using Decision Tree incorporating Uncertainty in two Key Factors
- Lecture 39 - Modelling Flexibility in Supply Chain
- Lecture 40 - Trends, Challenges and Future of Supply Chain



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Marketing Research and Analysis

Subject Co-ordinator - Dr. Jogendra Kumar Nayak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Marketing Research
- Lecture 2 - Defining Research Problem
- Lecture 3 - Developing Research Approach and Developing Research Design
- Lecture 4 - Research Design
- Lecture 5 - Qualitative Research
- Lecture 6 - Qualitative Research
- Lecture 7 - Projective Technique, Case Study
- Lecture 8 - Case Study, Descriptive Research Design and Research Errors
- Lecture 9 - Primary and Secondary Data, Research Error
- Lecture 10 - Measurement and Scaling
- Lecture 11 - Scale Development Process
- Lecture 12 - Questionnaire and Form Design
- Lecture 13 - Causal Research and Types
- Lecture 14 - Experimental Design and Sampling
- Lecture 15 - Sampling Design and Procedure
- Lecture 16 - Sampling and Sample Size Determination
- Lecture 17 - Hypothesis Development
- Lecture 18 - Data Preparation
- Lecture 19 - Hypothesis Testing
- Lecture 20 - T, Z and F Test
- Lecture 21 - Hypothesis Testing
- Lecture 22 - Cross Tabulation and Chi Square Test
- Lecture 23 - Correlation and Regression
- Lecture 24 - Regression
- Lecture 25 - Factor Analysis
- Lecture 26 - Factor Analysis
- Lecture 27 - SEM and CFA - 1
- Lecture 28 - SEM and CFA - 2
- Lecture 29 - SEM and CFA - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cluster Analysis - I
- Lecture 31 - Cluster Analysis - II
- Lecture 32 - Discriminant Analysis
- Lecture 33 - Discriminant Analysis - 1
- Lecture 34 - Researching Rural Market
- Lecture 35 - International Marketing Research
- Lecture 36 - Ethics in Marketing Research
- Lecture 37 - Ethics in Marketing Research - 1
- Lecture 38 - Report Preparation and Presentation
- Lecture 39 - Multi Dimensional Scaling
- Lecture 40 - Conjoint Analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Project Management for Managers

Subject Co-ordinator - S. K. Gupta, Prof. Mukesh Kumar Barua

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of Project Management
- Lecture 2 - Project Success
- Lecture 3 - Types of Structure Organizations
- Lecture 4 - Project Management Office
- Lecture 5 - Stakeholders Management
- Lecture 6 - Types of Projects and Project Life Cycle
- Lecture 7 - Project Life Cycle Phases and Project Appraisal
- Lecture 8 - Methods of Project Selection - I
- Lecture 9 - Methods of Project Selection - II
- Lecture 10 - Methods of Project Selection - MCDM-I
- Lecture 11 - Methods of Project Selection - MCDM-II
- Lecture 12 - Methods of Project Selection - MCDM-III
- Lecture 13 - Market and Demand Analysis - I
- Lecture 14 - Market and Demand Analysis - II
- Lecture 15 - Financial Analysis
- Lecture 16 - Capital Budgeting Techniques - I
- Lecture 17 - Capital Budgeting Techniques - II
- Lecture 18 - Financing of Projects
- Lecture 19 - Risk Management - I
- Lecture 20 - Risk Management - II
- Lecture 21 - Risk Management (Control and Documentation)
- Lecture 22 - Stand Alone Risk Analysis - I
- Lecture 23 - Stand Alone Risk Analysis - II
- Lecture 24 - Hillier Model
- Lecture 25 - Simulation Analysis
- Lecture 26 - Decision Tree Analysis - I
- Lecture 27 - Decision Tree Analysis - II
- Lecture 28 - Abandonment Analysis
- Lecture 29 - Technical Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Product Mix and Plant Capacity Analysis
- Lecture 31 - Project Team Building, Conflict and Negotiation
- Lecture 32 - HRM Issues and time Management
- Lecture 33 - Project Time Management - Introduction
- Lecture 34 - Project Time Management - Project Scheduling
- Lecture 35 - Project time Management - Numbering of Nodes
- Lecture 36 - Project Time Management - PERT Networks
- Lecture 37 - Project Time Management - CPM
- Lecture 38 - Project Time Management - Laddering in PERT/CPM
- Lecture 39 - Probability Models in Networks - I
- Lecture 40 - Probability Models in Networks - II
- Lecture 41 - Probability Models in Networks - III
- Lecture 42 - Probability Models in Networks - IV
- Lecture 43 - Simulation of Networks - I
- Lecture 44 - Simulation of Networks - II
- Lecture 45 - Slacks and Floats - I
- Lecture 46 - Slacks and Floats - II
- Lecture 47 - Time and Cost Relationship
- Lecture 48 - Crashing of Networks - I
- Lecture 49 - Crashing of Networks - II
- Lecture 50 - Crashing of Networks - III (Free Float Method)
- Lecture 51 - Crashing of Networks - IV
- Lecture 52 - Introduction to Project Cost Management
- Lecture 53 - Cost Control (Tools and Techniques)
- Lecture 54 - Cost Estimation
- Lecture 55 - Introduction to Quality Management
- Lecture 56 - Cost of Quality
- Lecture 57 - Quality Management (Source of variability and Six Sigma)
- Lecture 58 - Quality Management (Six Sigma Tools)
- Lecture 59 - Procurement Management- I
- Lecture 60 - Procurement Management- II and Project Termination

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Analytics and Data Mining Modeling using R

Subject Co-ordinator - Dr. Gaurav Dixit

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Data Mining Process  
Lecture 3 - Introduction To R  
Lecture 4 - Basic Statistics  
Lecture 5 - Basic Statistics - Part 2  
Lecture 6 - Partitioning Process  
Lecture 7 - Visualization Techniques  
Lecture 8 - Visualization Techniques - Part 2  
Lecture 9 - Visualization Techniques - Part 3  
Lecture 10 - Visualization Techniques - Part 4  
Lecture 11 - Visualization Techniques - Part 5  
Lecture 12 - Visualization Techniques - Part 6  
Lecture 13 - Dimension Reduction Techniques  
Lecture 14 - Dimension Reduction Techniques - Part 2  
Lecture 15 - Dimension Reduction Techniques - Part 3  
Lecture 16 - Performance Metrics  
Lecture 17 - Performance Metrics - Part 2  
Lecture 18 - Performance Metrics - Part 3  
Lecture 19 - Performance Metrics - Part 4  
Lecture 20 - Performance Metrics - Part 5  
Lecture 21 - Prediction Performance  
Lecture 22 - Multiple Linear Regression  
Lecture 23 - Multiple Linear Regression - Part 2  
Lecture 24 - Multiple Linear Regression - Part 3  
Lecture 25 - Multiple Linear Regression - Part 4  
Lecture 26 - Multiple Linear Regression - Part 5  
Lecture 27 - Multiple Linear Regression - Part 6  
Lecture 28 - Machine Learning Technique K-Nn  
Lecture 29 - Machine Learning Technique K-Nn - Part 2

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- Lecture 30 - Machine Learning Technique K-Nn - Part 3
- Lecture 31 - Naive Bayes
- Lecture 32 - Naive Bayes - Part 2
- Lecture 33 - Naive Bayes - Part 3
- Lecture 34 - Naive Bayes - Part 4
- Lecture 35 - Naive Bayes - Part 5
- Lecture 36 - Classification And Regression Trees
- Lecture 37 - Classification And Regression Trees - Part 2
- Lecture 38 - Classification And Regression Trees - Part 3
- Lecture 39 - Classification And Regression Trees - Part 4
- Lecture 40 - Classification And Regression Trees - Part 5
- Lecture 41 - Classification And Regression Trees - Part 6
- Lecture 42 - Pruning Process
- Lecture 43 - Pruning Process - Part 2
- Lecture 44 - Pruning Process - Part 3
- Lecture 45 - Regression Trees
- Lecture 46 - Logistic Regression
- Lecture 47 - Logistic Regression - Part 2
- Lecture 48 - Logistic Regression - Part 3
- Lecture 49 - Logistic Regression - Part 4
- Lecture 50 - Logistic Regression - Part 5
- Lecture 51 - Logistic Regression - Part 6
- Lecture 52 - Logistic Regression - Part 7
- Lecture 53 - Artificial Neural Networks
- Lecture 54 - Artificial Neural Network - Part 2
- Lecture 55 - Artificial Neural Network - Part 3
- Lecture 56 - Artificial Neural Network - Part 4
- Lecture 57 - Artificial Neural Network - Part 5
- Lecture 58 - Artificial Neural Network - Part 6
- Lecture 59 - Discriminant Analysis
- Lecture 60 - Discriminant Analysis - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Working Capital Management

Subject Co-ordinator - Prof. Anil K. Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - I
- Lecture 2 - Introduction - II
- Lecture 3 - Nature of the Working Capital Management
- Lecture 4 - Approaches of Working Capital Management - I
- Lecture 5 - Approaches of Working Capital Management - II
- Lecture 6 - Trade off between Profitability and Risk - I
- Lecture 7 - Trade off between Profitability and Risk - II
- Lecture 8 - Working Capital Management in Indian Business - I
- Lecture 9 - Working Capital Management in Indian Business - II
- Lecture 10 - Operating Cycle
- Lecture 11 - Weighted Operating Cycle
- Lecture 12 - Working Capital Requirement Assessment - I
- Lecture 13 - Working Capital Requirement Assessment - II
- Lecture 14 - Assessing Working Capital Requirements - Problem 2 and 5
- Lecture 15 - Working Capital Requirement- The Conclusion
- Lecture 16 - Working Capital Leverage
- Lecture 17 - Risk and Cost of Holding Inventory
- Lecture 18 - Inventory Costs
- Lecture 19 - Inventory Behaviour
- Lecture 20 - Inventory Management - Methods and Strategies
- Lecture 21 - EOQ Technique of Inventory Management
- Lecture 22 - Stockouts cause Walkouts
- Lecture 23 - Rationing of Working Capital - I
- Lecture 24 - Rationing of Working Capital - II
- Lecture 25 - Different Modes of Bank Finance
- Lecture 26 - Incremental Inventory - I
- Lecture 27 - Incremental Inventory - II
- Lecture 28 - Management of Accounts Receivables - I
- Lecture 29 - Management of Accounts Receivables - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Management of Accounts Receivables - III
- Lecture 31 - Motives of Credit Sale - I
- Lecture 32 - Motives of Credit Sale - II
- Lecture 33 - Limitations of Credit Time Period
- Lecture 34 - Written Credit Policy - I
- Lecture 35 - Written Credit Policy - II
- Lecture 36 - Goals and Functions of Accounts Receivables Management
- Lecture 37 - Valuation of Receivables at Cost or Sales Value
- Lecture 38 - Credit Policy Changes - I
- Lecture 39 - Credit Policy Changes - II
- Lecture 40 - Credit Policy Changes - III
- Lecture 41 - Optimum Credit Policy
- Lecture 42 - Credit Risk Analysis - I
- Lecture 43 - Credit Risk Analysis - II
- Lecture 44 - Credit Risk Analysis - III
- Lecture 45 - Credit Policy Variables
- Lecture 46 - Cash Management
- Lecture 47 - Cash Flow Presentation
- Lecture 48 - Models of Cash Management- Certainty Model by Baumol
- Lecture 49 - Certainty Model by Baumol Continued
- Lecture 50 - Uncertainty Model by Miller and Orr
- Lecture 51 - Miller and Orr (Continued...) and Cash Management Techniques
- Lecture 52 - Measures of Liquidity
- Lecture 53 - Window Dressing and Management of Current Liabilities
- Lecture 54 - Management of Accounts Payable
- Lecture 55 - Cost of Stretching Accounts Payable - I
- Lecture 56 - Cost of Stretching Accounts Payable - II
- Lecture 57 - Other Accruals and Overtrading
- Lecture 58 - Bank Finance - Introduction
- Lecture 59 - Recommendations of Tondon and Chore Committees
- Lecture 60 - Deciding a Suitable Mix



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Innovation, Business Models and Entrepreneurship

Subject Co-ordinator - Prof. Vinay Sharma, Prof. Rajat Agrawal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Analyzing the Current Business Scenario

Lecture 2 - Innovation and Creativity - An Introduction

Lecture 3 - Innovation in Current Environment

Lecture 4 - Types of Innovation

Lecture 5 - School of Innovation

Lecture 6 - Challenges of Innovation

Lecture 7 - Steps of Innovation Management

Lecture 8 - Idea Management System

Lecture 9 - Divergent v/s Convergent Thinking

Lecture 10 - Design Thinking and Entrepreneurship

Lecture 11 - Experimentation in Innovation Management

Lecture 12 - Idea Championship

Lecture 13 - Participation for Innovation

Lecture 14 - Co-creation for Innovation

Lecture 15 - Prototyping to Incubation

Lecture 16 - What is Business Model ?

Lecture 17 - Who is an Entrepreneur ?

Lecture 18 - Social Entrepreneurship ?

Lecture 19 - Blue Ocean Strategy - I

Lecture 20 - Blue Ocean Strategy - II

Lecture 21 - Marketing of Innovation

Lecture 22 - Technology Innovation Process

Lecture 23 - Technological Innovation Management Planning

Lecture 24 - Technological Innovation Management Strategies

Lecture 25 - Technology Forecasting

Lecture 26 - Sustainability Innovation and Entrepreneurship

Lecture 27 - Innovation Sustainable Conditions

Lecture 28 - Innovation

Lecture 29 - SME's strategic involvement in sustainable development

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Insight and Entrepreneurship
- Lecture 31 - Management of Innovation, creation of IPR - I
- Lecture 32 - Management of Innovation, creation of IPR - II
- Lecture 33 - Types of IPR
- Lecture 34 - Patents and Copyrights
- Lecture 35 - Patents in India
- Lecture 36 - Business Models and value proposition
- Lecture 37 - Business Model Failure
- Lecture 38 - Incubators
- Lecture 39 - Managing Investors for Innovation
- Lecture 40 - Future markets and Innovation needs for India

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Analytics and Data Mining Modeling Using R - Part II

Subject Co-ordinator - Dr. Gaurav Dixit

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Association Rules - Part I  
Lecture 2 - Association Rules - Part II  
Lecture 3 - Association Rules - Part III  
Lecture 4 - Association Rules - Part IV  
Lecture 5 - Cluster Analysis - Part I  
Lecture 6 - Cluster Analysis - Part II  
Lecture 7 - Cluster Analysis - Part III  
Lecture 8 - Cluster Analysis - Part IV  
Lecture 9 - Cluster Analysis - Part V  
Lecture 10 - Cluster Analysis - Part VI  
Lecture 11 - Cluster Analysis - Part VII  
Lecture 12 - Understanding Time Series - Part I  
Lecture 13 - Understanding Time Series - Part II  
Lecture 14 - Understanding Time Series - Part III  
Lecture 15 - Understanding Time Series - Part IV  
Lecture 16 - Regression Based Forecasting Methods - Part I  
Lecture 17 - Regression Based Forecasting Methods - Part II  
Lecture 18 - Regression Based Forecasting Methods - Part III  
Lecture 19 - Time Series Forecasting - Smoothing Methods - Part I  
Lecture 20 - Time Series Forecasting - Smoothing Methods - Part II

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Strategic Management

Subject Co-ordinator - Prof. R. Srinivasan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Strategic Management

Lecture 2 - Concept of Corporate Strategy

Lecture 3 - Strategic Management Process - 1

Lecture 4 - Strategic Management Process - 2

Lecture 5 - The 7-S Framework

Lecture 6 - Corporate Policy and Planning in India

Lecture 7 - Board of Directors - Role and Functions

Lecture 8 - Board of Directors - Role and Functions, Top Management - Role and Skills, Board Functioning - In

Lecture 9 - Board Functioning - Indian Context and Environmental Scanning

Lecture 10 - Environmental Scanning and Industry Analysis

Lecture 11 - The synthesis of External Factors and External Factors Analysis Summary (EFAS)

Lecture 12 - Internal Corporate Analysis and Impact Matrix

Lecture 13 - Value Chain Analysis

Lecture 14 - Synthesis of Internal Factors - 1

Lecture 15 - Synthesis of Internal Factors - 2

Lecture 16 - Internal Factors Analysis Summary (IFAS) and Case Study - 1

Lecture 17 - Case Analysis

Lecture 18 - Key Financial Ratios

Lecture 19 - Case Analysis - 2 and SFAS Matrix

Lecture 20 - Business Strategy

Lecture 21 - Corporate Strategy - 1

Lecture 22 - Corporate Strategy - 2

Lecture 23 - Corporate Strategy - 3 and Functional Strategy

Lecture 24 - Functional Strategy - 1

Lecture 25 - Functional Strategy - 2

Lecture 26 - Functional Strategy - 3 and Strategic Choice

Lecture 27 - Strategy Implementation - 1

Lecture 28 - Strategy Implementation - 2

Lecture 29 - Evaluation and Control

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strategic Information Systems - 1
- Lecture 31 - Strategic Information Systems - 2
- Lecture 32 - Other Strategic Issues - 1
- Lecture 33 - Other Strategic Issues - 2
- Lecture 34 - Small and Medium Enterprises
- Lecture 35 - Non- Profit Organizations
- Lecture 36 - Summary - 1
- Lecture 37 - Summary - 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Global Supply Chain Management

Subject Co-ordinator - Prof. N. Viswanadham

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Global Supply Chain Networks Part - 1  
Lecture 2 - Introduction to Global Supply Chain Networks Part - 2  
Lecture 3 - Zara - fast fashion  
Lecture 4 - The Supply Chain Eco-System Framework  
Lecture 5 - Supply Chain Eco-System Framework  
Lecture 6 - Supply Chain Eco-System Framework  
Lecture 7 - Metro Cash and Carry  
Lecture 8 - Performance Analysis  
Lecture 9 - Supply Chain Risk - Part-1  
Lecture 10 - Supply Chain Risk - Part-2  
Lecture 11 - Supply Chain Risk - Part-3  
Lecture 12 - Mattel Toy Recalls and Supply Chain Management  
Lecture 13 - Innovation in Emerging markets  
Lecture 14 - Innovations in Supply Chain Ecosystem  
Lecture 15 - Indian Telecom and Bharti Airtel  
Lecture 16 - CEMEX - Part-1  
Lecture 17 - CEMEX - Part-2  
Lecture 18 - Governance  
Lecture 19 - Governance of networked organizations  
Lecture 20 - The Orchestration Governance Model  
Lecture 21 - Orchestration-Examples  
Lecture 22 - Li & Fung - Part-1  
Lecture 23 - Li & Fung - Part-2  
Lecture 24 - Supply Chain Design - Part-1  
Lecture 25 - Supply Chain Design - Part-2  
Lecture 26 - Green supply chain design - Part-1  
Lecture 27 - Green supply chain design - Part-2  
Lecture 28 - Green Supply Chain Ecosystem Analysis  
Lecture 29 - GRIP Framework

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Location Selection
- Lecture 31 - Ecosystem Aware Location Analysis
- Lecture 32 - Food supply chain in India
- Lecture 33 - Food supply chain ecosystem - Grip frame work
- Lecture 34 - Food Security in India
- Lecture 35 - Smart Villages and Cities - Part-1
- Lecture 36 - Smart Villages and Cities - Part-2
- Lecture 37 - Overview of the Course
- Lecture 38 - How to use the Video lectures

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Elementary Numerical Analysis

Subject Co-ordinator - Prof. Rekha P. Kulkarni

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Polynomial Approximation  
Lecture 3 - Interpolating Polynomials  
Lecture 4 - Properties of Divided Difference  
Lecture 5 - Error in the Interpolating polynomial  
Lecture 6 - Cubic Hermite Interpolation  
Lecture 7 - Piecewise Polynomial Approximation  
Lecture 8 - Cubic Spline Interpolation  
Lecture 9 - Tutorial 1  
Lecture 10 - Numerical Integration  
Lecture 11 - Composite Numerical Integration  
Lecture 12 - Gauss 2-point Rule  
Lecture 13 - Gauss 2-point Rule  
Lecture 14 - Convergence of Gaussian Integration  
Lecture 15 - Tutorial 2  
Lecture 16 - Numerical Differentiation  
Lecture 17 - Gauss Elimination  
Lecture 18 - L U decomposition  
Lecture 19 - Cholesky decomposition  
Lecture 20 - Gauss Elimination with partial pivoting  
Lecture 21 - Vector and Matrix Norms  
Lecture 22 - Perturbed Linear Systems  
Lecture 23 - Ill-conditioned Linear System  
Lecture 24 - Tutorial 3  
Lecture 25 - Effect of Small Pivots  
Lecture 26 - Solution of Non-linear Equations  
Lecture 27 - Quadratic Convergence of Newton's Method  
Lecture 28 - Jacobi Method  
Lecture 29 - Gauss-Seidel Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial 4
- Lecture 31 - Initial Value Problem
- Lecture 32 - Multi-step Methods
- Lecture 33 - Predictor-Corrector Formulae
- Lecture 34 - Boundary Value Problems
- Lecture 35 - Eigenvalues and Eigenvectors
- Lecture 36 - Spectral Theorem
- Lecture 37 - Power Method
- Lecture 38 - Inverse Power Method
- Lecture 39 - Q R Decomposition
- Lecture 40 - Q R Method

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Measure and Integration

Subject Co-ordinator - Prof. Inder K Rana

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Extended Real numbers
- Lecture 2 - Algebra and Sigma Algebra of a subset of a set
- Lecture 3 - Sigma Algebra generated by a class
- Lecture 4 - Monotone Class
- Lecture 5 - Set function
- Lecture 6 - The Length function and its properties
- Lecture 7 - Countably additive set functions on intervals
- Lecture 8 - Uniqueness Problem for Measure
- Lecture 9 - Extension of measure
- Lecture 10 - Outer measure and its properties
- Lecture 11 - Measurable sets
- Lecture 12 - Lebesgue measure and its properties
- Lecture 13 - Characterization of Lebesgue measurable sets
- Lecture 14 - Measurable functions
- Lecture 15 - Properties of measurable functions
- Lecture 16 - Measurable functions on measure spaces
- Lecture 17 - Integral of non negative simple measurable functions
- Lecture 18 - Properties of non negative simple measurable functions
- Lecture 19 - Monotone convergence theorem & Fatou's Lemma
- Lecture 20 - Properties of Integral functions & Dominated Convergence Theorem
- Lecture 21 - Dominated Convergence Theorem and applications
- Lecture 22 - Lebesgue Integral and its properties
- Lecture 23 - Denseness of continuous function
- Lecture 24 - Product measures, an Introduction
- Lecture 25 - Construction of Product Measure
- Lecture 26 - Computation of Product Measure - I
- Lecture 27 - Computation of Product Measure - II
- Lecture 28 - Integration on Product spaces
- Lecture 29 - Fubini's Theorems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lebesgue Measure and integral on  $\mathbb{R}^2$
- Lecture 31 - Properties of Lebesgue Measure and integral on  $\mathbb{R}^n$
- Lecture 32 - Lebesgue integral on  $\mathbb{R}^2$
- Lecture 33 - Integrating complex-valued functions
- Lecture 34 -  $L_p$  - spaces
- Lecture 35 -  $L^2(X, S, \mu)$
- Lecture 36 - Fundamental Theorem of calculus for Lebesgue Integral - I
- Lecture 37 - Fundamental Theorem of calculus for Lebesgue Integral - II
- Lecture 38 - Absolutely continuous measures
- Lecture 39 - Modes of convergence
- Lecture 40 - Convergence in Measure

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Mathematics in India - From Vedic Period to Modern Times

Subject Co-ordinator - Prof. M.D. Srinivas, Prof. K. Ramasubramanian, Prof. M.S. Sriram

Co-ordinating Institute - Centre for Policy Studies, Chennai | IIT - Bombay | University of Madras, Chennai

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Indian Mathematics
- Lecture 2 - Vedas and Sulbasutras - Part 1
- Lecture 3 - Vedas and Sulbasutras - Part 2
- Lecture 4 - Panini's Astadhyayi
- Lecture 5 - Pingala's Chandahsastra
- Lecture 6 - Decimal place value system
- Lecture 7 - Aryabhata's Aryabhata - Part 1
- Lecture 8 - Aryabhata's Aryabhata - Part 2
- Lecture 9 - Aryabhata's Aryabhata - Part 3
- Lecture 10 - Aryabhata's Aryabhata - Part 4 and Introduction to Jaina Mathematics
- Lecture 11 - Brahmasphutasiddhanta of Brahmagupta - Part 1
- Lecture 12 - Brahmasphutasiddhanta of Brahmagupta - Part 2
- Lecture 13 - Brahmasphutasiddhanta of Brahmagupta - Part 3
- Lecture 14 - Brahmasphutasiddhanta of Brahmagupta - Part 4 and The Bakhshali Manuscript
- Lecture 15 - Mahavira's Ganitasarasangraha - Part 1
- Lecture 16 - Mahavira's Ganitasarasangraha - Part 2
- Lecture 17 - Mahavira's Ganitasarasangraha - Part 3
- Lecture 18 - Development of Combinatorics - Part 1
- Lecture 19 - Development of Combinatorics - Part 2
- Lecture 20 - Lilavati of Bhaskaracarya - Part 1
- Lecture 21 - Lilavati of Bhaskaracarya - Part 2
- Lecture 22 - Lilavati of Bhaskaracarya - Part 3
- Lecture 23 - Bijaganita of Bhaskaracarya - Part 1
- Lecture 24 - Bijaganita of Bhaskaracarya - Part 2
- Lecture 25 - Ganitakaumudi of Narayana Pandita - Part 1
- Lecture 26 - Ganitakaumudi of Narayana Pandita - Part 2
- Lecture 27 - Ganitakaumudi of Narayana Pandita - Part 3
- Lecture 28 - Magic Squares - Part 1
- Lecture 29 - Magic Squares - Part 2

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- Lecture 30 - Development of Calculus in India - Part 1
- Lecture 31 - Development of Calculus in India - Part 2
- Lecture 32 - Jyanayanam
- Lecture 33 - Trigonometry and Spherical Trigonometry - Part 1
- Lecture 34 - Trigonometry and Spherical Trigonometry - Part 2
- Lecture 35 - Trigonometry and Spherical Trigonometry - Part 3
- Lecture 36 - Proofs in Indian Mathematics - Part 1
- Lecture 37 - Proofs in Indian Mathematics - Part 2
- Lecture 38 - Proofs in Indian Mathematics - Part 3
- Lecture 39 - Mathematics in Modern India - Part 1
- Lecture 40 - Mathematics in Modern India - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Measure Theory

Subject Co-ordinator - Prof. Inder K Rana

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - (1A) Introduction, Extended Real Numbers
- Lecture 2 - (1B) Introduction, Extended Real Numbers
- Lecture 3 - (2A) Algebra and Sigma Algebra of Subsets of a Set
- Lecture 4 - (2B) Algebra and Sigma Algebra of Subsets of a Set
- Lecture 5 - (3A) Sigma Algebra generated by a Class
- Lecture 6 - (3B) Sigma Algebra generated by a Class
- Lecture 7 - (4A) Monotone Class
- Lecture 8 - (4B) Monotone Class
- Lecture 9 - (5A) Set Functions
- Lecture 10 - (5B) Set Functions
- Lecture 11 - (6A) The Length Function and its Properties
- Lecture 12 - (6B) The Length Function and its Properties
- Lecture 13 - (7A) Countably Additive Set Functions on Intervals
- Lecture 14 - (7B) Countably Additive Set Functions on Intervals
- Lecture 15 - (8A) Uniqueness Problem for Measure
- Lecture 16 - (8B) Uniqueness Problem for Measure
- Lecture 17 - (9A) Extension of Measure
- Lecture 18 - (9B) Extension of Measure
- Lecture 19 - (10A) Outer Measure and its Properties
- Lecture 20 - (10B) Outer Measure and its Properties
- Lecture 21 - (11A) Measurable Sets
- Lecture 22 - (11B) Measurable Sets
- Lecture 23 - (12A) Lebesgue Measure and its Properties
- Lecture 24 - (12B) Lebesgue Measure and its Properties
- Lecture 25 - (13A) Characterization of Lebesgue Measurable Sets
- Lecture 26 - (13B) Characterization of Lebesgue Measurable Sets
- Lecture 27 - (14A) Measurable Functions
- Lecture 28 - (14B) Measurable Functions
- Lecture 29 - (15A) Properties of Measurable Functions

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - (15B) Properties of Measurable Functions
- Lecture 31 - (16A) Measurable Functions on Measure Spaces
- Lecture 32 - (16B) Measurable Functions on Measure Spaces
- Lecture 33 - (17A) Integral of Nonnegative Simple Measurable Functions
- Lecture 34 - (17B) Integral of Nonnegative Simple Measurable Functions
- Lecture 35 - (18A) Properties of Nonnegative Simple Measurable Functions
- Lecture 36 - (18B) Properties of Nonnegative Simple Measurable Functions
- Lecture 37 - (19A) Monotone Convergence Theorem and Fatou's Lemma
- Lecture 38 - (19B) Monotone Convergence Theorem and Fatou's Lemma
- Lecture 39 - (20A) Properties of Integrable Functions and Dominated Convergence Theorem
- Lecture 40 - (20B) Properties of Integrable Functions and Dominated Convergence Theorem
- Lecture 41 - (21A) Dominated Convergence Theorem and Applications
- Lecture 42 - (21B) Dominated Convergence Theorem and Applications
- Lecture 43 - (22A) Lebesgue Integral and its Properties
- Lecture 44 - (22B) Lebesgue Integral and its Properties
- Lecture 45 - (23A) Product Measure, an Introduction
- Lecture 46 - (23B) Product Measure, an Introduction
- Lecture 47 - (24A) Construction of Product Measures
- Lecture 48 - (24B) Construction of Product Measures
- Lecture 49 - (25A) Computation of Product Measure - I
- Lecture 50 - (25B) Computation of Product Measure - I
- Lecture 51 - (26A) Computation of Product Measure - II
- Lecture 52 - (26B) Computation of Product Measure - II
- Lecture 53 - (27A) Integration on Product Spaces
- Lecture 54 - (27B) Integration on Product Spaces
- Lecture 55 - (28A) Fubini's Theorems
- Lecture 56 - (28B) Fubini's Theorems
- Lecture 57 - (29A) Lebesgue Measure and Integral on  $\mathbb{R}^2$
- Lecture 58 - (29B) Lebesgue Measure and Integral on  $\mathbb{R}^2$
- Lecture 59 - (30A) Properties of Lebesgue Measure on  $\mathbb{R}^2$
- Lecture 60 - (30B) Properties of Lebesgue Measure on  $\mathbb{R}^2$
- Lecture 61 - (31A) Lebesgue Integral on  $\mathbb{R}^2$
- Lecture 62 - (31B) Lebesgue Integral on  $\mathbb{R}^2$

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Calculus for Economics, Commerce and Management

Subject Co-ordinator - Prof.Inder Kumar Rana

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course
- Lecture 2 - Concept of a Set, Ways of Representing Sets
- Lecture 3 - Venn Diagrams, Operations on Sets
- Lecture 4 - Operations on Sets, Cardinal Number, Real Numbers
- Lecture 5 - Real Numbers, Sequences
- Lecture 6 - Sequences, Convergent Sequences, Bounded Sequences
- Lecture 7 - Limit Theorems, Sandwich Theorem, Monotone Sequences, Completeness of Real Numbers
- Lecture 8 - Relations and Functions
- Lecture 9 - Functions, Graph of a Functions, Function Formulas
- Lecture 10 - Function Formulas, Linear Models
- Lecture 11 - Linear Models, Elasticity, Linear Functions, Nonlinear Models, Quadratic Functions
- Lecture 12 - Quadratic Functions, Quadratic Models, Power Function, Exponential Function
- Lecture 13 - Exponential Function, Exponential Models, Logarithmic Function
- Lecture 14 - Limit of a Function at a Point, Continuous Functions
- Lecture 15 - Limit of a Function at a Point
- Lecture 16 - Limit of a Function at a Point, Left and Right Limits
- Lecture 17 - Computing Limits, Continuous Functions
- Lecture 18 - Applications of Continuous Functions
- Lecture 19 - Applications of Continuous Functions, Marginal of a Function
- Lecture 20 - Rate of Change, Differentiation
- Lecture 21 - Rules of Differentiation
- Lecture 22 - Derivatives of Some Functions, Marginal, Elasticity
- Lecture 23 - Elasticity, Increasing and Decreasing Functions, Optimization, Mean Value Theorem
- Lecture 24 - Mean Value Theorem, Marginal Analysis, Local Maxima and Minima
- Lecture 25 - Local Maxima and Minima
- Lecture 26 - Local Maxima and Minima, Continuity Test, First Derivative Test, Successive Differentiation
- Lecture 27 - Successive Differentiation, Second Derivative Test
- Lecture 28 - Average and Marginal Product, Marginal of Revenue and Cost, Absolute Maximum and Minimum
- Lecture 29 - Absolute Maximum and Minimum

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Monopoly Market, Revenue and Elasticity
- Lecture 31 - Property of Marginals, Monopoly Market, Publisher v/s Author Problem
- Lecture 32 - Convex and Concave Functions
- Lecture 33 - Derivative Tests for Convexity, Concavity and Points of Inflection, Higher Order Derivative Conc
- Lecture 34 - Convex and Concave Functions, Asymptotes
- Lecture 35 - Asymptotes, Curve Sketching
- Lecture 36 - Functions of Two Variables, Visualizing Graph, Level Curves, Contour Lines
- Lecture 37 - Partial Derivatives and Application to Marginal Analysis
- Lecture 38 - Marginals in Cobb-Douglas model, partial derivatives and elasticity, chain rules
- Lecture 39 - Chain Rules, Higher Order Partial Derivatives, Local Maxima and Minima, Critical Points
- Lecture 40 - Saddle Points, Derivative Tests, Absolute Maxima and Minima
- Lecture 41 - Some Examples, Constrained Maxima and Minima

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Stochastic Processes

Subject Co-ordinator - Dr. S. Dharmaraja

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Stochastic Processes
- Lecture 2 - Introduction to Stochastic Processes (Continued.)
- Lecture 3 - Problems in Random Variables and Distributions
- Lecture 4 - Problems in Sequences of Random Variables
- Lecture 5 - Definition, Classification and Examples
- Lecture 6 - Simple Stochastic Processes
- Lecture 7 - Stationary Processes
- Lecture 8 - Autoregressive Processes
- Lecture 9 - Introduction, Definition and Transition Probability Matrix
- Lecture 10 - Chapman-Kolmogorov Equations
- Lecture 11 - Classification of States and Limiting Distributions
- Lecture 12 - Limiting and Stationary Distributions
- Lecture 13 - Limiting Distributions, Ergodicity and Stationary Distributions
- Lecture 14 - Time Reversible Markov Chain, Application of Irreducible Markov Chain in Queueing Models
- Lecture 15 - Reducible Markov Chains
- Lecture 16 - Definition, Kolmogorov Differential Equations and Infinitesimal Generator Matrix
- Lecture 17 - Limiting and Stationary Distributions, Birth Death Processes
- Lecture 18 - Poisson Processes
- Lecture 19 - M/M/1 Queueing Model
- Lecture 20 - Simple Markovian Queueing Models
- Lecture 21 - Queueing Networks
- Lecture 22 - Communication Systems
- Lecture 23 - Stochastic Petri Nets
- Lecture 24 - Conditional Expectation and Filtration
- Lecture 25 - Definition and Simple Examples
- Lecture 26 - Definition and Properties
- Lecture 27 - Processes Derived from Brownian Motion
- Lecture 28 - Stochastic Differential Equations
- Lecture 29 - Ito Integrals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ito Formula and its Variants
- Lecture 31 - Some Important SDE`s and Their Solutions
- Lecture 32 - Renewal Function and Renewal Equation
- Lecture 33 - Generalized Renewal Processes and Renewal Limit Theorems
- Lecture 34 - Markov Renewal and Markov Regenerative Processes
- Lecture 35 - Non Markovian Queues
- Lecture 36 - Non Markovian Queues Cont,,
- Lecture 37 - Application of Markov Regenerative Processes
- Lecture 38 - Galton-Watson Process
- Lecture 39 - Markovian Branching Process

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Stochastic Processes - 1

Subject Co-ordinator - Dr. S. Dharmaraja

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and motivation for studying stochastic processes

Lecture 2 - Probability space and conditional probability

Lecture 3 - Random variable and cumulative distributive function

Lecture 4 - Discrete Uniform Distribution, Binomial Distribution, Geometric Distribution, Continuous Uniform

Lecture 5 - Joint Distribution of Random Variables

Lecture 6 - Independent Random Variables, Covariance and Correlation Coefficient and Conditional Distribution

Lecture 7 - Conditional Expectation and Covariance Matrix

Lecture 8 - Generating Functions, Law of Large Numbers and Central Limit Theorem

Lecture 9 - Problems in Random variables and Distributions

Lecture 10 - Problems in Random variables and Distributions (Continued...)

Lecture 11 - Problems in Random variables and Distributions (Continued...)

Lecture 12 - Problems in Random variables and Distributions (Continued...)

Lecture 13 - Problems in Sequences of Random Variables

Lecture 14 - Problems in Sequences of Random Variables (Continued...)

Lecture 15 - Problems in Sequences of Random Variables (Continued...)

Lecture 16 - Problems in Sequences of Random Variables (Continued...)

Lecture 17 - Definition of Stochastic Processes, Parameter and State Spaces

Lecture 18 - Classification of Stochastic Processes

Lecture 19 - Examples of Classification of Stochastic Processes

Lecture 20 - Examples of Classification of Stochastic Processes (Continued...)

Lecture 21 - Bernoulli Process

Lecture 22 - Poisson Process

Lecture 23 - Poisson Process (Continued...)

Lecture 24 - Simple Random Walk and Population Processes

Lecture 25 - Introduction to Discrete time Markov Chain

Lecture 26 - Introduction to Discrete time Markov Chain (Continued...)

Lecture 27 - Examples of Discrete time Markov Chain

Lecture 28 - Examples of Discrete time Markov Chain (Continued...)

Lecture 29 - Introduction to Chapman-Kolmogorov equations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - State Transition Diagram and Examples
- Lecture 31 - Examples
- Lecture 32 - Introduction to Classification of States and Periodicity
- Lecture 33 - Closed set of States and Irreducible Markov Chain
- Lecture 34 - First Passage time and Mean Recurrence Time
- Lecture 35 - Recurrent State and Transient State
- Lecture 36 - Introduction and example of Classification of states
- Lecture 37 - Example of Classification of states (Continued...)
- Lecture 38 - Example of Classification of states (Continued...)
- Lecture 39 - Example of Classification of states (Continued...)
- Lecture 40 - Introduction and Limiting Distribution
- Lecture 41 - Example of Limiting Distribution and Ergodicity
- Lecture 42 - Stationary Distribution and Examples
- Lecture 43 - Examples of Stationary Distributions
- Lecture 44 - Time Reversible Markov Chain and Examples
- Lecture 45 - Definition of Reducible Markov Chains and Types of Reducible Markov Chains
- Lecture 46 - Stationary Distributions and Types of Reducible Markov chains
- Lecture 47 - Type of Reducible Markov Chains (Continued...)
- Lecture 48 - Gambler's Ruin Problem
- Lecture 49 - Introduction to Continuous time Markov Chain
- Lecture 50 - Waiting time Distribution
- Lecture 51 - Chapman-Kolmogorov Equation
- Lecture 52 - Infinitesimal Generator Matrix
- Lecture 53 - Introduction and Example Of Continuous time Markov Chain
- Lecture 54 - Limiting and Stationary Distributions
- Lecture 55 - Time reversible CTMC and Birth Death Process
- Lecture 56 - Steady State Distributions, Pure Birth Process and Pure Death Process
- Lecture 57 - Introduction to Poisson Process
- Lecture 58 - Definition of Poisson Process
- Lecture 59 - Superposition and Deposition of Poisson Process
- Lecture 60 - Compound Poisson Process and Examples
- Lecture 61 - Introduction to Queueing Systems and Kendall Notations
- Lecture 62 - M/M/1 Queueing Model
- Lecture 63 - Little's Law, Distribution of Waiting Time and Response Time
- Lecture 64 - Burke's Theorem and Simulation of M/M/1 queueing Model
- Lecture 65 - M/M/c Queueing Model
- Lecture 66 - M/M/1/N Queueing Model
- Lecture 67 - M/M/c/K Model, M/M/c/c Loss System, M/M/? Self Service System
- Lecture 68 - Transient Solution of Finite Birth Death Process and Finite Source Markovian Queueing Model

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Queueing Networks Characteristics and Types of Queueing Networks
- Lecture 70 - Tandem Queueing Networks
- Lecture 71 - Stationary Distribution and Open Queueing Network
- Lecture 72 - Jackson's Theorem, Closed Queueing Networks, Gordon and Newell Results
- Lecture 73 - Wireless Handoff Performance Model and System Description
- Lecture 74 - Description of 3G Cellular Networks and Queueing Model
- Lecture 75 - Simulation of Queueing Systems
- Lecture 76 - Definition and Basic Components of Petri Net and Reachability Analysis
- Lecture 77 - Arc Extensions in Petri Net, Stochastic Petri Nets and examples

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Stochastic Processes

Subject Co-ordinator - Dr. S. Dharmaraja

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and motivation for studying stochastic processes
- Lecture 2 - Probability space and conditional probability
- Lecture 3 - Random variable and cumulative distributive function
- Lecture 4 - Discrete Uniform Distribution, Binomial Distribution, Geometric Distribution, Continuous Uniform
- Lecture 5 - Joint Distribution of Random Variables
- Lecture 6 - Independent Random Variables, Covariance and Correlation Coefficient and Conditional Distribution
- Lecture 7 - Conditional Expectation and Covariance Matrix
- Lecture 8 - Generating Functions, Law of Large Numbers and Central Limit Theorem
- Lecture 9 - Problems in Random variables and Distributions
- Lecture 10 - Problems in Random variables and Distributions (Continued...)
- Lecture 11 - Problems in Random variables and Distributions (Continued...)
- Lecture 12 - Problems in Random variables and Distributions (Continued...)
- Lecture 13 - Problems in Sequences of Random Variables
- Lecture 14 - Problems in Sequences of Random Variables (Continued...)
- Lecture 15 - Problems in Sequences of Random Variables (Continued...)
- Lecture 16 - Problems in Sequences of Random Variables (Continued...)
- Lecture 17 - Definition of Stochastic Processes, Parameter and State Spaces
- Lecture 18 - Classification of Stochastic Processes
- Lecture 19 - Examples of Classification of Stochastic Processes
- Lecture 20 - Examples of Classification of Stochastic Processes (Continued...)
- Lecture 21 - Bernoulli Process
- Lecture 22 - Poisson Process
- Lecture 23 - Poisson Process (Continued...)
- Lecture 24 - Simple Random Walk and Population Processes
- Lecture 25 - Introduction to Discrete time Markov Chain
- Lecture 26 - Introduction to Discrete time Markov Chain (Continued...)
- Lecture 27 - Examples of Discrete time Markov Chain
- Lecture 28 - Examples of Discrete time Markov Chain (Continued...)
- Lecture 29 - Introduction to Chapman-Kolmogorov equations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

---

- Lecture 30 - State Transition Diagram and Examples
- Lecture 31 - Examples
- Lecture 32 - Introduction to Classification of States and Periodicity
- Lecture 33 - Closed set of States and Irreducible Markov Chain
- Lecture 34 - First Passage time and Mean Recurrence Time
- Lecture 35 - Recurrent State and Transient State
- Lecture 36 - Introduction and example of Classification of states
- Lecture 37 - Example of Classification of states (Continued...)
- Lecture 38 - Example of Classification of states (Continued...)
- Lecture 39 - Example of Classification of states (Continued...)
- Lecture 40 - Introduction and Limiting Distribution
- Lecture 41 - Example of Limiting Distribution and Ergodicity
- Lecture 42 - Stationary Distribution and Examples
- Lecture 43 - Examples of Stationary Distributions
- Lecture 44 - Time Reversible Markov Chain and Examples
- Lecture 45 - Definition of Reducible Markov Chains and Types of Reducible Markov Chains
- Lecture 46 - Stationary Distributions and Types of Reducible Markov chains
- Lecture 47 - Type of Reducible Markov Chains (Continued...)
- Lecture 48 - Gambler's Ruin Problem
- Lecture 49 - Introduction to Continuous time Markov Chain
- Lecture 50 - Waiting time Distribution
- Lecture 51 - Chapman-Kolmogorov Equation
- Lecture 52 - Infinitesimal Generator Matrix
- Lecture 53 - Introduction and Example Of Continuous time Markov Chain
- Lecture 54 - Limiting and Stationary Distributions
- Lecture 55 - Time reversible CTMC and Birth Death Process
- Lecture 56 - Steady State Distributions, Pure Birth Process and Pure Death Process
- Lecture 57 - Introduction to Poisson Process
- Lecture 58 - Definition of Poisson Process
- Lecture 59 - Superposition and Deposition of Poisson Process
- Lecture 60 - Compound Poisson Process and Examples
- Lecture 61 - Introduction to Queueing Systems and Kendall Notations
- Lecture 62 - M/M/1 Queueing Model
- Lecture 63 - Little's Law, Distribution of Waiting Time and Response Time
- Lecture 64 - Burke's Theorem and Simulation of M/M/1 queueing Model
- Lecture 65 - M/M/c Queueing Model
- Lecture 66 - M/M/1/N Queueing Model
- Lecture 67 - M/M/c/K Model, M/M/c/c Loss System, M/M/? Self Service System
- Lecture 68 - Transient Solution of Finite Birth Death Process and Finite Source Markovian Queueing Model

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Queueing Networks Characteristics and Types of Queueing Networks
- Lecture 70 - Tandem Queueing Networks
- Lecture 71 - Stationary Distribution and Open Queueing Network
- Lecture 72 - Jackson's Theorem, Closed Queueing Networks, Gordon and Newell Results
- Lecture 73 - Wireless Handoff Performance Model and System Description
- Lecture 74 - Description of 3G Cellular Networks and Queueing Model
- Lecture 75 - Simulation of Queueing Systems
- Lecture 76 - Definition and Basic Components of Petri Net and Reachability Analysis
- Lecture 77 - Arc Extensions in Petri Net, Stochastic Petri Nets and examples
- Lecture 78 - Generalized Stochastic Petri Net
- Lecture 79 - Generalized Stochastic Petri Net (Continued...)
- Lecture 80 - Conditional Expectation and Examples
- Lecture 81 - Filtration in Discrete time
- Lecture 82 - Remarks of Conditional Expectation and Adaptability
- Lecture 83 - Definition and Examples of Martingale
- Lecture 84 - Examples of Martingale (Continued...)
- Lecture 85 - Examples of Martingale (Continued...)
- Lecture 86 - Doob's Martingale Process, Sub martingale and Super Martingale
- Lecture 87 - Definition of Brownian Motion
- Lecture 88 - Definition of Brownian Motion (Continued...)
- Lecture 89 - Properties of Brownian Motion
- Lecture 90 - Processes Derived from Brownian Motion
- Lecture 91 - Processes Derived from Brownian Motion (Continued...)
- Lecture 92 - Processes Derived from Brownian Motion (Continued...)
- Lecture 93 - Stochastic Differential Equations
- Lecture 94 - Stochastic Differential Equations (Continued...)
- Lecture 95 - Stochastic Differential Equations (Continued...)
- Lecture 96 - Ito Integrals
- Lecture 97 - Ito Integrals (Continued...)
- Lecture 98 - Ito Integrals (Continued...)
- Lecture 99 - Renewal Function and Renewal Equation
- Lecture 100 - Renewal Function and Renewal Equation (Continued...)
- Lecture 101 - Renewal Function and Renewal Equation (Continued...)
- Lecture 102 - Generalized Renewal Processes and Renewal Limit Theorems
- Lecture 103 - Generalized Renewal Processes and Renewal Limit Theorems (Continued...)
- Lecture 104 - Generalized Renewal Processes and Renewal Limit Theorems (Continued...)
- Lecture 105 - Markov Renewal and Markov Regenerative Processes
- Lecture 106 - Markov Renewal and Markov Regenerative Processes (Continued...)
- Lecture 107 - Markov Renewal and Markov Regenerative Processes (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Markov Renewal and Markov Regenerative Processes (Continued...)
- Lecture 109 - Non Markovian Queues
- Lecture 110 - Non Markovian Queues (Continued...)
- Lecture 111 - Non Markovian Queues (Continued...)
- Lecture 112 - Stationary Processes
- Lecture 113 - Stationary Processes (Continued...)
- Lecture 114 - Stationary Processes (Continued...)
- Lecture 115 - Stationary Processes (Continued...) and Ergodicity
- Lecture 116 - G1/M/1 queue
- Lecture 117 - G1/M/1 queue (Continued...)
- Lecture 118 - G1/M/1/N queue and examples
- Lecture 119 - Galton-Watson Process
- Lecture 120 - Examples and Theorems
- Lecture 121 - Theorems and Examples (Continued...)
- Lecture 122 - Markov Branching Process
- Lecture 123 - Markov Branching Process Theorems and Properties
- Lecture 124 - Markov Branching Process Theorems and Properties (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Chaotic Dynamical Systems

Subject Co-ordinator - Dr. Anima Nagar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The beginning
- Lecture 2 - Elementary Concepts
- Lecture 3 - Elementary Concepts (Continued...)
- Lecture 4 - More on orbits
- Lecture 5 - Periods of Periodic Points
- Lecture 6 - Scrambled Sets
- Lecture 7 - Sensitive Dependence on Initial Conditions
- Lecture 8 - A Population Dynamics Model
- Lecture 9 - Bifurcations
- Lecture 10 - Nonlinear Systems
- Lecture 11 - Horseshoe Attractor
- Lecture 12 - Dynamics of the Horseshoe Attractor
- Lecture 13 - Recurrence
- Lecture 14 - Recurrence (Continued...)
- Lecture 15 - Transitivity
- Lecture 16 - Devaney's Chaos
- Lecture 17 - Transitivity = Chaos on Intervals
- Lecture 18 - Stronger forms of Transitivity
- Lecture 19 - Chaotic Properties of Mixing Systems
- Lecture 20 - Weakly Mixing and Chaos
- Lecture 21 - Strongly Transitive Systems
- Lecture 22 - Strongly Transitive Systems (Continued...)
- Lecture 23 - Introduction to Symbolic Dynamics
- Lecture 24 - Shift Spaces
- Lecture 25 - Subshifts of Finite Type
- Lecture 26 - Subshifts of Finite Type (Continued...), Chaotic Dynamical Systems
- Lecture 27 - Measuring Chaos - Topological Entropy
- Lecture 28 - Topological Entropy - Adler's Version
- Lecture 29 - Bowen's Definition of Topological Entropy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equivalence of the two definitions of Topological Entropy
- Lecture 31 - Linear Systems in Two Dimensions
- Lecture 32 - Asymptotic Properties of Orbits of Linear Transformation in  $\mathbb{R}^2$
- Lecture 33 - Hyperbolic Toral Automorphisms
- Lecture 34 - Chaos in Toral Automorphisms
- Lecture 35 - Chaotic Attractors of Henon Maps

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Probability Theory and Stochastic Processes

Subject Co-ordinator - Dr. S. Dharmaraja

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Random experiment, sample space, axioms of probability, probability space
- Lecture 2 - Random experiment, sample space, axioms of probability, probability space (Continued...)
- Lecture 3 - Random experiment, sample space, axioms of probability, probability space (Continued...)
- Lecture 4 - Conditional probability, independence of events.
- Lecture 5 - Multiplication rule, total probability rule, Bayes's theorem.
- Lecture 6 - Definition of Random Variable, Cumulative Distribution Function
- Lecture 7 - Definition of Random Variable, Cumulative Distribution Function (Continued...)
- Lecture 8 - Definition of Random Variable, Cumulative Distribution Function (Continued...)
- Lecture 9 - Type of Random Variables, Probability Mass Function, Probability Density Function
- Lecture 10 - Type of Random Variables, Probability Mass Function, Probability Density Function (Continued...)
- Lecture 11 - Distribution of Function of Random Variables
- Lecture 12 - Mean and Variance
- Lecture 13 - Mean and Variance (Continued...)
- Lecture 14 - Higher Order Moments and Moments Inequalities
- Lecture 15 - Higher Order Moments and Moments Inequalities (Continued...)
- Lecture 16 - Generating Functions
- Lecture 17 - Generating Functions (Continued...)
- Lecture 18 - Common Discrete Distributions
- Lecture 19 - Common Discrete Distributions (Continued...)
- Lecture 20 - Common Continuous Distributions
- Lecture 21 - Common Continuous Distributions (Continued...)
- Lecture 22 - Applications of Random Variable
- Lecture 23 - Applications of Random Variable (Continued...)
- Lecture 24 - Random vector and joint distribution
- Lecture 25 - Joint probability mass function
- Lecture 26 - Joint probability density function
- Lecture 27 - Independent random variables
- Lecture 28 - Independent random variables (Continued...)
- Lecture 29 - Functions of several random variables

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Functions of several random variables (Continued...)
- Lecture 31 - Some important results
- Lecture 32 - Order statistics
- Lecture 33 - Conditional distributions
- Lecture 34 - Random sum
- Lecture 35 - Moments and Covariance
- Lecture 36 - Variance Covariance matrix
- Lecture 37 - Multivariate Normal distribution
- Lecture 38 - Probability generating function and Moment generating function
- Lecture 39 - Correlation coefficient
- Lecture 40 - Conditional Expectation
- Lecture 41 - Conditional Expectation (Continued...)
- Lecture 42 - Modes of Convergence
- Lecture 43 - Mode of Convergence (Continued...)
- Lecture 44 - Law of Large Numbers
- Lecture 45 - Central Limit Theorem
- Lecture 46 - Central Limit Theorem (Continued...)
- Lecture 47 - Motivation for Stochastic Processes
- Lecture 48 - Definition of a Stochastic Process
- Lecture 49 - Classification of Stochastic Processes
- Lecture 50 - Examples of Stochastic Process
- Lecture 51 - Examples Of Stochastic Process (Continued...)
- Lecture 52 - Bernoulli Process
- Lecture 53 - Poisson Process
- Lecture 54 - Poisson Process (Continued...)
- Lecture 55 - Simple Random Walk
- Lecture 56 - Time Series and Related Definitions
- Lecture 57 - Strict Sense Stationary Process
- Lecture 58 - Wide Sense Stationary Process and Examples
- Lecture 59 - Examples of Stationary Processes (Continued...)
- Lecture 60 - Discrete Time Markov Chain (DTMC)
- Lecture 61 - DTMC (Continued...)
- Lecture 62 - Examples of DTMC
- Lecture 63 - Examples of DTMC (Continued...)
- Lecture 64 - Chapman-Kolmogorov equations and N-step transition matrix
- Lecture 65 - Examples based on N-step transition matrix
- Lecture 66 - Examples (Continued...)
- Lecture 67 - Classification of states
- Lecture 68 - Classification of states (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Calculation of N-Step - 9
- Lecture 70 - Calculation of N-Step - 10
- Lecture 71 - Limiting and Stationary distributions
- Lecture 72 - Limiting and Stationary distributions (Continued...)
- Lecture 73 - Continuous time Markov chain (CTMC)
- Lecture 74 - CTMC (Continued...)
- Lecture 75 - State transition diagram and Chapman-Kolmogorov equation
- Lecture 76 - Infinitesimal generator and Kolmogorov differential equations
- Lecture 77 - Limiting distribution
- Lecture 78 - Limiting and Stationary distributions - 1
- Lecture 79 - Birth death process
- Lecture 80 - Birth death process (Continued...)
- Lecture 81 - Poisson process - 1
- Lecture 82 - Poisson process (Continued...)
- Lecture 83 - Poisson process (Continued...)
- Lecture 84 - Non-homogeneous and compound Poisson process
- Lecture 85 - Introduction to Queueing Models and Kendall Notation
- Lecture 86 - M/M/1 Queueing Model
- Lecture 87 - M/M/1 Queueing Model (Continued...)
- Lecture 88 - M/M/1 Queueing Model and Burke's Theorem
- Lecture 89 - M/M/c Queueing Model
- Lecture 90 - M/M/c (Continued...) and M/M/1/N Model
- Lecture 91 - Other Markovian Queueing Models
- Lecture 92 - Transient Solution of Finite Capacity Markovian Queues

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Statistical Inference

Subject Co-ordinator - Prof. Nilladri Chatterjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Statistical Inference - 1  
Lecture 2 - Statistical Inference - 2  
Lecture 3 - Statistical Inference - 3  
Lecture 4 - Statistical Inference - 4  
Lecture 5 - Statistical Inference - 5  
Lecture 6 - Statistical Inference - 6  
Lecture 7 - Statistical Inference - 7  
Lecture 8 - Statistical Inference - 8  
Lecture 9 - Statistical Inference - 9  
Lecture 10 - Statistical Inference - 10  
Lecture 11 - Statistical Inference - 11  
Lecture 12 - Statistical Inference - 12  
Lecture 13 - Statistical Inference - 13  
Lecture 14 - Statistical Inference - 14  
Lecture 15 - Statistical Inference - 15  
Lecture 16 - Stasistical Inference - 16  
Lecture 17 - Stasistical Inference - 17  
Lecture 18 - Statistical Inference - 18  
Lecture 19 - Stasistical Inference - 19  
Lecture 20 - Stasistical Inference - 20  
Lecture 21 - Stasistical Inference - 21

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Formal Languages and Automata Theory

Subject Co-ordinator - Dr. K.V. Krishna, Dr. Diganta Goswami

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Alphabet, Strings, Languages
- Lecture 3 - Finite Representation
- Lecture 4 - Grammars (CFG)
- Lecture 5 - Derivation Trees
- Lecture 6 - Regular Grammars
- Lecture 7 - Finite Automata
- Lecture 8 - Nondeterministic Finite Automata
- Lecture 9 - NFA  $\Leftrightarrow$  DFA
- Lecture 10 - Myhill-Nerode Theorem
- Lecture 11 - Minimization
- Lecture 12 - RE  $\Rightarrow$  FA
- Lecture 13 - FA  $\Rightarrow$  RE
- Lecture 14 - FA  $\Leftrightarrow$  RG
- Lecture 15 - Variants of FA
- Lecture 16 - Closure Properties of RL
- Lecture 17 - Homomorphism
- Lecture 18 - Pumping Lemma
- Lecture 19 - Simplification of CFG
- Lecture 20 - Normal Forms of CFG
- Lecture 21 - Properties of CFLs
- Lecture 22 - Pushdown Automata
- Lecture 23 - PDA  $\Leftrightarrow$  CFG
- Lecture 24 - Turing Machines
- Lecture 25 - Turing Computable Functions
- Lecture 26 - Combining Turing Machines
- Lecture 27 - Multi Input
- Lecture 28 - Turing Decidable Languages
- Lecture 29 - Variants of Turing Machines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structured Grammars
- Lecture 31 - Decidability
- Lecture 32 - Undecidability 1
- Lecture 33 - Undecidability 2
- Lecture 34 - Undecidability 3
- Lecture 35 - Time Bounded Turing Machines
- Lecture 36 - P and NP
- Lecture 37 - NP-Completeness
- Lecture 38 - NP-Complete Problems 1
- Lecture 39 - NP-Complete Problems 2
- Lecture 40 - NP-Complete Problems 3
- Lecture 41 - Chomsky Hierarchy

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Complex Analysis

Subject Co-ordinator - Prof. P.A.S. Sree Krishna

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction to Complex Numbers
- Lecture 3 - de Moivre's Formula and Stereographic Projection
- Lecture 4 - Topology of the Complex Plane - Part-I
- Lecture 5 - Topology of the Complex Plane - Part-II
- Lecture 6 - Topology of the Complex Plane - Part-III
- Lecture 7 - Introduction to Complex Functions
- Lecture 8 - Limits and Continuity
- Lecture 9 - Differentiation
- Lecture 10 - Cauchy-Riemann Equations and Differentiability
- Lecture 11 - Analytic functions; the exponential function
- Lecture 12 - Sine, Cosine and Harmonic functions
- Lecture 13 - Branches of Multifunctions; Hyperbolic Functions
- Lecture 14 - Problem Solving Session I
- Lecture 15 - Integration and Contours
- Lecture 16 - Contour Integration
- Lecture 17 - Introduction to Cauchy's Theorem
- Lecture 18 - Cauchy's Theorem for a Rectangle
- Lecture 19 - Cauchy's theorem - Part-II
- Lecture 20 - Cauchy's Theorem - Part-III
- Lecture 21 - Cauchy's Integral Formula and its Consequences
- Lecture 22 - The First and Second Derivatives of Analytic Functions
- Lecture 23 - Morera's Theorem and Higher Order Derivatives of Analytic Functions
- Lecture 24 - Problem Solving Session II
- Lecture 25 - Introduction to Complex Power Series
- Lecture 26 - Analyticity of Power Series
- Lecture 27 - Taylor's Theorem
- Lecture 28 - Zeroes of Analytic Functions
- Lecture 29 - Counting the Zeroes of Analytic Functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Open mapping theorem - Part-I
- Lecture 31 - Open mapping theorem - Part-II
- Lecture 32 - Properties of Mobius Transformations - Part-I
- Lecture 33 - Properties of Mobius Transformations - Part-II
- Lecture 34 - Problem Solving Session III
- Lecture 35 - Removable Singularities
- Lecture 36 - Poles Classification of Isolated Singularities
- Lecture 37 - Essential Singularity & Introduction to Laurent Series
- Lecture 38 - Laurent's Theorem
- Lecture 39 - Residue Theorem and Applications
- Lecture 40 - Problem Solving Session IV

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Applied Multivariate Analysis

Subject Co-ordinator - Dr. Sharmishtha Mitra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Prologue
- Lecture 2 - Basic concepts on multivariate distribution
- Lecture 3 - Basic concepts on multivariate distribution
- Lecture 4 - Multivariate normal distribution - I
- Lecture 5 - Multivariate normal distribution - II
- Lecture 6 - Multivariate normal distribution - III
- Lecture 7 - Some problems on multivariate distributions - I
- Lecture 8 - Some problems on multivariate distributions - II
- Lecture 9 - Random sampling from multivariate normal distribution and Wishart distribution - I
- Lecture 10 - Random sampling from multivariate normal distribution and Wishart distribution - II
- Lecture 11 - Random sampling from multivariate normal distribution and Wishart distribution - III
- Lecture 12 - Wishart distribution and its properties - I
- Lecture 13 - Wishart distribution and its properties - II
- Lecture 14 - Hotelling's  $T^2$  distribution and its applications
- Lecture 15 - Hotelling's  $T^2$  distribution and various confidence intervals and regions
- Lecture 16 - Hotelling's  $T^2$  distribution and Profile analysis
- Lecture 17 - Profile analysis - I
- Lecture 18 - Profile analysis - II
- Lecture 19 - MANOVA - I
- Lecture 20 - MANOVA - II
- Lecture 21 - MANOVA - III
- Lecture 22 - MANOVA & Multiple Correlation Coefficient
- Lecture 23 - Multiple Correlation Coefficient
- Lecture 24 - Principal Component Analysis
- Lecture 25 - Principal Component Analysis
- Lecture 26 - Principal Component Analysis
- Lecture 27 - Cluster Analysis
- Lecture 28 - Cluster Analysis
- Lecture 29 - Cluster Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cluster Analysis
- Lecture 31 - Discriminant Analysis and Classification
- Lecture 32 - Discriminant Analysis and Classification
- Lecture 33 - Discriminant Analysis and Classification
- Lecture 34 - Discriminant Analysis and Classification
- Lecture 35 - Discriminant Analysis and Classification
- Lecture 36 - Discriminant Analysis and Classification
- Lecture 37 - Discriminant Analysis and Classification
- Lecture 38 - Factor\_Analysis
- Lecture 39 - Factor\_Analysis
- Lecture 40 - Factor\_Analysis
- Lecture 41 - Canonical Correlation Analysis
- Lecture 42 - Canonical Correlation Analysis
- Lecture 43 - Canonical Correlation Analysis
- Lecture 44 - Canonical Correlation Analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Calculus of Variations and Integral Equations

Subject Co-ordinator - Dr. Malay Banerjee, Prof. D. Bahuguna

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Calculus of Variations and Integral Equations  
Lecture 2 - Calculus of Variations and Integral Equations  
Lecture 3 - Calculus of Variations and Integral Equations  
Lecture 4 - Calculus of Variations and Integral Equations  
Lecture 5 - Calculus of Variations and Integral Equations  
Lecture 6 - Calculus of Variations and Integral Equations  
Lecture 7 - Calculus of Variations and Integral Equations  
Lecture 8 - Calculus of Variations and Integral Equations  
Lecture 9 - Calculus of Variations and Integral Equations  
Lecture 10 - Calculus of Variations and Integral Equations  
Lecture 11 - Calculus of Variations and Integral Equations  
Lecture 12 - Calculus of Variations and Integral Equations  
Lecture 13 - Calculus of Variations and Integral Equations  
Lecture 14 - Calculus of Variations and Integral Equations  
Lecture 15 - Calculus of Variations and Integral Equations  
Lecture 16 - Calculus of Variations and Integral Equations  
Lecture 17 - Calculus of Variations and Integral Equations  
Lecture 18 - Calculus of Variations and Integral Equations  
Lecture 19 - Calculus of Variations and Integral Equations  
Lecture 20 - Calculus of Variations and Integral Equations  
Lecture 21 - Calculus of Variations and Integral Equations  
Lecture 22 - Calculus of Variations and Integral Equations  
Lecture 23 - Calculus of Variations and Integral Equations  
Lecture 24 - Calculus of Variations and Integral Equations  
Lecture 25 - Calculus of Variations and Integral Equations  
Lecture 26 - Calculus of Variations and Integral Equations  
Lecture 27 - Calculus of Variations and Integral Equations  
Lecture 28 - Calculus of Variations and Integral Equations  
Lecture 29 - Calculus of Variations and Integral Equations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Calculus of Variations and Integral Equations
- Lecture 31 - Calculus of Variations and Integral Equations
- Lecture 32 - Calculus of Variations and Integral Equations
- Lecture 33 - Calculus of Variations and Integral Equations
- Lecture 34 - Calculus of Variations and Integral Equations
- Lecture 35 - Calculus of Variations and Integral Equations
- Lecture 36 - Calculus of Variations and Integral Equations
- Lecture 37 - Calculus of Variations and Integral Equations
- Lecture 38 - Calculus of Variations and Integral Equations
- Lecture 39 - Calculus of Variations and Integral Equations
- Lecture 40 - Calculus of Variations and Integral Equations



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Linear programming and Extensions

Subject Co-ordinator - Prof. Prabha Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Linear Programming Problems

Lecture 2 - Vector space, Linear independence and dependence, basis

Lecture 3 - Moving from one basic feasible solution to another, optimality criteria

Lecture 4 - Basic feasible solutions, existence & derivation

Lecture 5 - Convex sets, dimension of a polyhedron, Faces, Example of a polytope

Lecture 6 - Direction of a polyhedron, correspondence between bfs and extreme points

Lecture 7 - Representation theorem, LPP solution is a bfs, Assignment 1

Lecture 8 - Development of the Simplex Algorithm, Unboundedness, Simplex Tableau

Lecture 9 - Simplex Tableau & algorithm, Cycling, Bland's anti-cycling rules, Phase I & Phase II

Lecture 10 - Big-M method, Graphical solutions, adjacent extreme pts and adjacent bfs

Lecture 11 - Assignment 2, progress of Simplex algorithm on a polytope, bounded variable LPP

Lecture 12 - LPP Bounded variable, Revised Simplex algorithm, Duality theory, weak duality theorem

Lecture 13 - Weak duality theorem, economic interpretation of dual variables, Fundamental theorem of duality

Lecture 14 - Examples of writing the dual, complementary slackness theorem

Lecture 15 - Complementary slackness conditions, Dual Simplex algorithm, Assignment 3

Lecture 16 - Primal-dual algorithm

Lecture 17 - Problem in lecture 16, starting dual feasible solution, Shortest Path Problem

Lecture 18 - Shortest Path Problem, Primal-dual method, example

Lecture 19 - Shortest Path Problem-complexity, interpretation of dual variables, post-optimality analysis-changes in  $\{a_{ij}\}$

Lecture 20 - Assignment 4, postoptimality analysis, changes in  $b$ , adding a new constraint, changes in  $\{a_{ij}\}$

Lecture 21 - Parametric LPP-Right hand side vector

Lecture 22 - Parametric cost vector LPP

Lecture 23 - Parametric cost vector LPP, Introduction to Min-cost flow problem

Lecture 24 - Mini-cost flow problem-Transportation problem

Lecture 25 - Transportation problem degeneracy, cycling

Lecture 26 - Sensitivity analysis

Lecture 27 - Sensitivity analysis

Lecture 28 - Bounded variable transportation problem, min-cost flow problem

Lecture 29 - Min-cost flow problem

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Starting feasible solution, Lexicographic method for preventing cycling ,strongly feasible solution
- Lecture 31 - Assignment 6, Shortest path problem, Shortest Path between any two nodes, Detection of negative cycle
- Lecture 32 - Min-cost-flow Sensitivity analysis Shortest path problem sensitivity analysis
- Lecture 33 - Min-cost flow changes in arc capacities , Max-flow problem, assignment 7
- Lecture 34 - Problem 3 (assignment 7), Min-cut Max-flow theorem, Labelling algorithm
- Lecture 35 - Max-flow - Critical capacity of an arc, starting solution for min-cost flow problem
- Lecture 36 - Improved Max-flow algorithm
- Lecture 37 - Critical Path Method (CPM)
- Lecture 38 - Programme Evaluation and Review Technique (PERT)
- Lecture 39 - Simplex Algorithm is not polynomial time- An example
- Lecture 40 - Interior Point Methods

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Convex Optimization

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Convex Optimization
- Lecture 2 - Convex Optimization
- Lecture 3 - Convex Optimization
- Lecture 4 - Convex Optimization
- Lecture 5 - Convex Optimization
- Lecture 6 - Convex Optimization
- Lecture 7 - Convex Optimization
- Lecture 8 - Convex Optimization
- Lecture 9 - Convex Optimization
- Lecture 10 - Convex Optimization
- Lecture 11 - Convex Optimization
- Lecture 12 - Convex Optimization
- Lecture 13 - Convex Optimization
- Lecture 14 - Convex Optimization
- Lecture 15 - Convex Optimization
- Lecture 16 - Convex Optimization
- Lecture 17 - Convex Optimization
- Lecture 18 - Convex Optimization
- Lecture 19 - Convex Optimization
- Lecture 20 - Convex Optimization
- Lecture 21 - Convex Optimization
- Lecture 22 - Convex Optimization
- Lecture 23 - Convex Optimization
- Lecture 24 - Convex Optimization
- Lecture 25 - Convex Optimization
- Lecture 26 - Convex Optimization
- Lecture 27 - Convex Optimization
- Lecture 28 - Convex Optimization
- Lecture 29 - Convex Optimization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Convex Optimization  
Lecture 31 - Convex Optimization  
Lecture 32 - Convex Optimization  
Lecture 33 - Convex Optimization  
Lecture 34 - Convex Optimization  
Lecture 35 - Convex Optimization  
Lecture 36 - Convex Optimization  
Lecture 37 - Convex Optimization  
Lecture 38 - Convex Optimization  
Lecture 39 - Convex Optimization  
Lecture 40 - Convex Optimization  
Lecture 41 - Convex Optimization  
Lecture 42 - Convex Optimization

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Foundations of Optimization

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Optimization  
Lecture 2 - Optimization  
Lecture 3 - Optimization  
Lecture 4 - Optimization  
Lecture 5 - Optimization  
Lecture 6 - Optimization  
Lecture 7 - Optimization  
Lecture 8 - Optimization  
Lecture 9 - Optimization  
Lecture 10 - Optimization  
Lecture 11 - Optimization  
Lecture 12 - Optimization  
Lecture 13 - Optimization  
Lecture 14 - Optimization  
Lecture 15 - Optimization  
Lecture 16 - Optimization  
Lecture 17 - Optimization  
Lecture 18 - Optimization  
Lecture 19 - Optimization  
Lecture 20 - Optimization  
Lecture 21 - Optimization  
Lecture 22 - Optimization  
Lecture 23 - Optimization  
Lecture 24 - Optimization  
Lecture 25 - Optimization  
Lecture 26 - Optimization  
Lecture 27 - Optimization  
Lecture 28 - Optimization  
Lecture 29 - Optimization

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Lecture 30 - Optimization  
Lecture 31 - Optimization  
Lecture 32 - Optimization  
Lecture 33 - Optimization  
Lecture 34 - Optimization  
Lecture 35 - Optimization  
Lecture 36 - Optimization  
Lecture 37 - Optimization  
Lecture 38 - Optimization

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Probability Theory and Applications

Subject Co-ordinator - Prof. Prabha Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic principles of counting
- Lecture 2 - Sample space, events, axioms of probability
- Lecture 3 - Conditional probability, Independence of events
- Lecture 4 - Random variables, cumulative density function, expected value
- Lecture 5 - Discrete random variables and their distributions
- Lecture 6 - Discrete random variables and their distributions
- Lecture 7 - Discrete random variables and their distributions
- Lecture 8 - Continuous random variables and their distributions
- Lecture 9 - Continuous random variables and their distributions
- Lecture 10 - Continuous random variables and their distributions
- Lecture 11 - Function of random variables, Moment generating function
- Lecture 12 - Jointly distributed random variables, Independent r. v. and their sums
- Lecture 13 - Independent r. v. and their sums
- Lecture 14 - Chi square r. v., sums of independent normal r. v., Conditional distr
- Lecture 15 - Conditional distri, Joint distr. of functions of r. v., Order statistics
- Lecture 16 - Order statistics, Covariance and correlation
- Lecture 17 - Covariance, Correlation, Cauchy-Schwarz inequalities, Conditional expectation
- Lecture 18 - Conditional expectation, Best linear predictor
- Lecture 19 - Inequalities and bounds
- Lecture 20 - Convergence and limit theorems
- Lecture 21 - Central limit theorem
- Lecture 22 - Applications of central limit theorem
- Lecture 23 - Strong law of large numbers, Joint mgf
- Lecture 24 - Convolutions
- Lecture 25 - Stochastic processes
- Lecture 26 - Transition and state probabilities
- Lecture 27 - State prob., First passage and First return prob
- Lecture 28 - First passage and First return prob. Classification of states
- Lecture 29 - Random walk, periodic and null states

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Reducible Markov chains
- Lecture 31 - Time reversible Markov chains
- Lecture 32 - Poisson Processes
- Lecture 33 - Inter-arrival times, Properties of Poisson processes
- Lecture 34 - Queuing Models
- Lecture 35 - Analysis of  $L$ ,  $L_q$ ,  $W$  and  $W_q$ , M/M/S model
- Lecture 36 - M/M/S, M/M/I/K models
- Lecture 37 - M/M/I/K and M/M/S/K models
- Lecture 38 - Application to reliability theory failure law
- Lecture 39 - Exponential failure law, Weibull law
- Lecture 40 - Reliability of systems



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Basic Calculus for Engineers, Scientists and Economists

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Numbers  
Lecture 2 - Functions-1  
Lecture 3 - Sequence-1  
Lecture 4 - Sequence-2  
Lecture 5 - Limits and Continuity-1  
Lecture 6 - Limits and Continuity-2  
Lecture 7 - Limits And Continuity-3  
Lecture 8 - Derivative-1  
Lecture 9 - Derivative-2  
Lecture 10 - Maxima And Minima  
Lecture 11 - Mean-Value Theorem And Taylors Expansion-1  
Lecture 12 - Mean-Value Theorem And Taylors Expansion-2  
Lecture 13 - Integration-1  
Lecture 14 - Integration-2  
Lecture 15 - Integration By Parts  
Lecture 16 - Definite Integral  
Lecture 17 - Riemann Integration-1  
Lecture 18 - Riemann Integration-2  
Lecture 19 - Functions Of Two Or More Variables  
Lecture 20 - Limits And Continuity Of Functions Of Two Variable  
Lecture 21 - Differentiation Of Functions Of Two Variables-1  
Lecture 22 - Differentiation Of Functions Of Two Variables-2  
Lecture 23 - Unconstrained Minimization Of Funtions Of Two Variables  
Lecture 24 - Constrained Minimization And Lagrange Multiplier Rules  
Lecture 25 - Infinite Series-1  
Lecture 26 - Infinite Series-2  
Lecture 27 - Infinite Series-3  
Lecture 28 - Multiple Integrals-1  
Lecture 29 - Multiple Integrals-2

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Lecture 30 - Multiple Integrals-3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Probability and Stochastics for finance

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Probability

Lecture 2 - Interesting Problems In Probability

Lecture 3 - Random variables, distribution function and independence

Lecture 4 - Chebyshev inequality, Borel-Cantelli Lemmas and related issues

Lecture 5 - Law of Large Number and Central Limit Theorem

Lecture 6 - Conditional Expectation - I

Lecture 7 - Conditional Expectation - II

Lecture 8 - Martingales

Lecture 9 - Brownian Motion - I

Lecture 10 - Brownian Motion - II

Lecture 11 - Brownian Motion - III

Lecture 12 - Ito Integral - I

Lecture 13 - Ito Integral - II

Lecture 14 - Ito Calculus - I

Lecture 15 - Ito Calculus - II

Lecture 16 - Ito Integral In Higher Dimension

Lecture 17 - Application to Ito Integral - I

Lecture 18 - Application to Ito Integral - II

Lecture 19 - Black Scholes Formula - I

Lecture 20 - Black Scholes Formula - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Differential Calculus in Several Variables

Subject Co-ordinator - Prof. Sudipta Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Several Variables and Notion Of distance in  $R^n$
- Lecture 2 - Countinuity And Compactness
- Lecture 3 - Countinuity And Connectdness
- Lecture 4 - Derivatives
- Lecture 5 - Matrix Of Linear Transformation
- Lecture 6 - Examples for Differentiable function
- Lecture 7 - Sufficient condition of differentiability
- Lecture 8 - Chain Rule
- Lecture 9 - Mean Value Theorem
- Lecture 10 - Higher Order Derivatives
- Lecture 11 - Taylor's Formula
- Lecture 12 - Maximum And Minimum
- Lecture 13 - Second derivative test for maximum, minimum and saddle point
- Lecture 14 - We formalise the second derivative test discussed in Lecture 2 and do examples
- Lecture 15 - Specialisation to functions of two variables
- Lecture 16 - Implicit Function Theorem
- Lecture 17 - Implicit Function Theorem -a
- Lecture 18 - Application of IFT
- Lecture 19 - Application of IFT
- Lecture 20 - Application of IFT
- Lecture 21 - Application of IFT

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Curves and Surfaces

Subject Co-ordinator - Prof. Sudipta Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Level curves and locus, definition of parametric curves, tangent, arc length, arc length parameter
- Lecture 2 - How much a curve is  $\hat{A}$  curved $\hat{A}$ , signed unit normal and signed curvature, rigid motions, constant
- Lecture 3 - Curves in  $R^3$ , principal normal and binormal, torsion
- Lecture 4 - Frenet-Serret formula
- Lecture 5 - Simple closed curve and isoperimetric inequality
- Lecture 6 - Surfaces and parametric surfaces, examples, regular surface and non-example of regular surface, t
- Lecture 7 - Transition maps of smooth surfaces, smooth function between surfaces, diffeomorphism
- Lecture 8 - Reparameterization
- Lecture 9 - Tangent, Normal
- Lecture 10 - Orientable surfaces
- Lecture 11 - Examples of Surfaces
- Lecture 12 - First Fundamental Form
- Lecture 13 - Conformal Mapping
- Lecture 14 - Curvature of Surfaces
- Lecture 15 - Euler's Theorem
- Lecture 16 - Regular Surfaces locally as Quadratic Surfaces
- Lecture 17 - Geodesics
- Lecture 18 - Existence of Geodesics, Geodesics on Surfaces of revolution
- Lecture 19 - Geodesics on surfaces of revolution; Clairaut's Theorem
- Lecture 20 - Pseudosphere
- Lecture 21 - Classification of Quadratic Surface
- Lecture 22 - Surface Area and Equiareal Map

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Linear Regression Analysis and Forecasting

Subject Co-ordinator - Prof. Shalabh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Fundamental Concepts Of Modelling

Lecture 2 - Regression Model - A Statistical Tool

Lecture 3 - Simple Linear Regression Analysis

Lecture 4 - Estimation Of Parameters In Simple Linear Regression Model

Lecture 5 - Estimation Of Parameters In Simple Linear Regression Model (Continued...)

Lecture 6 - Estimation Of Parameters In Simple Linear Regression Model (Continued...)

Lecture 7 - Maximum Likelihood Estimation of Parameters in Simple Linear Regression Model

Lecture 8 - Testing of Hypothesis and Confidence Interval Estimation in Simple Linear Regression Model

Lecture 9 - Testing of Hypothesis and Confidence Interval Estimation in Simple Linear Regression Model (Continued...)

Lecture 10 - Software Implementation in Simple Linear Regression Model using MINITAB

Lecture 11 - Multiple Linear Regression Model

Lecture 12 - Estimation of Model Parameters in Multiple Linear Regression Model

Lecture 13 - Estimation of Model Parameters in Multiple Linear Regression Model (Continued...)

Lecture 14 - Standardized Regression Coefficients and Testing of Hypothesis

Lecture 15 - Testing of Hypothesis (Continued...) and Goodness of Fit of the Model

Lecture 16 - Diagnostics in Multiple Linear Regression Model

Lecture 17 - Diagnostics in Multiple Linear Regression Model (Continued...)

Lecture 18 - Diagnostics in Multiple Linear Regression Model (Continued...)

Lecture 19 - Software Implementation of Multiple Linear Regression Model using MINITAB

Lecture 20 - Software Implementation of Multiple Linear Regression Model using MINITAB (Continued...)

Lecture 21 - Forecasting in Multiple Linear Regression Model

Lecture 22 - Within Sample Forecasting

Lecture 23 - Outside Sample Forecasting

Lecture 24 - Software Implementation of Forecasting using MINITAB

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to R Software

Subject Co-ordinator - Prof. Shalabh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - How to Learn and Follow the Course

Lecture 2 - Why R and Installation Procedure

Lecture 3 - Introduction \_Help\_ Demo examples\_ packages\_ libraries

Lecture 4 - Introduction \_Command line\_ Data editor \_ Rstudio

Lecture 5 - Basics in Calculations

Lecture 6 - Basics of Calculations \_ Calculator \_Built in Functions Assignments

Lecture 7 - Basics of Calculations \_Functions \_Matrices

Lecture 8 - Basics Calculations

Lecture 9 - Basics Calculations

Lecture 10 - Basics Calculations

Lecture 11 - Basics Calculations

Lecture 12 - Basics Calculations

Lecture 13 - Basics Calculations

Lecture 14 - Basics Calculations

Lecture 15 - Data management - Sequences

Lecture 16 - Data management - sequences

Lecture 17 - Data management - Repeats

Lecture 18 - Data management - Sorting and Ordering

Lecture 19 - Data management - Lists

Lecture 20 - Data management - Lists (Continued...)

Lecture 21 - Data management - Vector indexing

Lecture 22 - Data management - Vector Indexing (Continued...)

Lecture 23 - Data management - Factors

Lecture 24 - Data management - factors (Continued...)

Lecture 25 - Strings - Display and Formatting, Print and Format Functions

Lecture 26 - Strings - Display and Formatting, Print and Format with Concatenate

Lecture 27 - Strings - Display and Formatting, Paste Function

Lecture 28 - Strings - Display and Formatting, Splitting

Lecture 29 - Strings - Display and Formatting, Replacement\_ Manipulations \_Alphabets

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strings - Display and Formatting, Replacement and Evaluation of Strings
- Lecture 31 - Data frames
- Lecture 32 - Data frames (Continued...)
- Lecture 33 - Data frames (Continued...)
- Lecture 34 - Data Handling - Importing CSV and Tabular Data Files
- Lecture 35 - Data Handling - Importing Data Files from Other Software
- Lecture 36 - Statistical Functions - Frequency and Partition values
- Lecture 37 - Statistical Functions - Graphics and Plots
- Lecture 38 - Statistical Functions - Central Tendency and Variation
- Lecture 39 - Statistical Functions - Boxplots, Skewness and Kurtosis
- Lecture 40 - Statistical Functions - Bivariate three dimensional plot
- Lecture 41 - Statistical Functions - Correlation and Examples of Programming
- Lecture 42 - Examples of Programming
- Lecture 43 - Examples of More Programming



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Advanced Engineering Mathematics

Subject Co-ordinator - Dr. P. Panigrahi, Prof. J. Kumar, Prof. P.D. Srivastava, Prof. Somesh Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review Groups, Fields and Matrices
- Lecture 2 - Vector Spaces, Subspaces, Linearly Dependent/Independent of Vectors
- Lecture 3 - Basis, Dimension, Rank and Matrix Inverse
- Lecture 4 - Linear Transformation, Isomorphism and Matrix Representation
- Lecture 5 - System of Linear Equations, Eigenvalues and Eigenvectors
- Lecture 6 - Method to Find Eigenvalues and Eigenvectors, Diagonalization of Matrices
- Lecture 7 - Jordan Canonical Form, Cayley Hamilton Theorem
- Lecture 8 - Inner Product Spaces, Cauchy-Schwarz Inequality
- Lecture 9 - Orthogonality, Gram-Schmidt Orthogonalization Process
- Lecture 10 - Spectrum of special matrices, positive/negative definite matrices
- Lecture 11 - Concept of Domain, Limit, Continuity and Differentiability
- Lecture 12 - Analytic Functions, C-R Equations
- Lecture 13 - Harmonic Functions
- Lecture 14 - Line Integral in the Complex
- Lecture 15 - Cauchy Integral Theorem
- Lecture 16 - Cauchy Integral Theorem (Continued.)
- Lecture 17 - Cauchy Integral Formula
- Lecture 18 - Power and Taylor's Series of Complex Numbers
- Lecture 19 - Power and Taylor's Series of Complex Numbers (Continued.)
- Lecture 20 - Taylor's, Laurent Series of  $f(z)$  and Singularities
- Lecture 21 - Classification of Singularities, Residue and Residue Theorem
- Lecture 22 - Laplace Transform and its Existence
- Lecture 23 - Properties of Laplace Transform
- Lecture 24 - Evaluation of Laplace and Inverse Laplace Transform
- Lecture 25 - Applications of Laplace Transform to Integral Equations and ODEs
- Lecture 26 - Applications of Laplace Transform to PDEs
- Lecture 27 - Fourier Series
- Lecture 28 - Fourier Series (Continued.)
- Lecture 29 - Fourier Integral Representation of a Function

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Fourier Transform
- Lecture 31 - Applications of Fourier Transform to PDEs
- Lecture 32 - Laws of Probability - I
- Lecture 33 - Laws of Probability - II
- Lecture 34 - Problems in Probability
- Lecture 35 - Random Variables
- Lecture 36 - Special Discrete Distributions
- Lecture 37 - Special Continuous Distributions
- Lecture 38 - Joint Distributions and Sampling Distributions
- Lecture 39 - Point Estimation
- Lecture 40 - Interval Estimation
- Lecture 41 - Basic Concepts of Testing of Hypothesis
- Lecture 42 - Tests for Normal Populations

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Functional Analysis

Subject Co-ordinator - Prof. P.D. Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Metric Spaces with Examples
- Lecture 2 - Holder Inequality and Minkowski Inequality
- Lecture 3 - Various Concepts in a Metric Space
- Lecture 4 - Separable Metrics Spaces with Examples
- Lecture 5 - Convergence, Cauchy Sequence, Completeness
- Lecture 6 - Examples of Complete and Incomplete Metric Spaces
- Lecture 7 - Completion of Metric Spaces + Tutorial
- Lecture 8 - Vector Spaces with Examples
- Lecture 9 - Normed Spaces with Examples
- Lecture 10 - Banach Spaces and Schauder Basis
- Lecture 11 - Finite Dimensional Normed Spaces and Subspaces
- Lecture 12 - Compactness of Metric/Normed Spaces
- Lecture 13 - Linear Operators-definition and Examples
- Lecture 14 - Bounded Linear Operators in a Normed Space
- Lecture 15 - Bounded Linear Functionals in a Normed Space
- Lecture 16 - Concept of Algebraic Dual and Reflexive Space
- Lecture 17 - Dual Basis & Algebraic Reflexive Space
- Lecture 18 - Dual Spaces with Examples
- Lecture 19 - Tutorial - I
- Lecture 20 - Tutorial - II
- Lecture 21 - Inner Product & Hilbert Space
- Lecture 22 - Further Properties of Inner Product Spaces
- Lecture 23 - Projection Theorem, Orthonormal Sets and Sequences
- Lecture 24 - Representation of Functionals on a Hilbert Spaces
- Lecture 25 - Hilbert Adjoint Operator
- Lecture 26 - Self Adjoint, Unitary & Normal Operators
- Lecture 27 - Tutorial - III
- Lecture 28 - Annihilator in an IPS
- Lecture 29 - Total Orthonormal Sets And Sequences

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Partially Ordered Set and Zorns Lemma
- Lecture 31 - Hahn Banach Theorem for Real Vector Spaces
- Lecture 32 - Hahn Banach Theorem for Complex V.S. & Normed Spaces
- Lecture 33 - Baires Category & Uniform Boundedness Theorems
- Lecture 34 - Open Mapping Theorem
- Lecture 35 - Closed Graph Theorem
- Lecture 36 - Adjoint Operator
- Lecture 37 - Strong and Weak Convergence
- Lecture 38 - Convergence of Sequence of Operators and Functionals
- Lecture 39 - LP - Space
- Lecture 40 - LP - Space (Continued.)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Numerical methods of Ordinary and Partial Differential Equations

Subject Co-ordinator - Dr. G.P. Raja Sekhar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation with few Examples
- Lecture 2 - Single - Step Methods for IVPs
- Lecture 3 - Analysis of Single Step Methods
- Lecture 4 - Runge - Kutta Methods for IVPs
- Lecture 5 - Higher Order Methods/Equations
- Lecture 6 - Error - Stability - Convergence of Single Step Methods
- Lecture 7 - Tutorial - I
- Lecture 8 - Tutorial - II
- Lecture 9 - Multi-Step Methods (Explicit)
- Lecture 10 - Multi-Step Methods (Implicit)
- Lecture 11 - Convergence and Stability of multi step methods
- Lecture 12 - General methods for absolute stability
- Lecture 13 - Stability Analysis of Multi Step Methods
- Lecture 14 - Predictor - Corrector Methods
- Lecture 15 - Some Comments on Multi - Step Methods
- Lecture 16 - Finite Difference Methods - Linear BVPs
- Lecture 17 - Linear/Non - Linear Second Order BVPs
- Lecture 18 - BVPS - Derivative Boundary Conditions
- Lecture 19 - Higher Order BVPs
- Lecture 20 - Shooting Method BVPs
- Lecture 21 - Tutorial - III
- Lecture 22 - Introduction to First Order PDE
- Lecture 23 - Introduction to Second Order PDE
- Lecture 24 - Finite Difference Approximations to Parabolic PDEs
- Lecture 25 - Implicit Methods for Parabolic PDEs
- Lecture 26 - Consistency, Stability and Convergence
- Lecture 27 - Other Numerical Methods for Parabolic PDEs
- Lecture 28 - Tutorial - IV
- Lecture 29 - Matrix Stability Analysis of Finite Difference Scheme

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fourier Series Stability Analysis of Finite Difference Scheme
- Lecture 31 - Finite Difference Approximations to Elliptic PDEs - I
- Lecture 32 - Finite Difference Approximations to Elliptic PDEs - II
- Lecture 33 - Finite Difference Approximations to Elliptic PDEs - III
- Lecture 34 - Finite Difference Approximations to Elliptic PDEs - IV
- Lecture 35 - Finite Difference Approximations to Hyperbolic PDEs - I
- Lecture 36 - Finite Difference Approximations to Hyperbolic PDEs - II
- Lecture 37 - Method of characteristics for Hyperbolic PDEs - I
- Lecture 38 - Method of characteristics for Hyperbolic PDEs - II
- Lecture 39 - Finite Difference Approximations to 1st order Hyperbolic PDEs
- Lecture 40 - Summary, Appendices, Remarks

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Optimization

Subject Co-ordinator - Prof. A. Goswami, Dr. Debjani Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Optimization - Introduction
- Lecture 2 - Formulation of LPP
- Lecture 3 - Geometry of LPP and Graphical Solution of LPP
- Lecture 4 - Solution of LPP
- Lecture 5 - Big - M Method
- Lecture 6 - Two - Phase Method
- Lecture 7 - Special Cases in Simple Applications
- Lecture 8 - Introduction to Duality Theory
- Lecture 9 - Dual Simplex Method
- Lecture 10 - Post Optimality Analysis
- Lecture 11 - Integer Programming - I
- Lecture 12 - Integer Programming - II
- Lecture 13 - Introduction to Transportation Problems
- Lecture 14 - Solving Various types of Transportation Problems
- Lecture 15 - Assignment Problems
- Lecture 16 - Project Management
- Lecture 17 - Critical Path Analysis
- Lecture 18 - PERT
- Lecture 19 - Shortest Path Algorithm
- Lecture 20 - Travelling Salesman Problem
- Lecture 21 - Classical optimization techniques
- Lecture 22 - Unconstrained multivariable optimization
- Lecture 23 - Nonlinear programming with equality constraint
- Lecture 24 - Nonlinear programming KKT conditions
- Lecture 25 - Numerical optimization
- Lecture 26 - Numerical optimization
- Lecture 27 - Fibonacci Method
- Lecture 28 - Golden Section Methods
- Lecture 29 - Interpolation Methods

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unconstrained optimization techniques
- Lecture 31 - Unconstrained optimization techniques
- Lecture 32 - Nonlinear programming
- Lecture 33 - Interior and Exterior penalty Function Method
- Lecture 34 - Separable Programming Problem
- Lecture 35 - Introduction to Geometric Programming
- Lecture 36 - Constrained Geometric Programming Problem
- Lecture 37 - Dynamic Programming Problem
- Lecture 38 - Dynamic Programming Problem (Continued.)
- Lecture 39 - Multi Objective Decision Making
- Lecture 40 - Multi attribute decision making



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Probability and Statistics

Subject Co-ordinator - Prof. Somesh Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Algebra of Sets - I  
Lecture 2 - Algebra of Sets - II  
Lecture 3 - Introduction to Probability  
Lecture 4 - Laws of Probability - I  
Lecture 5 - Laws of Probability - II  
Lecture 6 - Problems in Probability  
Lecture 7 - Random Variables  
Lecture 8 - Probability Distributions  
Lecture 9 - Characteristics of Distribution  
Lecture 10 - Special Distributions - I  
Lecture 11 - Special Distributions - II  
Lecture 12 - Special Distributions - III  
Lecture 13 - Special Distributions - IV  
Lecture 14 - Special Distributions - V  
Lecture 15 - Special Distributions - VI  
Lecture 16 - Special Distributions - VII  
Lecture 17 - Functions of a Random Variable  
Lecture 18 - Joint Distributions - I  
Lecture 19 - Joint Distributions - II  
Lecture 20 - Joint Distributions - III  
Lecture 21 - Joint Distributions - IV  
Lecture 22 - Transformations of Random Vectors  
Lecture 23 - Sampling Distributions - I  
Lecture 24 - Sampling Distributions - II  
Lecture 25 - Descriptive Statistics - I  
Lecture 26 - Descriptive Statistics - II  
Lecture 27 - Estimation - I  
Lecture 28 - Estimation - II  
Lecture 29 - Estimation - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Estimation - IV
- Lecture 31 - Estimation - V
- Lecture 32 - Estimation - VI
- Lecture 33 - Testing of Hypothesis - I
- Lecture 34 - Testing of Hypothesis - II
- Lecture 35 - Testing of Hypothesis - III
- Lecture 36 - Testing of Hypothesis - IV
- Lecture 37 - Testing of Hypothesis - V
- Lecture 38 - Testing of Hypothesis - VI
- Lecture 39 - Testing of Hypothesis - VII
- Lecture 40 - Testing of Hypothesis - VIII

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Regression Analysis

Subject Co-ordinator - Dr. Soumen Maity

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Simple Linear Regression
- Lecture 2 - Simple Linear Regression (Continued...1)
- Lecture 3 - Simple Linear Regression (Continued...2)
- Lecture 4 - Simple Linear Regression (Continued...3)
- Lecture 5 - Simple Linear Regression (Continued...4)
- Lecture 6 - Multiple Linear Regression
- Lecture 7 - Multiple Linear Regression (Continued...1)
- Lecture 8 - Multiple Linear Regression (Continued...2)
- Lecture 9 - Multiple Linear Regression (Continued...3)
- Lecture 10 - Selecting the BEST Regression model
- Lecture 11 - Selecting the BEST Regression model (Continued...1)
- Lecture 12 - Selecting the BEST Regression model (Continued...2)
- Lecture 13 - Selecting the BEST Regression model (Continued...3)
- Lecture 14 - Multicollinearity
- Lecture 15 - Multicollinearity (Continued...1)
- Lecture 16 - Multicollinearity (Continued...2)
- Lecture 17 - Model Adequacy Checking
- Lecture 18 - Model Adequacy Checking (Continued...1)
- Lecture 19 - Model Adequacy Checking (Continued...2)
- Lecture 20 - Test for Influential Observations
- Lecture 21 - Transformations and Weighting to correct model inadequacies
- Lecture 22 - Transformations and Weighting to correct model inadequacies (Continued...1)
- Lecture 23 - Transformations and Weighting to correct model inadequacies (Continued...2)
- Lecture 24 - Dummy Variables
- Lecture 25 - Dummy Variables (Continued...1)
- Lecture 26 - Dummy Variables (Continued...2)
- Lecture 27 - Polynomial Regression Models
- Lecture 28 - Polynomial Regression Models (Continued...1)
- Lecture 29 - Polynomial Regression Models (Continued...2)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Generalized Linear Models
- Lecture 31 - Generalized Linear Models (Continued.)
- Lecture 32 - Non-Linear Estimation
- Lecture 33 - Regression Models with Autocorrelated Errors
- Lecture 34 - Regression Models with Autocorrelated Errors (Continued.)
- Lecture 35 - Measurement Errors & Calibration Problem
- Lecture 36 - Tutorial - I
- Lecture 37 - Tutorial - II
- Lecture 38 - Tutorial - III
- Lecture 39 - Tutorial - IV
- Lecture 40 - Tutorial - V

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Statistical Inference

Subject Co-ordinator - Prof. Somesh Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Motivation
- Lecture 2 - Basic Concepts of Point Estimations - I
- Lecture 3 - Basic Concepts of Point Estimations - II
- Lecture 4 - Finding Estimators - I
- Lecture 5 - Finding Estimators - II
- Lecture 6 - Finding Estimators - III
- Lecture 7 - Properties of MLEs
- Lecture 8 - Lower Bounds for Variance - I
- Lecture 9 - Lower Bounds for Variance - II
- Lecture 10 - Lower Bounds for Variance - III
- Lecture 11 - Lower Bounds for Variance - IV
- Lecture 12 - Sufficiency
- Lecture 13 - Sufficiency and Information
- Lecture 14 - Minimal Sufficiency, Completeness
- Lecture 15 - UMVU Estimation, Ancillarity
- Lecture 16 - Invariance - I
- Lecture 17 - Invariance - II
- Lecture 18 - Bayes and Minimax Estimation - I
- Lecture 19 - Bayes and Minimax Estimation - II
- Lecture 20 - Bayes and Minimax Estimation - III
- Lecture 21 - Testing of Hypotheses
- Lecture 22 - Neyman Pearson Fundamental Lemma
- Lecture 23 - Applications of NP lemma
- Lecture 24 - UMP Tests
- Lecture 25 - UMP Tests (Continued.)
- Lecture 26 - UMP Unbiased Tests
- Lecture 27 - UMP Unbiased Tests (Continued.)
- Lecture 28 - UMP Unbiased Tests
- Lecture 29 - Unbiased Tests for Normal Populations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unbiased Tests for Normal Populations (Continued.)
- Lecture 31 - Likelihood Ratio Tests - I
- Lecture 32 - Likelihood Ratio Tests - II
- Lecture 33 - Likelihood Ratio Tests - III
- Lecture 34 - Likelihood Ratio Tests - IV
- Lecture 35 - Invariant Tests
- Lecture 36 - Test for Goodness of Fit
- Lecture 37 - Sequential Procedure
- Lecture 38 - Sequential Procedure (Continued.)
- Lecture 39 - Confidence Intervals
- Lecture 40 - Confidence Intervals (Continued.)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - A Basic Course in Real Analysis

Subject Co-ordinator - Prof. P.D. Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Rational Numbers and Rational Cuts

Lecture 2 - Irrational numbers, Dedekind's Theorem

Lecture 3 - Continuum and Exercises

Lecture 4 - Continuum and Exercises (Continued.)

Lecture 5 - Cantor's Theory of Irrational Numbers

Lecture 6 - Cantor's Theory of Irrational Numbers (Continued.)

Lecture 7 - Equivalence of Dedekind and Cantor's Theory

Lecture 8 - Finite, Infinite, Countable and Uncountable Sets of Real Numbers

Lecture 9 - Types of Sets with Examples, Metric Space

Lecture 10 - Various properties of open set, closure of a set

Lecture 11 - Ordered set, Least upper bound, greatest lower bound of a set

Lecture 12 - Compact Sets and its properties

Lecture 13 - Weiersstrass Theorem, Heine Borel Theorem, Connected set

Lecture 14 - Tutorial - II

Lecture 15 - Concept of limit of a sequence

Lecture 16 - Some Important limits, Ratio tests for sequences of Real Numbers

Lecture 17 - Cauchy theorems on limit of sequences with examples

Lecture 18 - Fundamental theorems on limits, Bolzano-Weiersstrass Theorem

Lecture 19 - Theorems on Convergent and divergent sequences

Lecture 20 - Cauchy sequence and its properties

Lecture 21 - Infinite series of real numbers

Lecture 22 - Comparison tests for series, Absolutely convergent and Conditional convergent series

Lecture 23 - Tests for absolutely convergent series

Lecture 24 - Raabe's test, limit of functions, Cluster point

Lecture 25 - Some results on limit of functions

Lecture 26 - Limit Theorems for functions

Lecture 27 - Extension of limit concept (one sided limits)

Lecture 28 - Continuity of Functions

Lecture 29 - Properties of Continuous Functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Boundedness Theorem, Max-Min Theorem and Bolzano's theorem
- Lecture 31 - Uniform Continuity and Absolute Continuity
- Lecture 32 - Types of Discontinuities, Continuity and Compactness
- Lecture 33 - Continuity and Compactness (Continued.), Connectedness
- Lecture 34 - Differentiability of real valued function, Mean Value Theorem
- Lecture 35 - Mean Value Theorem (Continued.)
- Lecture 36 - Application of MVT , Darboux Theorem, L Hospital Rule
- Lecture 37 - L'Hospital Rule and Taylor's Theorem
- Lecture 38 - Tutorial - III
- Lecture 39 - Riemann/Riemann Stieltjes Integral
- Lecture 40 - Existence of Reimann Stieltjes Integral
- Lecture 41 - Properties of Reimann Stieltjes Integral
- Lecture 42 - Properties of Reimann Stieltjes Integral (Continued.)
- Lecture 43 - Definite and Indefinite Integral
- Lecture 44 - Fundamental Theorems of Integral Calculus
- Lecture 45 - Improper Integrals
- Lecture 46 - Convergence Test for Improper Integrals



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Statistical Methods for Scientists and Engineers

Subject Co-ordinator - Prof. Somesh Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Foundations of Probability
- Lecture 2 - Laws of Probability
- Lecture 3 - Random Variables
- Lecture 4 - Moments and Special Distributions
- Lecture 5 - Moments and Special Distributions (Continued...)
- Lecture 6 - Special Distributions (Continued...)
- Lecture 7 - Special Distributions (Continued...)
- Lecture 8 - Sampling Distributions
- Lecture 9 - Parametric Methods - I
- Lecture 10 - Parametric Methods - II
- Lecture 11 - Parametric Methods - III
- Lecture 12 - Parametric Methods - IV
- Lecture 13 - Parametric Methods - V
- Lecture 14 - Parametric Methods - VI
- Lecture 15 - Parametric Methods - VII
- Lecture 16 - Multivariate Analysis - I
- Lecture 17 - Multivariate Analysis - II
- Lecture 18 - Multivariate Analysis - III
- Lecture 19 - Multivariate Analysis - IV
- Lecture 20 - Multivariate Analysis - V
- Lecture 21 - Multivariate Analysis - VI
- Lecture 22 - Multivariate Analysis - VII
- Lecture 23 - Multivariate Analysis - VIII
- Lecture 24 - Multivariate Analysis - IX
- Lecture 25 - Multivariate Analysis - X
- Lecture 26 - Multivariate Analysis - XI
- Lecture 27 - Multivariate Analysis - XII
- Lecture 28 - Non parametric Methods - I
- Lecture 29 - Non parametric Methods - II

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- Lecture 30 - Non parametric Methods - III
- Lecture 31 - Non parametric Methods - IV
- Lecture 32 - Nonparametric Methods - V
- Lecture 33 - Nonparametric Methods - VI
- Lecture 34 - Nonparametric Methods - VII
- Lecture 35 - Nonparametric Methods - VIII
- Lecture 36 - Nonparametric Methods - IX
- Lecture 37 - Nonparametric Methods - X
- Lecture 38 - Nonparametric Methods - XI
- Lecture 39 - Nonparametric Methods - XII
- Lecture 40 - Nonparametric Methods - XIII

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Probability and Statistics

Subject Co-ordinator - Prof. Somesh Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sets, Classes, Collection
- Lecture 2 - Sequence of Sets
- Lecture 3 - Ring, Field (Algebra)
- Lecture 4 - Sigma-Ring, Sigma-Field, Monotone Class
- Lecture 5 - Random Experiment, Events
- Lecture 6 - Definitions of Probability
- Lecture 7 - Properties of Probability Function - I
- Lecture 8 - Properties of Probability Function - II
- Lecture 9 - Conditional Probability
- Lecture 10 - Independence of Events
- Lecture 11 - Problems in Probability - I
- Lecture 12 - Problems in Probability - II
- Lecture 13 - Random Variables
- Lecture 14 - Probability Distribution of a Random Variable - I
- Lecture 15 - Probability Distribution of a Random Variable - II
- Lecture 16 - Moments
- Lecture 17 - Characteristics of Distributions - I
- Lecture 18 - Characteristics of Distributions - II
- Lecture 19 - Special Discrete Distributions - I
- Lecture 20 - Special Discrete Distributions - II
- Lecture 21 - Special Discrete Distributions - III
- Lecture 22 - Poisson Process - I
- Lecture 23 - Poisson Process - II
- Lecture 24 - Special Continuous Distributions - I
- Lecture 25 - Special Continuous Distributions - II
- Lecture 26 - Special Continuous Distributions - III
- Lecture 27 - Special Continuous Distributions - IV
- Lecture 28 - Special Continuous Distributions - V
- Lecture 29 - Normal Distribution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problems on Normal Distribution
- Lecture 31 - Problems on Special Distributions - I
- Lecture 32 - Problems on Special Distributions - II
- Lecture 33 - Function of a random variable - I
- Lecture 34 - Function of a random variable - II
- Lecture 35 - Joint Distributions - I
- Lecture 36 - Joint Distributions - II
- Lecture 37 - Independence, Product Moments
- Lecture 38 - Linearity Property of Correlation and Examples
- Lecture 39 - Bivariate Normal Distribution - I
- Lecture 40 - Bivariate Normal Distribution - II
- Lecture 41 - Additive Properties of Distributions - I
- Lecture 42 - Additive Properties of Distributions - II
- Lecture 43 - Transformation of Random Variables
- Lecture 44 - Distribution of Order Statistics
- Lecture 45 - Basic Concepts
- Lecture 46 - Chi-Square Distribution
- Lecture 47 - Chi-Square Distribution (Continued...), t-Distribution
- Lecture 48 - F-Distribution
- Lecture 49 - Descriptive Statistics - I
- Lecture 50 - Descriptive Statistics - II
- Lecture 51 - Descriptive Statistics - III
- Lecture 52 - Descriptive Statistics - IV
- Lecture 53 - Introduction to Estimation
- Lecture 54 - Unbiased and Consistent Estimators
- Lecture 55 - LSE, MME
- Lecture 56 - Examples on MME, MLE
- Lecture 57 - Examples on MLE - I
- Lecture 58 - Examples on MLE - II, MSE
- Lecture 59 - UMVUE, Sufficiency, Completeness
- Lecture 60 - Rao - Blackwell Theorem and Its Applications
- Lecture 61 - Confidence Intervals - I
- Lecture 62 - Confidence Intervals - II
- Lecture 63 - Confidence Intervals - III
- Lecture 64 - Confidence Intervals - IV
- Lecture 65 - Basic Definitions
- Lecture 66 - Two Types of Errors
- Lecture 67 - Neyman-Pearson Fundamental Lemma
- Lecture 68 - Applications of N-P Lemma - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Applications of N-P Lemma - II
- Lecture 70 - Testing for Normal Mean
- Lecture 71 - Testing for Normal Variance
- Lecture 72 - Large Sample Test for Variance and Two Sample Problem
- Lecture 73 - Paired t-Test
- Lecture 74 - Examples
- Lecture 75 - Testing Equality of Proportions
- Lecture 76 - Chi-Square Test for Goodness Fit - I
- Lecture 77 - Chi-Square Test for Goodness Fit - II
- Lecture 78 - Testing for Independence in rxc Contingency Table - I
- Lecture 79 - Testing for Independence in rxc Contingency Table - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Applied Multivariate Statistical Modeling

Subject Co-ordinator - Dr. J. Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to multivariate statistical modeling - Part-I  
Lecture 2 - Introduction to multivariate statistical modeling - Part-II  
Lecture 3 - Univariate descriptive statistics  
Lecture 4 - Sampling Distribution  
Lecture 5 - Estimation - Part-I  
Lecture 6 - Estimation - Part-II  
Lecture 7 - Hypothesis Testing  
Lecture 8 - Introduction to multivariate statistical modeling - Part-I  
Lecture 9 - Introduction to multivariate statistical modeling - Part-II  
Lecture 10 - Multivariate Normal Distribution  
Lecture 11 - Multivariate Normal Distribution (Continued...)  
Lecture 12 - ANOVA - Part-I  
Lecture 13 - ANOVA - Part-II  
Lecture 14 - Multivariate Analysis of Variance (MANOVA)  
Lecture 15 - Multivariate Analysis of Variance (MANOVA) (Continued...)  
Lecture 16 - Multiple Regression - Introduction  
Lecture 17 - MLR Sampling Distribution of Regression Coefficients  
Lecture 18 - MLR-Model Adequacy Tests  
Lecture 19 - MLR - Test of Assumptions  
Lecture 20 - MLR - Model Diagnostics  
Lecture 21 - Principal Component Analysis (PCA)  
Lecture 22 - Principal Component Analysis (PCA)  
Lecture 23 - Factor Analysis  
Lecture 24 - Factor Analysis - Estimation and Model Adequacy Testing  
Lecture 25 - Factor Analysis - Model Adequacy, Rotation, Factor Scores and Case Study  
Lecture 26 - Introduction to Structural Equation Modeling  
Lecture 27 - SEM - Measurement Model  
Lecture 28 - SEM - Structural Model

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Partial Differential Equations (PDE) for Engineers: Solution by Separation of Variables

Subject Co-ordinator - Prof. S. De

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to PDE

Lecture 2 - Classification of PDE

Lecture 3 - Principle of Linear Superposition

Lecture 4 - Standard Eigen Value Problem and Special ODEs

Lecture 5 - Adjoint Operator

Lecture 6 - Generalized Sturm - Liouville Problem

Lecture 7 - Properties of Adjoint Operator

Lecture 8 - Separation of Variables

Lecture 9 - Solution of 3 Dimensional Parabolic Problem

Lecture 10 - Solution of 4 Dimensional Parabolic problem

Lecture 11 - Solution of 4 Dimensional Parabolic Problem (Continued...)

Lecture 12 - Solution of Elliptical PDE

Lecture 13 - Solution of Hyperbolic PDE

Lecture 14 - Orthogonality of Bessel Function and 2 Dimensional Cylindrical Coordinate System

Lecture 15 - Cylindrical Co-ordinate System - 3 Dimensional Problem

Lecture 16 - Spherical Polar Coordinate System

Lecture 17 - Spherical Polar Coordinate System (Continued...)

Lecture 18 - Example of Generalized 3 Dimensional Problem

Lecture 19 - Example of Application Oriented Problems

Lecture 20 - Examples of Application Oriented Problems (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC: Introductory Course in Real Analysis

Subject Co-ordinator - Prof. P.D. Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Countable and Uncountable sets
- Lecture 2 - Properties of Countable and Uncountable sets
- Lecture 3 - Examples of Countable and Uncountable sets
- Lecture 4 - Concepts of Metric Space
- Lecture 5 - Open ball, Closed ball, Limit point of a set
- Lecture 6 - Tutorial-I
- Lecture 7 - Some theorems on Open and Closed sets
- Lecture 8 - Ordered set, Least upper bound, Greatest lower bound of a set
- Lecture 9 - Ordered set, Least upper bound, Greatest lower bound of a set (Continued...)
- Lecture 10 - Compact Set
- Lecture 11 - Properties of Compact sets
- Lecture 12 - Tutorial-II
- Lecture 13 - Heine Borel Theorem
- Lecture 14 - Weierstrass Theorem
- Lecture 15 - Cantor set and its properties
- Lecture 16 - Derived set and Dense set
- Lecture 17 - Limit of a sequence and monotone sequence
- Lecture 18 - Tutorial-III
- Lecture 19 - Some Important limits of sequences
- Lecture 20 - Ratio Test Cauchy's theorems on limits of sequences of real numbers
- Lecture 21 - Fundamental theorems on limits
- Lecture 22 - Some results on limits and Bolzano-Weierstrass Theorem
- Lecture 23 - Criteria for convergent sequence
- Lecture 24 - Tutorial-IV
- Lecture 25 - Criteria for Divergent Sequence
- Lecture 26 - Cauchy Sequence
- Lecture 27 - Cauchy Convergence Criteria for Sequences
- Lecture 28 - Infinite Series of Real Numbers
- Lecture 29 - Convergence Criteria for Series of Positive Real Numbers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial-V
- Lecture 31 - Comparison Test for Series
- Lecture 32 - Absolutely and Conditionally Convergent Series
- Lecture 33 - Rearrangement Theorem and Test for Convergence of Series
- Lecture 34 - Ratio and Integral Test for Convergence of Series
- Lecture 35 - Raabe's Test for Convergence of Series
- Lecture 36 - Tutorial-VI
- Lecture 37 - Limit of Functions and Cluster Point
- Lecture 38 - Limit of Functions (Continued...)
- Lecture 39 - Divergence Criteria for Limit
- Lecture 40 - Various Properties of Limit of Functions
- Lecture 41 - Left and Right Hand Limits for Functions
- Lecture 42 - Tutorial-VII
- Lecture 43 - Limit of Functions at Infinity
- Lecture 44 - Continuous Functions (Cauchy's Definition)
- Lecture 45 - Continuous Functions (Heine's Definition)
- Lecture 46 - Properties of Continuous Functions
- Lecture 47 - Properties of Continuous Functions (Continued...)
- Lecture 48 - Tutorial-VIII
- Lecture 49 - Boundness Theorem and Max-Min Theorem
- Lecture 50 - Location of Root and Bolzano's Theorem
- Lecture 51 - Uniform Continuity and Related Theorems
- Lecture 52 - Absolute Continuity and Related Theorems
- Lecture 53 - Types of Discontinuities
- Lecture 54 - Tutorial-IX
- Lecture 55 - Types of Discontinuities (Continued...)
- Lecture 56 - Relation between Continuity and Compact Sets
- Lecture 57 - Differentiability of Real Valued Functions
- Lecture 58 - Local Max. - Min. Cauchy's and Lagrange's Mean Value Theorem
- Lecture 59 - Rolle's Mean Value Theorems and Its Applications
- Lecture 60 - Tutorial-X
- Lecture 61
- Lecture 62
- Lecture 63
- Lecture 64
- Lecture 65
- Lecture 66
- Lecture 67
- Lecture 68

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69  
Lecture 70  
Lecture 71  
Lecture 72  
Lecture 73

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Modeling Transport Phenomena of Microparticles

Subject Co-ordinator - Dr. G.P. Raja Sekhar, Prof. Somnath Bhattacharyya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Preliminary concepts
- Lecture 2 - Cauchy's equation of motion and Navier-Stokes equations
- Lecture 3 - Reduced forms of Navier-Stokes equations and Boundary conditions
- Lecture 4 - Exact solutions of Navier-Stokes equations in particular cases
- Lecture 5 - Dimensional Analysis - Non-dimensionalization of Navier-Stokes's equations
- Lecture 6 - Stream function formulation of Navier-Stokes equations
- Lecture 7 - Stokes flow past a cylinder
- Lecture 8 - Stokes flow past a sphere
- Lecture 9 - Elementary Lubrication Theory
- Lecture 10 - Hydrodynamics of Squeeze flow
- Lecture 11 - Solution of arbitrary Stokes flows
- Lecture 12 - Mechanics of Swimming Microorganisms
- Lecture 13 - Viscous flow past a spherical drop
- Lecture 14 - Migration of a viscous drop under Marangoni effects
- Lecture 15 - Singularities of Stokes flows
- Lecture 16 - Introduction to porous media
- Lecture 17 - Flow through porous media - elementary geometries
- Lecture 18 - Flow through composite porous channels
- Lecture 19 - Modeling transport of particles inside capillaries
- Lecture 20 - Modeling transport of microparticles - some applications
- Lecture 21 - Introduction to Electrokinetics
- Lecture 22 - Basics on Electrostatics
- Lecture 23 - Transport Equations for Electrokinetics, Part-I
- Lecture 24 - Transport Equations for Electrokinetics, Part-II
- Lecture 25 - Electric Double Layer
- Lecture 26 - Electroosmotic flow (EOF) of ionized fluid
- Lecture 27 - EOF in micro-channel
- Lecture 28 - Non-linear EOF, Overlapping Debye Layer
- Lecture 29 - Two-dimensional EOF

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - EOF near heterogeneous surface potential
- Lecture 31 - Electroosmosis in hydrophobic surface
- Lecture 32 - Numerical Methods for Boundary Value Problems (BVP)
- Lecture 33 - Numerical Methods for nonlinear BVP
- Lecture 34 - Numerical Methods for coupled set of BVP
- Lecture 35 - Numerical Methods for PDEs
- Lecture 36 - Numerical Methods for transport equations, Part-I
- Lecture 37 - Numerical Methods for transport equations, Part-II
- Lecture 38 - Electrophoresis of charged colloids, Part-I
- Lecture 39 - Electrophoresis of charged colloids, Part-II
- Lecture 40 - Gel Electrophoresis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Constrained and Unconstrained Optimization

Subject Co-ordinator - Dr. Debjani Chakraborty, Prof. A. Goswami

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Optimization
- Lecture 2 - Assumptions and Mathematical Modeling of LPP
- Lecture 3 - Geometrey of LPP
- Lecture 4 - Graphical Solution of LPP - I
- Lecture 5 - Graphical Solution of LPP - II
- Lecture 6 - Solution of LPP
- Lecture 7 - Simplex Method
- Lecture 8 - Introduction to BIG-M Method
- Lecture 9 - Algorithm of BIG-M Method
- Lecture 10 - Problems on BIG-M Method
- Lecture 11 - Two Phase Method
- Lecture 12 - Two Phase Method
- Lecture 13 - Special Cases of LPP
- Lecture 14 - Degeneracy in LPP
- Lecture 15 - Sensitivity Analysis - I
- Lecture 16 - Sensitivity Analysis - II
- Lecture 17 - Problems on Sensitivity Analysis
- Lecture 18 - Introduction to Duality Theory - I
- Lecture 19 - Introduction to Duality Theory - II
- Lecture 20 - Dual Simplex Method
- Lecture 21 - Examples on Dual Simplex Method
- Lecture 22 - Interger Linear Programming
- Lecture 23 - Interger Linear Programming
- Lecture 24 - IPP
- Lecture 25 - Mixed Integer Programming Problem
- Lecture 26
- Lecture 27
- Lecture 28
- Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30
- Lecture 31 - Introduction to Nonlinear programming
- Lecture 32 - Graphical Solution of NLP
- Lecture 33 - Types of NLP
- Lecture 34 - One dimensional unconstrained optimization
- Lecture 35 - Unconstrained Optimization
- Lecture 36 - Region Elimination Technique - 1
- Lecture 37 - Region Elimination Technique - 2
- Lecture 38 - Region Elimination Technique - 3
- Lecture 39 - Unconstrained Optimization
- Lecture 40 - Unconstrained Optimization
- Lecture 41 - Multivariate Unconstrained Optimization - 1
- Lecture 42 - Multivariate Unconstrained Optimization - 2
- Lecture 43 - Unconstrained Optimization
- Lecture 44 - NLP with Equality Constrained - 1
- Lecture 45 - NLP with Equality Constrained - 2
- Lecture 46 - Constrained NLP - 1
- Lecture 47 - Constrained NLP - 2
- Lecture 48 - Constrained Optimization
- Lecture 49 - Constrained Optimization
- Lecture 50 - KKT
- Lecture 51 - Constrained Optimization
- Lecture 52 - Constrained Optimization
- Lecture 53 - Feasible Direction
- Lecture 54 - Penalty and barrier method
- Lecture 55 - Penalty method
- Lecture 56 - Penalty and barrier method
- Lecture 57 - Penalty and barrier method
- Lecture 58 - Dynamic programming
- Lecture 59 - Multi-Objective decision making
- Lecture 60 - Multi-Attribute decision making

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Matrix Solver

Subject Co-ordinator - Prof. Somnath Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Matrix Algebra - I
- Lecture 2 - Introduction to Matrix Algebra - II
- Lecture 3 - System of Linear Equations
- Lecture 4 - Determinant of a Matrix
- Lecture 5 - Determinant of a Matrix (Continued...)
- Lecture 6 - Gauss Elimination
- Lecture 7 - Gauss Elimination (Continued...)
- Lecture 8 - LU Decomposition
- Lecture 9 - Gauss-Jordan Method
- Lecture 10 - Representation of Physical Systems as Matrix Equations
- Lecture 11 - Tridiagonal Matrix Algorithm
- Lecture 12 - Equations with Singular Matrices
- Lecture 13 - Introduction to Vector Space
- Lecture 14 - Vector Subspace
- Lecture 15 - Column Space and Nullspace of a Matrix
- Lecture 16 - Finding Null Space of a Matrix
- Lecture 17 - Solving  $Ax=b$  when A is Singular
- Lecture 18 - Linear Independence and Spanning of a Subspace
- Lecture 19 - Basis and Dimension of a Vector Space
- Lecture 20 - Four Fundamental Subspaces of a Matrix
- Lecture 21 - Left and right inverse of a matrix
- Lecture 22 - Orthogonality between the subspaces
- Lecture 23 - Best estimate
- Lecture 24 - Projection operation and linear transformation
- Lecture 25 - Creating orthogonal basis vectors
- Lecture 26 - Gram-Schmidt and modified Gram-Schmidt algorithms
- Lecture 27 - Comparing GS and modified GS
- Lecture 28 - Introduction to eigenvalues and eigenvectors
- Lecture 29 - Eigenvalues and eigenvectors for real symmetric matrix

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Positive definiteness of a matrix
- Lecture 31 - Positive definiteness of a matrix (Continued...)
- Lecture 32 - Basic Iterative Methods
- Lecture 33 - Basic Iterative Methods
- Lecture 34 - Convergence Rate and Convergence Factor for Iterative Methods
- Lecture 35 - Numerical Experiments on Convergence
- Lecture 36 - Steepest Descent Method
- Lecture 37 - Steepest Descent Method
- Lecture 38 - Steepest Descent Method
- Lecture 39 - Introduction to General Projection Methods
- Lecture 40 - Residue Norm and Minimum Residual Algorithm
- Lecture 41 - Developing computer programs for basic iterative methods
- Lecture 42 - Developing computer programs for projection based methods
- Lecture 43 - Introduction to Krylov subspace methods
- Lecture 44 - Krylov subspace methods for linear systems
- Lecture 45 - Iterative methods for solving linear systems using Krylov subspace methods
- Lecture 46 - Conjugate gradient methods
- Lecture 47 - Conjugate gradient methods (Continued...)
- Lecture 48 - Conjugate gradient methods (Continued...) and Introduction to GMRES
- Lecture 49 - GMRES (Continued...)
- Lecture 50 - Lanczos Biorthogonalization and BCG Algorithm
- Lecture 51 - Numerical issues in BICG and polynomial based formulation
- Lecture 52 - Conjugate gradient squared and Biconjugate gradient stabilized
- Lecture 53 - Line relaxation method
- Lecture 54 - Block relaxation method
- Lecture 55 - Domain Decomposition and Parallel Computing
- Lecture 56 - Preconditioners
- Lecture 57 - Preconditioned conjugate gradient
- Lecture 58 - Preconditioned GMRES
- Lecture 59 - Multigrid methods - I
- Lecture 60 - Multigrid methods - II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Abstract and Linear Algebra

Subject Co-ordinator - Prof.Sourav Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Set Theory  
Lecture 2 - Set Operations  
Lecture 3 - Set Operations (Continued...)  
Lecture 4 - Set of sets  
Lecture 5 - Binary relation  
Lecture 6 - Equivalence relation  
Lecture 7 - Mapping  
Lecture 8 - Permutation  
Lecture 9 - Binary Composition  
Lecture 10 - Groupoid  
Lecture 11 - Group  
Lecture 12 - Order of an element  
Lecture 13 - Subgroup  
Lecture 14 - Cyclic Group  
Lecture 15 - Subgroup Operations  
Lecture 16 - Left Cosets  
Lecture 17 - Right Cosets  
Lecture 18 - Normal Subgroup  
Lecture 19 - Rings  
Lecture 20 - Field  
Lecture 21 - Vector Spaces  
Lecture 22 - Sub-Spaces  
Lecture 23 - Linear Span  
Lecture 24 - Basis of a Vector Space  
Lecture 25 - Dimension of a Vector space  
Lecture 26 - Complement of subspace  
Lecture 27 - Linear Transformation  
Lecture 28 - Linear Transformation (Continued...)  
Lecture 29 - More on linear mapping

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Space
- Lecture 31 - Rank of a matrix
- Lecture 32 - Rank of a matrix (Continued...)
- Lecture 33 - System of linear equations
- Lecture 34 - Row rank and Column rank
- Lecture 35 - Eigen value of a matrix
- Lecture 36 - Eigen Vector
- Lecture 37 - Geometric multiplicity
- Lecture 38 - More on eigen value
- Lecture 39 - Similar matrices
- Lecture 40 - Diagonalisable

## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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NPTTEL Video Course - Mathematics - An Introduction to Riemann Surfaces and Algebraic Curves:  
Complex 1-Tori and Elliptic Curves

Subject Co-ordinator - Dr. T.E. Venkata Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Idea of a Riemann Surface
- Lecture 2 - Simple Examples of Riemann Surfaces
- Lecture 3 - Maximal Atlases and Holomorphic Maps of Riemann Surfaces
- Lecture 4 - A Riemann Surface Structure on a Cylinder
- Lecture 5 - A Riemann Surface Structure on a Torus
- Lecture 6 - Riemann Surface Structures on Cylinders and Tori via Covering Spaces
- Lecture 7 - Moebius Transformations Make up Fundamental Groups of Riemann Surfaces
- Lecture 8 - Homotopy and the First Fundamental Group
- Lecture 9 - A First Classification of Riemann Surfaces
- Lecture 10 - The Importance of the Path-lifting Property
- Lecture 11 - Fundamental groups as Fibres of the Universal covering Space
- Lecture 12 - The Monodromy Action
- Lecture 13 - The Universal covering as a Hausdorff Topological Space
- Lecture 14 - The Construction of the Universal Covering Map
- Lecture 15 - Completion of the Construction of the Universal Covering
- Lecture 16 - Completion of the Construction of the Universal Covering
- Lecture 17 - The Riemann Surface Structure on the Topological Covering of a Riemann Surface
- Lecture 18 - Riemann Surfaces with Universal Covering the Plane or the Sphere
- Lecture 19 - Classifying Complex Cylinders
- Lecture 20 - Characterizing Moebius Transformations with a Single Fixed Point
- Lecture 21 - Characterizing Moebius Transformations with Two Fixed Points
- Lecture 22 - Torsion-freeness of the Fundamental Group of a Riemann Surface
- Lecture 23 - Characterizing Riemann Surface Structures on Quotients of the Upper Half-Plane with Abelian Fundamental Groups
- Lecture 24 - Classifying Annuli up to Holomorphic Isomorphism
- Lecture 25 - Orbits of the Integral Unimodular Group in the Upper Half-Plane
- Lecture 26 - Galois Coverings are precisely Quotients by Properly Discontinuous Free Actions
- Lecture 27 - Local Actions at the Region of Discontinuity of a Kleinian Subgroup of Moebius Transformations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 28 - Quotients by Kleinian Subgroups give rise to Riemann Surfaces
- Lecture 29 - The Unimodular Group is Kleinian
- Lecture 30 - The Necessity of Elliptic Functions for the Classification of Complex Tori
- Lecture 31 - The Uniqueness Property of the Weierstrass Phe-function associated to a Lattice in the Plane
- Lecture 32 - The First Order Degree Two Cubic Ordinary Differential Equation satisfied by the Weierstrass Phe-function
- Lecture 33 - The Values of the Weierstrass Phe-function at the Zeros of its Derivative are nonvanishing Analytic Functions on the Upper Half-Plane
- Lecture 34 - The Construction of a Modular Form of Weight Two on the Upper Half-Plane
- Lecture 35 - The Fundamental Functional Equations satisfied by the Modular Form of Weight Two on the Upper Half-Plane
- Lecture 36 - The Weight Two Modular Form assumes Real Values on the Imaginary Axis in the Upper Half-plane
- Lecture 37 - The Weight Two Modular Form Vanishes at Infinity
- Lecture 38 - The Weight Two Modular Form Decays Exponentially in a Neighbourhood of Infinity
- Lecture 39 - A Suitable Restriction of the Weight Two Modular Form is a Holomorphic Conformal Isomorphism onto the Upper Half-Plane
- Lecture 40 - The J-Invariant of a Complex Torus (or) of an Algebraic Elliptic Curve
- Lecture 41 - A Fundamental Region in the Upper Half-Plane for the Elliptic Modular J-Invariant
- Lecture 42 - The Fundamental Region in the Upper Half-Plane for the Unimodular Group
- Lecture 43 - A Region in the Upper Half-Plane Meeting Each Unimodular Orbit Exactly Once
- Lecture 44 - Moduli of Elliptic Curves
- Lecture 45 - Punctured Complex Tori are Elliptic Algebraic Affine Plane Cubic Curves in Complex 2-Space
- Lecture 46 - The Natural Riemann Surface Structure on an Algebraic Affine Nonsingular Plane Curve
- Lecture 47 - Complex Projective 2-Space as a Compact Complex Manifold of Dimension Two
- Lecture 48 - Complex Tori are the same as Elliptic Algebraic Projective Curves

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Linear Algebra

Subject Co-ordinator - Dr. K.C. Sivakumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the Course Contents

Lecture 2 - Linear Equations

Lecture 3a - Equivalent Systems of Linear Equations I

Lecture 3b - Equivalent Systems of Linear Equations II

Lecture 4 - Row-reduced Echelon Matrices

Lecture 5 - Row-reduced Echelon Matrices and Non-homogeneous Equations

Lecture 6 - Elementary Matrices, Homogeneous Equations and Non-homogeneous Equations

Lecture 7 - Invertible matrices, Homogeneous Equations Non-homogeneous Equations

Lecture 8 - Vector spaces

Lecture 9 - Elementary Properties in Vector Spaces. Subspaces

Lecture 10 - Subspaces (Continued...), Spanning Sets, Linear Independence, Dependence

Lecture 11 - Basis for a vector space

Lecture 12 - Dimension of a vector space

Lecture 13 - Dimensions of Sums of Subspaces

Lecture 14 - Linear Transformations

Lecture 15 - The Null Space and the Range Space of a Linear Transformation

Lecture 16 - The Rank-Nullity-Dimension Theorem. Isomorphisms Between Vector Spaces

Lecture 17 - Isomorphic Vector Spaces, Equality of the Row-rank and the Column-rank - I

Lecture 18 - Equality of the Row-rank and the Column-rank - II

Lecture 19 - The Matrix of a Linear Transformation

Lecture 20 - Matrix for the Composition and the Inverse. Similarity Transformation

Lecture 21 - Linear Functionals. The Dual Space. Dual Basis - I

Lecture 22 - Dual Basis II. Subspace Annihilators - I

Lecture 23 - Subspace Annihilators - II

Lecture 24 - The Double Dual. The Double Annihilator

Lecture 25 - The Transpose of a Linear Transformation. Matrices of a Linear Transformation and its Transpose

Lecture 26 - Eigenvalues and Eigenvectors of Linear Operators

Lecture 27 - Diagonalization of Linear Operators. A Characterization

Lecture 28 - The Minimal Polynomial

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - The Cayley-Hamilton Theorem
- Lecture 30 - Invariant Subspaces
- Lecture 31 - Triangulability, Diagonalization in Terms of the Minimal Polynomial
- Lecture 32 - Independent Subspaces and Projection Operators
- Lecture 33 - Direct Sum Decompositions and Projection Operators - I
- Lecture 34 - Direct Sum Decompositions and Projection Operators - II
- Lecture 35 - The Primary Decomposition Theorem and Jordan Decomposition
- Lecture 36 - Cyclic Subspaces and Annihilators
- Lecture 37 - The Cyclic Decomposition Theorem - I
- Lecture 38 - The Cyclic Decomposition Theorem - II. The Rational Form
- Lecture 39 - Inner Product Spaces
- Lecture 40 - Norms on Vector spaces. The Gram-Schmidt Procedure I
- Lecture 41 - The Gram-Schmidt Procedure II. The QR Decomposition
- Lecture 42 - Bessel's Inequality, Parseval's Identity, Best Approximation
- Lecture 43 - Best Approximation
- Lecture 44 - Orthogonal Complementary Subspaces, Orthogonal Projections
- Lecture 45 - Projection Theorem. Linear Functionals
- Lecture 46 - The Adjoint Operator
- Lecture 47 - Properties of the Adjoint Operation. Inner Product Space Isomorphism
- Lecture 48 - Unitary Operators
- Lecture 49 - Unitary operators - II. Self-Adjoint Operators - I.
- Lecture 50 - Self-Adjoint Operators - II - Spectral Theorem
- Lecture 51 - Normal Operators - Spectral Theorem

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Mathematical Logic

Subject Co-ordinator - Prof. Arindama Singh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Sets and Strings  
Lecture 2 - Syntax of Propositional Logic  
Lecture 3 - Unique Parsing  
Lecture 4 - Semantics of PL  
Lecture 5 - Consequences and Equivalences  
Lecture 6 - Five results about PL  
Lecture 7 - Calculations and Informal Proofs  
Lecture 8 - More Informal Proofs  
Lecture 9 - Normal forms  
Lecture 10 - SAT and 3SAT  
Lecture 11 - Horn-SAT and Resolution  
Lecture 12 - Resolution  
Lecture 13 - Adequacy of Resolution  
Lecture 14 - Adequacy and Resolution Strategies  
Lecture 15 - Propositional Calculus (PC)  
Lecture 16 - Some Results about PC  
Lecture 17 - Arguing with Proofs  
Lecture 18 - Adequacy of PC  
Lecture 19 - Compactness & Analytic Tableau  
Lecture 20 - Examples of Tableau Proofs  
Lecture 21 - Adequacy of Tableaux  
Lecture 22 - Syntax of First order Logic (FL)  
Lecture 23 - Symbolization & Scope of Quantifiers  
Lecture 24 - Hurdles in giving Meaning  
Lecture 25 - Semantics of FL  
Lecture 26 - Relevance Lemma  
Lecture 27 - Validity, Satisfiability & Equivalence  
Lecture 28 - Six Results about FL  
Lecture 29 - Laws, Calculation & Informal Proof

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quantifier Laws and Consequences
- Lecture 31 - More Proofs and Prenex Form
- Lecture 32 - Prenex Form Conversion
- Lecture 33 - Skolem Form
- Lecture 34 - Syntactic Interpretation
- Lecture 35 - Herbrand's Theorem
- Lecture 36 - Most General Unifiers
- Lecture 37 - Resolution Rules
- Lecture 38 - Resolution Examples
- Lecture 39 - Axiomatic System FC
- Lecture 40 - FC and Semidecidability of FL
- Lecture 41 - Analytic Tableau for FL
- Lecture 42 - Godel's Incompleteness Theorems



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Real Analysis

Subject Co-ordinator - Prof. S.H. Kulkarni

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Functions and Relations  
Lecture 3 - Finite and Infinite Sets  
Lecture 4 - Countable Sets  
Lecture 5 - Uncountable Sets, Cardinal Number  
Lecture 6 - Real Number System  
Lecture 7 - LUB Axiom  
Lecture 8 - Sequences of Real Numbers  
Lecture 9 - Sequences of Real Numbers - (Continued.)  
Lecture 10 - Sequences of Real Numbers - (Continued.)  
Lecture 11 - Infinite Series of Real Numbers  
Lecture 12 - Series of nonnegative Real Numbers  
Lecture 13 - Conditional Convergence  
Lecture 14 - Metric Spaces  
Lecture 15 - Metric Spaces  
Lecture 16 - Balls and Spheres  
Lecture 17 - Open Sets  
Lecture 18 - Closure Points, Limit Points and isolated Points  
Lecture 19 - Closed sets  
Lecture 20 - Sequences in Metric Spaces  
Lecture 21 - Completeness  
Lecture 22 - Baire Category Theorem  
Lecture 23 - Limit and Continuity of a Function defined on a Metric space  
Lecture 24 - Continuous Functions on a Metric Space  
Lecture 25 - Uniform Continuity  
Lecture 26 - Connectedness  
Lecture 27 - Connected Sets  
Lecture 28 - Compactness  
Lecture 29 - Compactness (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Characterizations of Compact Sets
- Lecture 31 - Continuous Functions on Compact Sets
- Lecture 32 - Types of Discontinuity
- Lecture 33 - Differentiation
- Lecture 34 - Mean Value Theorems
- Lecture 35 - Mean Value Theorems (Continued.)
- Lecture 36 - Taylor's Theorem
- Lecture 37 - Differentiation of Vector Valued Functions
- Lecture 38 - Integration
- Lecture 39 - Integrability
- Lecture 40 - Integrable Functions
- Lecture 41 - Integrable Functions (Continued.)
- Lecture 42 - Integration as a Limit of Sum
- Lecture 43 - Integration and Differentiation
- Lecture 44 - Integration of Vector Valued Functions
- Lecture 45 - More Theorems on Integrals
- Lecture 46 - Sequences and Series of Functions
- Lecture 47 - Uniform Convergence
- Lecture 48 - Uniform Convergence and Integration
- Lecture 49 - Uniform Convergence and Differentiation
- Lecture 50 - Construction of Everywhere Continuous Nowhere Differentiable Function
- Lecture 51 - Approximation of a Continuous Function by Polynomials
- Lecture 52 - Equicontinuous family of Functions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Dynamic Data Assimilation: An Introduction

Subject Co-ordinator - Prof. S. Lakshmivarahan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Overview
- Lecture 2 - Data Mining, Data assimilation and prediction
- Lecture 3 - A classification of forecast errors
- Lecture 4 - Finite Dimensional Vector Space
- Lecture 5 - Matrices
- Lecture 6 - Matrices (Continued...)
- Lecture 7 - Multi-variate Calculus
- Lecture 8 - Optimization in Finite Dimensional Vector spaces
- Lecture 9 - Deterministic, Static, linear Inverse (well-posed) Problems
- Lecture 10 - Deterministic, Static, Linear Inverse (Ill-posed) Problems
- Lecture 11 - A Geometric View  $\hat{A}$  Projections
- Lecture 12 - Deterministic, Static, nonlinear Inverse Problems
- Lecture 13 - On-line Least Squares
- Lecture 14 - Examples of static inverse problems
- Lecture 15 - Interlude and a Way Forward
- Lecture 16 - Matrix Decomposition Algorithms
- Lecture 17 - Matrix Decomposition Algorithms (Continued...)
- Lecture 18 - Minimization algorithms
- Lecture 19 - Minimization algorithms (Continued...)
- Lecture 20 - Inverse problems in deterministic
- Lecture 21 - Inverse problems in deterministic (Continued...)
- Lecture 22 - Forward sensitivity method
- Lecture 23 - Relation between FSM and 4DVAR
- Lecture 24 - Statistical Estimation
- Lecture 25 - Statistical Least Squares
- Lecture 26 - Maximum Likelihood Method
- Lecture 27 - Bayesian Estimation
- Lecture 28 - From Gauss to Kalman-Linear Minimum Variance Estimation
- Lecture 29 - Initialization Classical Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Optimal interpolations
- Lecture 31 - A Bayesian Formation-3D-VAR methods
- Lecture 32 - Linear Stochastic Dynamics - Kalman Filter
- Lecture 33 - Linear Stochastic Dynamics - Kalman Filter (Continued...)
- Lecture 34 - Linear Stochastic Dynamics - Kalman Filter (Continued...)
- Lecture 35 - Covariance Square Root Filter
- Lecture 36 - Nonlinear Filtering
- Lecture 37 - Ensemble Reduced Rank Filter
- Lecture 38 - Basic nudging methods
- Lecture 39 - Deterministic predictability
- Lecture 40 - Predictability A stochastic view and Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:An Invitation to Mathematics

Subject Co-ordinator - Prof. Sankaran Vishwanath

Co-ordinating Institute - Institute of Mathematical Sciences

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Long division
- Lecture 3 - Applications of Long division
- Lecture 4 - Lagrange interpolation
- Lecture 5 - The 0-1 idea in other contexts - dot and cross product
- Lecture 6 - Taylors formula
- Lecture 7 - The Chebyshev polynomials
- Lecture 8 - Counting number of monomials - several variables
- Lecture 9 - Permutations, combinations and the binomial theorem
- Lecture 10 - Combinations with repetition, and counting monomials
- Lecture 11 - Combinations with restrictions, recurrence relations
- Lecture 12 - Fibonacci numbers; an identity and a bijective proof
- Lecture 13 - Permutations and cycle type
- Lecture 14 - The sign of a permutation, composition of permutations
- Lecture 15 - Rules for drawing tangle diagrams
- Lecture 16 - Signs and cycle decompositions
- Lecture 17 - Sorting lists of numbers, and crossings in tangle diagrams
- Lecture 18 - Real and integer valued polynomials
- Lecture 19 - Integer valued polynomials revisited
- Lecture 20 - Functions on the real line, continuity
- Lecture 21 - The intermediate value property
- Lecture 22 - Visualizing functions
- Lecture 23 - Functions on the plane, Rigid motions
- Lecture 24 - More examples of functions on the plane, dilations
- Lecture 25 - Composition of functions
- Lecture 26 - Affine and Linear transformations
- Lecture 27 - Length and Area dilation, the derivative
- Lecture 28 - Examples-I
- Lecture 29 - Examples-II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear equations, Lagrange interpolation revisited
- Lecture 31 - Completed Matrices in combinatorics
- Lecture 32 - Polynomials acting on matrices
- Lecture 33 - Divisibility, prime numbers
- Lecture 34 - Congruences, Modular arithmetic
- Lecture 35 - The Chinese remainder theorem
- Lecture 36 - The Euclidean algorithm, the 0-1 idea and the Chinese remainder theorem

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Advanced Complex Analysis

Subject Co-ordinator - Dr. T.E. Venkata Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamental Theorems Connected with Zeros of Analytic Functions
- Lecture 2 - The Argument (Counting) Principle, Rouché's Theorem and The Fundamental Theorem of Algebra
- Lecture 3 - Morera's Theorem and Normal Limits of Analytic Functions
- Lecture 4 - Hurwitz's Theorem and Normal Limits of Univalent Functions
- Lecture 5 - Local Constancy of Multiplicities of Assumed Values
- Lecture 6 - The Open Mapping Theorem
- Lecture 7 - Introduction to the Inverse Function Theorem
- Lecture 8 - Completion of the Proof of the Inverse Function Theorem
- Lecture 9 - Univalent Analytic Functions have never-zero Derivatives and are Analytic Isomorphisms
- Lecture 10 - Introduction to the Implicit Function Theorem
- Lecture 11 - Proof of the Implicit Function Theorem
- Lecture 12 - Proof of the Implicit Function Theorem
- Lecture 13 - Doing Complex Analysis on a Real Surface
- Lecture 14 -  $F(z,w)=0$  is naturally a Riemann Surface
- Lecture 15 - Constructing the Riemann Surface for the Complex Logarithm
- Lecture 16 - Constructing the Riemann Surface for the  $m$ -th root function
- Lecture 17 - The Riemann Surface for the functional inverse of an analytic mapping at a critical point
- Lecture 18 - The Algebraic nature of the functional inverses of an analytic mapping at a critical point
- Lecture 19 - The Idea of a Direct Analytic Continuation or an Analytic Extension
- Lecture 20 - General or Indirect Analytic Continuation and the Lipschitz Nature of the Radius of Convergence
- Lecture 21 - Analytic Continuation Along Paths via Power Series Part A
- Lecture 22 - Analytic Continuation Along Paths via Power Series Part B
- Lecture 23 - Continuity of Coefficients occurring in Families of Power Series defining Analytic Continuations
- Lecture 24 - Analytic Continuability along Paths
- Lecture 25 - Maximal Domains of Direct and Indirect Analytic Continuation
- Lecture 26 - Deducing the Second (Simply Connected) Version of the Monodromy Theorem from the First (Homotopy)
- Lecture 27 - Existence and Uniqueness of Analytic Continuations on Nearby Paths
- Lecture 28 - Proof of the First (Homotopy) Version of the Monodromy Theorem
- Lecture 29 - Proof of the Algebraic Nature of Analytic Branches of the Functional Inverse of an Analytic Function

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Mean-Value Property, Harmonic Functions and the Maximum Principle
- Lecture 31 - Proofs of Maximum Principles and Introduction to Schwarz Lemma
- Lecture 32 - Proof of Schwarz Lemma and Uniqueness of Riemann Mappings
- Lecture 33 - Reducing Existence of Riemann Mappings to Hyperbolic Geometry of Sub-domains of the Unit Disc
- Lecture 34 - Differential or Infinitesimal Schwarz Lemma, Picks Lemma, Hyperbolic Arclengths, Metric and Geodesics
- Lecture 35 - Differential or Infinitesimal Schwarz Lemma, Picks Lemma, Hyperbolic Arclengths, Metric and Geodesics
- Lecture 36 - Hyperbolic Geodesics for the Hyperbolic Metric on the Unit Disc
- Lecture 37 - Schwarz-Pick Lemma for the Hyperbolic Metric on the Unit Disc
- Lecture 38 - Arzela-Ascoli Theorem
- Lecture 39 - Completion of the Proof of the Arzela-Ascoli Theorem and Introduction to Montels Theorem
- Lecture 40 - The Proof of Montels Theorem
- Lecture 41 - The Candidate for a Riemann Mapping
- Lecture 42 - Completion of Proof of The Riemann Mapping Theorem
- Lecture 43 - Completion of Proof of The Riemann Mapping Theorem



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Discrete Mathematics

Subject Co-ordinator - Prof. Sourav Chakraborty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - Sets, Relations and Functions
- Lecture 3 - Propositional Logic and Predicate Logic
- Lecture 4 - Propositional Logic and Predicate Logic (Part 2)
- Lecture 5 - Elementary Number Theory
- Lecture 6 - Formal Proofs
- Lecture 7 - Direct Proofs
- Lecture 8 - Case Study
- Lecture 9 - Case Study (Part 2)
- Lecture 10 - Sets, Relations, Function and Logic
- Lecture 11 - Proof by Contradiction (Part 1)
- Lecture 12 - Proof by Contradiction (Part 2)
- Lecture 13 - Proof by Contraposition
- Lecture 14 - Proof by Counter Example
- Lecture 15 - Mathematical Induction (Part 1)
- Lecture 16 - Mathematical Induction (Part 2)
- Lecture 17 - Mathematical Induction (Part 3)
- Lecture 18 - Mathematical Induction (Part 4)
- Lecture 19 - Mathematical Induction (Part 5)
- Lecture 20 - Mathematical Induction (Part 6)
- Lecture 21 - Mathematical Induction (Part 7)
- Lecture 22 - Mathematical Induction (Part 8)
- Lecture 23 - Introduction to Graph Theory
- Lecture 24 - Handshake Problem
- Lecture 25 - Tournament Problem
- Lecture 26 - Tournament Problem (Part 2)
- Lecture 27 - Ramsey Problem
- Lecture 28 - Ramsey Problem (Part 2)
- Lecture 29 - Properties of Graphs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problem 1
- Lecture 31 - Problem 2
- Lecture 32 - Problem 3 & 4
- Lecture 33 - Counting for Selection
- Lecture 34 - Counting for Distribution
- Lecture 35 - Counting for Distribution (Part 2)
- Lecture 36 - Some Counting Problems
- Lecture 37 - Counting using Recurrence Relations
- Lecture 38 - Counting using Recurrence Relations (Part 2)
- Lecture 39 - Solving Recurrence Relations (Part 1)
- Lecture 40 - Solving Recurrence Relations (Part 2)
- Lecture 41 - Asymptotic Relations (Part 1)
- Lecture 42 - Asymptotic Relations (Part 2)
- Lecture 43 - Asymptotic Relations (Part 3)
- Lecture 44 - Asymptotic Relations (Part 4)
- Lecture 45 - Generating Functions (Part 1)
- Lecture 46 - Generating Functions (Part 2)
- Lecture 47 - Generating Functions (Part 3)
- Lecture 48 - Generating Functions (Part 4)
- Lecture 49 - Proof Techniques
- Lecture 50 - Modeling
- Lecture 51 - Combinatorics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Advanced Complex Analysis - Part 2

Subject Co-ordinator - Dr. T.E. Venkata Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Properties of the Image of an Analytic Function - Introduction to the Picard Theorems
- Lecture 2 - Recalling Singularities of Analytic Functions - Non-isolated and Isolated Removable, Pole and Essential
- Lecture 3 - Recalling Riemann's Theorem on Removable Singularities
- Lecture 4 - Casorati-Weierstrass Theorem; Dealing with the Point at Infinity -- Riemann Sphere and Riemann Sphere
- Lecture 5 - Neighborhood of Infinity, Limit at Infinity and Infinity as an Isolated Singularity
- Lecture 6 - Studying Infinity - Formulating Epsilon-Delta Definitions for Infinite Limits and Limits at Infinity
- Lecture 7 - When is a function analytic at infinity ?
- Lecture 8 - Laurent Expansion at Infinity and Riemann's Removable Singularities Theorem for the Point at Infinity
- Lecture 9 - The Generalized Liouville Theorem - Little Brother of Little Picard and Analogue of Casorati-Weierstrass
- Lecture 10 - Morera's Theorem at Infinity, Infinity as a Pole and Behaviour at Infinity of Rational and Meromorphic
- Lecture 11 - Residue at Infinity and Introduction to the Residue Theorem for the Extended Complex Plane - Residue
- Lecture 12 - Proofs of Two Avatars of the Residue Theorem for the Extended Complex Plane and Applications of
- Lecture 13 - Infinity as an Essential Singularity and Transcendental Entire Functions
- Lecture 14 - Meromorphic Functions on the Extended Complex Plane are Precisely Quotients of Polynomials
- Lecture 15 - The Ubiquity of Meromorphic Functions - The Nerves of the Geometric Network Bridging Algebra, Analysis
- Lecture 16 - Continuity of Meromorphic Functions at Poles and Topologies of Spaces of Functions
- Lecture 17 - Why Normal Convergence, but Not Globally Uniform Convergence, is the Inevitable in Complex Analysis
- Lecture 18 - Measuring Distances to Infinity, the Function Infinity and Normal Convergence of Holomorphic Functions
- Lecture 19 - The Invariance Under Inversion of the Spherical Metric on the Extended Complex Plane
- Lecture 20 - Introduction to Hurwitz's Theorem for Normal Convergence of Holomorphic Functions in the Spherical
- Lecture 21 - Completion of Proof of Hurwitz's Theorem for Normal Limits of Analytic Functions in the Spherical
- Lecture 22 - Hurwitz's Theorem for Normal Limits of Meromorphic Functions in the Spherical Metric
- Lecture 23 - What could the Derivative of a Meromorphic Function Relative to the Spherical Metric Possibly Be
- Lecture 24 - Defining the Spherical Derivative of a Meromorphic Function
- Lecture 25 - Well-definedness of the Spherical Derivative of a Meromorphic Function at a Pole and Inversion-in
- Lecture 26 - Topological Preliminaries - Translating Compactness into Boundedness
- Lecture 27 - Introduction to the Arzela-Ascoli Theorem - Passing from abstract Compactness to verifiable Equi
- Lecture 28 - Proof of the Arzela-Ascoli Theorem for Functions - Abstract Compactness Implies Equicontinuity
- Lecture 29 - Proof of the Arzela-Ascoli Theorem for Functions - Equicontinuity Implies Compactness

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to the Montel Theorem - the Holomorphic Avatar of the Arzela-Ascoli Theorem & Why
- Lecture 31 - Completion of Proof of the Montel Theorem - the Holomorphic Avatar of the Arzela-Ascoli Theorem
- Lecture 32 - Introduction to Marty's Theorem - the Meromorphic Avatar of the Montel & Arzela-Ascoli Theorems
- Lecture 33 - Proof of one direction of Marty's Theorem - the Meromorphic Avatar of the Montel & Arzela-Ascoli
- Lecture 34 - Proof of the other direction of Marty's Theorem - the Meromorphic Avatar of the Montel & Arzela
- Lecture 35 - Normal Convergence at Infinity and Hurwitz's Theorems for Normal Limits of Analytic and Meromorphic
- Lecture 36 - Normal Sequential Compactness, Normal Uniform Boundedness and Montel's & Marty's Theorems at Infinity
- Lecture 37 - Local Analysis of Normality and the Zooming Process - Motivation for Zalcman's Lemma
- Lecture 38 - Characterizing Normality at a Point by the Zooming Process and the Motivation for Zalcman's Lemma
- Lecture 39 - Local Analysis of Normality and the Zooming Process - Motivation for Zalcman's Lemma
- Lecture 40 - Montel's Deep Theorem - The Fundamental Criterion for Normality or Fundamental Normality Test
- Lecture 41 - Proofs of the Great and Little Picard Theorems
- Lecture 42 - Royden's Theorem on Normality Based On Growth Of Derivatives
- Lecture 43 - Schottky's Theorem - Uniform Boundedness from a Point to a Neighbourhood & Problem Solving Sessions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Basic Algebraic Geometry : Varieties, Morphisms, Local Rings, Function Fields

Subject Co-ordinator - Dr. T.E. Venkata Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Algebraic Geometry?
- Lecture 2 - The Zariski Topology and Affine Space
- Lecture 3 - Going back and forth between subsets and ideals
- Lecture 4 - Irreducibility in the Zariski Topology
- Lecture 5 - Irreducible Closed Subsets Correspond to Ideals Whose Radicals are Prime
- Lecture 6 - Understanding the Zariski Topology on the Affine Line; The Noetherian property in Topology and in Algebra
- Lecture 7 - Basic Algebraic Geometry
- Lecture 8 - Topological Dimension, Krull Dimension and Heights of Prime Ideals
- Lecture 9 - The Ring of Polynomial Functions on an Affine Variety
- Lecture 10 - Geometric Hypersurfaces are Precisely Algebraic Hypersurfaces
- Lecture 11 - Why Should We Study Affine Coordinate Rings of Functions on Affine Varieties ?
- Lecture 12 - Capturing an Affine Variety Topologically From the Maximal Spectrum of its Ring of Functions
- Lecture 13 - Analyzing Open Sets and Basic Open Sets for the Zariski Topology
- Lecture 14 - The Ring of Functions on a Basic Open Set in the Zariski Topology
- Lecture 15 - Quasi-Compactness in the Zariski Topology; Regularity of a Function at a point of an Affine Variety
- Lecture 16 - What is a Global Regular Function on a Quasi-Affine Variety?
- Lecture 17 - Characterizing Affine Varieties; Defining Morphisms between Affine or Quasi-Affine Varieties
- Lecture 18 - Translating Morphisms into Affines as  $k$ -Algebra maps and the Grand Hilbert Nullstellensatz
- Lecture 19 - Morphisms into an Affine Correspond to  $k$ -Algebra Homomorphisms from its Coordinate Ring of Functions
- Lecture 20 - The Coordinate Ring of an Affine Variety Determines the Affine Variety and is Intrinsic to it
- Lecture 21 - Automorphisms of Affine Spaces and of Polynomial Rings - The Jacobian Conjecture; The Punctured Plane
- Lecture 22 - The Various Avatars of Projective  $n$ -space
- Lecture 23 - Gluing  $(n+1)$  copies of Affine  $n$ -Space to Produce Projective  $n$ -space in Topology, Manifold Theory
- Lecture 24 - Translating Projective Geometry into Graded Rings and Homogeneous Ideals
- Lecture 25 - Expanding the Category of Varieties to Include Projective and Quasi-Projective Varieties
- Lecture 26 - Translating Homogeneous Localisation into Geometry and Back
- Lecture 27 - Adding a Variable is Undone by Homogenous Localization - What is the Geometric Significance of this?
- Lecture 28 - Doing Calculus Without Limits in Geometry ?
- Lecture 29 - The Birth of Local Rings in Geometry and in Algebra

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Formula for the Local Ring at a Point of a Projective Variety Or Playing with Localisations
- Lecture 31 - The Field of Rational Functions or Function Field of a Variety - The Local Ring at the Generic Point
- Lecture 32 - Fields of Rational Functions or Function Fields of Affine and Projective Varieties and their Relationship
- Lecture 33 - Global Regular Functions on Projective Varieties are Simply the Constants
- Lecture 34 - The d-Uple Embedding and the Non-Intrinsic Nature of the Homogeneous Coordinate Ring of a Projective Variety
- Lecture 35 - The Importance of Local Rings - A Morphism is an Isomorphism if it is a Homeomorphism and Induces an Isomorphism of Local Rings
- Lecture 36 - The Importance of Local Rings - A Rational Function in Every Local Ring is Globally Regular
- Lecture 37 - Geometric Meaning of Isomorphism of Local Rings - Local Rings are Almost Global
- Lecture 38 - Local Ring Isomorphism, Equals Function Field Isomorphism, Equals Birationality
- Lecture 39 - Why Local Rings Provide Calculus Without Limits for Algebraic Geometry Pun Intended!
- Lecture 40 - How Local Rings Detect Smoothness or Nonsingularity in Algebraic Geometry
- Lecture 41 - Any Variety is a Smooth Manifold with or without Non-Smooth Boundary
- Lecture 42 - Any Variety is a Smooth Hypersurface On an Open Dense Subset

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Commutative Algebra

Subject Co-ordinator - Prof. A.V.Jayanthan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Ring Theory
- Lecture 2 - Review of Ring Theory (Continued...)
- Lecture 3 - Ideals in commutative rings
- Lecture 4 - Operations on ideals
- Lecture 5 - Properties of prime ideals
- Lecture 6 - Colon and Radical of ideals
- Lecture 7 - Radicals, extension and contraction of ideals
- Lecture 8 - Modules and homomorphisms
- Lecture 9 - Isomorphism theorems and Operations on modules
- Lecture 10 - Operations on modules (Continued...)
- Lecture 11 - Module homomorphism and determinant trick
- Lecture 12 - Nakayama's lemma and exact sequences
- Lecture 13 - Exact sequences (Continued...)
- Lecture 14 - Homomorphisms and Tensor products
- Lecture 15 - Properties of tensor products
- Lecture 16 - Properties of tensor products (Continued...)
- Lecture 17 - Tensor product of Algebras
- Lecture 18 - Localization
- Lecture 19 - Localization (Continued...)
- Lecture 20 - Local properties
- Lecture 21 - Further properties of localization
- Lecture 22 - Integral dependence
- Lecture 23 - Integral extensions
- Lecture 24 - Lying over and Going-up theorems
- Lecture 25 - Going-down theorem
- Lecture 26 - Going-down theorem (Continued...)
- Lecture 27 - Chain conditions
- Lecture 28 - Noetherian and Artinian modules
- Lecture 29 - Properties of Noetherian and Artinian modules, Composition Series

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Further properties of Noetherian and Artinian modules and rings
- Lecture 31 - Hilbert basis theorem and Primary decomposition
- Lecture 32 - Primary decomposition (Continued...)
- Lecture 33 - Uniqueness of primary decomposition
- Lecture 34 - 2nd Uniqueness theorem, Artinian rings
- Lecture 35 - Properties of Artinian rings
- Lecture 36 - Structure Theorem of Artinian rings
- Lecture 37 - Noether Normalization
- Lecture 38 - Hilberts Nullstellensatz



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Differential Equations

Subject Co-ordinator - Prof. Srinivasa Manam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Ordinary Differential Equations (ODE)
- Lecture 2 - Methods for First Order ODE's - Homogeneous Equations
- Lecture 3 - Methods for First order ODE's - Exact Equations
- Lecture 4 - Methods for First Order ODE's - Exact Equations (Continued...)
- Lecture 5 - Methods for First order ODE's - Reducible to Exact Equations
- Lecture 6 - Methods for First order ODE's - Reducible to Exact Equations (Continued...)
- Lecture 7 - Non-Exact Equations - Finding Integrating Factors
- Lecture 8 - Linear First Order ODE and Bernoulli's Equation
- Lecture 9 - Introduction to Second order ODE's
- Lecture 10 - Properties of solutions of second order homogeneous ODE's
- Lecture 11 - Abel's formula to find the other solution
- Lecture 12 - Abel's formula - Demonstration
- Lecture 13 - Second Order ODE's with constant coefficients
- Lecture 14 - Euler - Cauchy equation
- Lecture 15 - Non homogeneous ODEs Variation of Parameters
- Lecture 16 - Method of undetermined coefficients
- Lecture 17 - Demonstration of Method of undetermined coefficients
- Lecture 18 - Power Series and its properties
- Lecture 19 - Power Series Solutions to Second Order ODE's
- Lecture 20 - Power Series Solutions (Continued...)
- Lecture 21 - Legendre Differential Equation
- Lecture 22 - Legendre Polynomials
- Lecture 23 - Properties of Legendre Polynomials
- Lecture 24 - Power series solutions around a regular singular point
- Lecture 25 - Frobenius method of solutions
- Lecture 26 - Frobenius method of solutions (Continued...)
- Lecture 27 - Examples on Frobenius method
- Lecture 28 - Bessel differential equation
- Lecture 29 - Frobenius solutions for Bessel Equation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Properties of Bessel functions
- Lecture 31 - Properties of Bessel functions (Continued...)
- Lecture 32 - Introduction to Sturm-Liouville theory
- Lecture 33 - Sturm-Liouville Problems
- Lecture 34 - Regular Sturm-Liouville problem
- Lecture 35 - Periodic and singular Sturm-Liouville Problems
- Lecture 36 - Generalized Fourier series
- Lecture 37 - Examples of Sturm-Liouville systems
- Lecture 38 - Examples of Sturm-Liouville systems (Continued...)
- Lecture 39 - Examples of regular Sturm-Liouville systems
- Lecture 40 - Second order linear PDEs
- Lecture 41 - Classification of second order linear PDEs
- Lecture 42 - Reduction to canonical form for equations with constant coefficients
- Lecture 43 - Reduction to canonical form for equations with variable coefficients
- Lecture 44 - Reduction to Normal form-More examples
- Lecture 45 - D'Alembert solution for wave equation
- Lecture 46 - Uniqueness of solutions for wave equation
- Lecture 47 - Vibration of a semi-infinite string
- Lecture 48 - Vibration of a finite string
- Lecture 49 - Finite length string vibrations
- Lecture 50 - Finite length string vibrations (Continued...)
- Lecture 51 - Non-homogeneous wave equation
- Lecture 52 - Vibration of a circular drum
- Lecture 53 - Solutions of heat equation-Properties
- Lecture 54 - Temperature in an infinite rod
- Lecture 55 - Temperature in a semi-infinite rod
- Lecture 56 - Non-homogeneous heat equation
- Lecture 57 - Temperature in a finite rod
- Lecture 58 - Temperature in a finite rod with insulated ends
- Lecture 59 - Laplace equation over a rectangle
- Lecture 60 - Laplace equation over a rectangle with flux boundary conditions
- Lecture 61 - Laplace equation over circular domains
- Lecture 62 - Laplace equation over circular Sectors
- Lecture 63 - Uniqueness of the boundary value problems for Laplace equation
- Lecture 64 - Conclusions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Numerical Analysis

Subject Co-ordinator - Prof. R. Usha

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Lesson 1 - Introduction, Motivation
- Lecture 2 - Lesson 2 - Part 1 - Mathematical Preliminaries, Polynomial Interpolation - 1
- Lecture 3 - Lesson 2 - Part 2 - Mathematical Preliminaries, Polynomial Interpolation - 1
- Lecture 4 - Lesson 3 - Part 1 - Polynomial Interpolation - 2
- Lecture 5 - Lesson 3 - Part 2 - Polynomial Interpolation - 2
- Lecture 6 - Lesson 4 - Polynomial Interpolation - 3
- Lecture 7 - Lagrange Interpolation Polynomial, Error In Interpolation - 1
- Lecture 8 - Lagrange Interpolation Polynomial, Error In Interpolation - 1
- Lecture 9 - Error In Interpolation - 2
- Lecture 10 - Error In Interpolation - 2
- Lecture 11 - Divide Difference Interpolation Polynomial
- Lecture 12 - Properties Of Divided Difference, Introduction To Inverse Interpolation
- Lecture 13 - Properties Of Divided Difference, Introduction To Inverse Interpolation
- Lecture 14 - Inverse Interpolation, Remarks on Polynomial Interpolation
- Lecture 15 - Numerical Differentiation - 1 Taylor Series Method
- Lecture 16 - Numerical Differentiation - 2 Method Of Undetermined Coefficients
- Lecture 17 - Numerical Differentiation - 2 Polynomial Interpolation Method
- Lecture 18 - Numerical Differentiation - 3 Operator Method Numerical Integration - 1
- Lecture 19 - Numerical Integration - 2 Error in Trapezoidal Rule Simpson's Rule
- Lecture 20 - Numerical Integration - 3 Error in Simpson's Rule Composite in Trapezoidal Rule, Error
- Lecture 21 - Numerical Integration - 4 Composite Simpsons Rule , Error Method of Undetermined Coefficients
- Lecture 22 - Numerical Integration - 5 Gaussian Quadrature (Two-Point Method)
- Lecture 23 - Numerical Integrature - 5 Gaussian Quadrature (Three-Point Method) Adaptive Quadrature
- Lecture 24 - Numerical Solution of Ordinary Differential Equation (ODE) - 1
- Lecture 25 - Numerical Solution Of ODE-2 Stability , Single-Step Methods - 1 Taylor Series Method
- Lecture 26 - Numerical Solution Of ODE-3 Examples of Taylor Series Method Euler's Method
- Lecture 27 - Numerical Solution Of ODE-4 Runge-Kutta Methods
- Lecture 28 - Numerical Solution Of ODE-5 Example For RK-Method Of Order 2 Modified Euler's Method
- Lecture 29 - Numerical Solution Of Ordinary Differential Equations - 6 Predictor-Corrector Methods (Adam-Moulton)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Numerical Solution Of Ordinary Differential Equations - 7
- Lecture 31 - Numerical Solution Of Ordinary Differential Equations - 8
- Lecture 32 - Numerical Solution of Ordinary Differential Equations - 9
- Lecture 33 - Numerical Solution of Ordinary Differential Equations - 10
- Lecture 34 - Numerical Solution of Ordinary Differential Equations - 11
- Lecture 35 - Root Finding Methods - 1 The Bisection Method - 1
- Lecture 36 - Root Finding Methods - 2 The Bisection Method - 2
- Lecture 37 - Root Finding Methods - 3 Newton-Raphson Method - 1
- Lecture 38 - Root Finding Methods - 4 Newton-Raphson Method - 2
- Lecture 39 - Root Finding Methods - 5 Secant Method, Method Of false Position
- Lecture 40 - Root Finding Methods - 6 Fixed Point Methods - 1
- Lecture 41 - Root Finding Methods - 7 Fixed Point Methods - 2
- Lecture 42 - Root Finding Methods - 8 Fixed Point Iteration Methods - 3
- Lecture 43 - Root Finding Methods - 9 Practice Problems
- Lecture 44 - Solution Of Linear Systems Of Equations - 1
- Lecture 45 - Solution Of Linear Systems Of Equations - 2
- Lecture 46 - Solution Of Linear Systems Of Equations - 3
- Lecture 47 - Solution Of Linear Systems Of Equations - 4
- Lecture 48 - Solution Of Linear Systems Of Equations - 5
- Lecture 49 - Solution Of Linear Systems Of Equations - 6
- Lecture 50 - Solution Of Linear Systems Of Equations - 7
- Lecture 51 - Solution Of Linear Systems Of Equations - 8 Iterative Method - 1
- Lecture 52 - Solution Of Linear Systems Of Equations - 8 Iterative Method - 2
- Lecture 53 - Matrix Eigenvalue Problems - 2 Power Method - 2
- Lecture 54 - Practice Problems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Graph Theory

Subject Co-ordinator - Dr. Soumen Maity

Co-ordinating Institute - IISER - Pune

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Concepts  
Lecture 2 - Basic Concepts - 1  
Lecture 3 - Eulerian and Hamiltonian Graph  
Lecture 4 - Eulerian and Hamiltonian Graph - 1  
Lecture 5 - Bipartite Graph  
Lecture 6 - Bipartite Graph  
Lecture 7 - Diameter of a graph; Isomorphic graphs  
Lecture 8 - Diameter of a graph; Isomorphic graphs  
Lecture 9 - Minimum Spanning Tree  
Lecture 10 - Minimum Spanning Trees (Continued...)  
Lecture 11 - Minimum Spanning Trees (Continued...)  
Lecture 12 - Minimum Spanning Trees (Continued...)  
Lecture 13 - Maximum Matching in Bipartite Graph  
Lecture 14 - Maximum Matching in Bipartite Graph - 1  
Lecture 15 - Hall's Theorem and Konig's Theorem  
Lecture 16 - Hall's Theorem and Konig's Theorem - 1  
Lecture 17 - Independent Set and Edge Cover  
Lecture 18 - Independent Set and Edge Cover - 1  
Lecture 19 - Matching in General Graphs  
Lecture 20 - Proof of Halls Theorem  
Lecture 21 - Stable Matching  
Lecture 22 - Gale-Shapley Algorithm  
Lecture 23 - Graph Connectivity  
Lecture 24 - Graph Connectivity - 1  
Lecture 25 - 2-Connected Graphs  
Lecture 26 - 2-Connected Graphs - 1  
Lecture 27 - Subdivision of an edge; 2-edge-connected graphs  
Lecture 28 - Problems Related to Graphs Connectivity  
Lecture 29 - Flow Network

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Residual Network and Augmenting Path
- Lecture 31 - Augmenting Path Algorithm
- Lecture 32 - Max-Flow and Min-Cut
- Lecture 33 - Max-Flow and Min-Cut Theorem
- Lecture 34 - Vertex Colouring
- Lecture 35 - Chromatic Number and Max. Degree
- Lecture 36 - Edge Colouring
- Lecture 37 - Planar Graphs and Euler's Formula
- Lecture 38 - Characterization Of Planar Graphs
- Lecture 39 - Colouring of Planar Graphs

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Transform Techniques for Engineers

Subject Co-ordinator - Prof. Srinivasa Manam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Fourier series

Lecture 2 - Fourier series - Examples

Lecture 3 - Complex Fourier series

Lecture 4 - Conditions for the Convergence of Fourier Series

Lecture 5 - Conditions for the Convergence of Fourier Series (Continued...)

Lecture 6 - Use of Delta function in the Fourier series convergence

Lecture 7 - More Examples on Fourier Series of a Periodic Signal

Lecture 8 - Gibb's Phenomenon in the Computation of Fourier Series

Lecture 9 - Properties of Fourier Transform of a Periodic Signal

Lecture 10 - Properties of Fourier transform (Continued...)

Lecture 11 - Parseval's Identity and Recap of Fourier series

Lecture 12 - Fourier integral theorem-an informal proof

Lecture 13 - Definition of Fourier transforms

Lecture 14 - Fourier transform of a Heavyside function

Lecture 15 - Use of Fourier transforms to evaluate some integrals

Lecture 16 - Evaluation of an integral- Recall of complex function theory

Lecture 17 - Properties of Fourier transforms of non-periodic signals

Lecture 18 - More properties of Fourier transforms

Lecture 19 - Fourier integral theorem - proof

Lecture 20 - Application of Fourier transform to ODE's

Lecture 21 - Application of Fourier transforms to differential and integral equations

Lecture 22 - Evaluation of integrals by Fourier transforms

Lecture 23 - D'Alembert's solution by Fourier transform

Lecture 24 - Solution of Heat equation by Fourier transform

Lecture 25 - Solution of Heat and Laplace equations by Fourier transform

Lecture 26 - Introduction to Laplace transform

Lecture 27 - Laplace transform of elementary functions

Lecture 28 - Properties of Laplace transforms

Lecture 29 - Properties of Laplace transforms (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Methods of finding inverse Laplace transform
- Lecture 31 - Heavyside expansion theorem
- Lecture 32 - Review of complex function theory
- Lecture 33 - Inverse Laplace transform by contour integration
- Lecture 34 - Application of Laplace transforms - ODEs'
- Lecture 35 - Solutions of initial or boundary value problems for ODEs'
- Lecture 36 - Solving first order PDE's by Laplace transform
- Lecture 37 - Solution of wave equation by Laplace transform
- Lecture 38 - Solving hyperbolic equations by Laplace transform
- Lecture 39 - Solving heat equation by Laplace transform
- Lecture 40 - Initial boundary value problems for heat equations
- Lecture 41 - Solution of Integral Equations by Laplace Transform
- Lecture 42 - Evaluation of Integrals by Laplace Transform
- Lecture 43 - Introduction to Z-Transforms
- Lecture 44 - Properties of Z-Transforms
- Lecture 45 - Inverse Z-transforms
- Lecture 46 - Solution of difference equations by Z-transforms
- Lecture 47 - Evaluation of infinite sums by Z-transforms
- Lecture 48 - conclusions



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Probability and Statistics

Subject Co-ordinator - Prof. G. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to probability and Statistics
- Lecture 2 - Types of data
- Lecture 3 - Categorical data
- Lecture 4 - Describing Categorical data
- Lecture 5 - Describing Categorical data (Continued...)
- Lecture 6 - Describing numerical data
- Lecture 7 - Describing numerical data (Continued...)
- Lecture 8 - Exercises, Association between categorical variables
- Lecture 9 - Association between categorical variables (Continued...)
- Lecture 10 - Association between numerical variables
- Lecture 11 - Association between numerical variables (Continued...)
- Lecture 12 - Probability
- Lecture 13 - Rules of Probability
- Lecture 14 - Rules of Probability (Continued...)
- Lecture 15 - Conditional Probability
- Lecture 16 - Random variables
- Lecture 17 - Random variables - concepts and exercises
- Lecture 18 - Association between Random variables
- Lecture 19 - Binomial Distribution
- Lecture 20 - Normal distribution
- Lecture 21 - Additional Examples

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Abstract Group Theory

Subject Co-ordinator - Prof. Krishna Hanumanthu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivational examples of groups
- Lecture 2 - Definition of a group and examples
- Lecture 3 - More examples of groups
- Lecture 4 - Basic properties of groups and multiplication tables
- Lecture 5 - Problems - 1
- Lecture 6 - Problems - 2
- Lecture 7 - Problems - 3
- Lecture 8 - Subgroups
- Lecture 9 - Types of groups
- Lecture 10 - Group homomorphisms and examples
- Lecture 11 - Properties of homomorphisms
- Lecture 12 - Group isomorphisms
- Lecture 13 - Normal subgroups
- Lecture 14 - Equivalence relations
- Lecture 15 - Problems - 4
- Lecture 16 - Cosets and Lagrange's theorem
- Lecture 17 -  $S_3$  revisited
- Lecture 18 - Problems - 5
- Lecture 19 - Quotient groups
- Lecture 20 - Examples of quotient groups
- Lecture 21 - First isomorphism theorem
- Lecture 22 - Examples and Second isomorphism theorem
- Lecture 23 - Third isomorphism theorem
- Lecture 24 - Cauchy's theorem
- Lecture 25 - Problems - 6
- Lecture 26 - Symmetric groups - I
- Lecture 27 - Symmetric Groups - II
- Lecture 28 - Symmetric groups - III
- Lecture 29 - Symmetric groups - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Odd and even permutations - I
- Lecture 31 - Odd and even permutations - II
- Lecture 32 - Alternating groups
- Lecture 33 - Group actions
- Lecture 34 - Examples of group actions
- Lecture 35 - Orbits and stabilizers
- Lecture 36 - Counting formula
- Lecture 37 - Cayley's theorem
- Lecture 38 - Problems - 7
- Lecture 39 - Problems - 8 and Class equation
- Lecture 40 - Group actions on subsets
- Lecture 41 - Sylow Theorem - I
- Lecture 42 - Sylow Theorem - II
- Lecture 43 - Sylow Theorem - III
- Lecture 44 - Problems - 9
- Lecture 45 - Problems - 10

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Groups: Motion, Symmetry and Puzzles

Subject Co-ordinator - Prof. Amit Kulshrestha

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Permutation, symmetry and groups
- Lecture 2 - Groups acting on a set/an object
- Lecture 3 - More on group actions
- Lecture 4 - Groups and parity
- Lecture 5 - Parity and puzzles
- Lecture 6 - Generators and relations
- Lecture 7 - Cosets, quotients and homomorphisms
- Lecture 8 - Cayley graphs of groups
- Lecture 9 - Platonic solids
- Lecture 10 - Symmetries of plane and wallpapers
- Lecture 11 - Introduction to GAP
- Lecture 12 - GAP through Rubik's cube
- Lecture 13 - Representing abstract groups
- Lecture 14 - A quick introduction to group representations
- Lecture 15 - Rotations and quaternions
- Lecture 16 - Rotational symmetries of platonic solids
- Lecture 17 - Finite subgroups of  $SO(3)$

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Discrete Mathematics

Subject Co-ordinator - Dr. Aditi Gangopadhyay, Dr. Sugata Gangopadhyay, Dr. Tanuja Srivastava

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the theory of sets
- Lecture 2 - Set operation and laws of set operation
- Lecture 3 - The principle of inclusion and exclusion
- Lecture 4 - Application of the principle of inclusion and exclusion
- Lecture 5 - Fundamentals of logic
- Lecture 6 - Logical Inferences
- Lecture 7 - Methods of proof of an implication
- Lecture 8 - First order logic (1)
- Lecture 9 - First order logic (2)
- Lecture 10 - Rules of inference for quantified propositions
- Lecture 11 - Mathematical Induction (1)
- Lecture 12 - Mathematical Induction (2)
- Lecture 13 - Sample space, events
- Lecture 14 - Probability, conditional probability
- Lecture 15 - Independent events, Bayes theorem
- Lecture 16 - Information and mutual information
- Lecture 17 - Basic definition
- Lecture 18 - Isomorphism and sub graphs
- Lecture 19 - Walks, paths and circuits operations on graphs
- Lecture 20 - Euler graphs, Hamiltonian circuits
- Lecture 21 - Shortest path problem
- Lecture 22 - Planar graphs
- Lecture 23 - Basic definition
- Lecture 24 - Properties of relations
- Lecture 25 - Graph of relations
- Lecture 26 - Matrix of relation
- Lecture 27 - Closure of relation (1)
- Lecture 28 - Closure of relation (2)
- Lecture 29 - Warshall's algorithm

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Partially ordered relation
- Lecture 31 - Partially ordered sets
- Lecture 32 - Lattices
- Lecture 33 - Boolean algebra
- Lecture 34 - Boolean function (1)
- Lecture 35 - Boolean function (2)
- Lecture 36 - Discrete numeric function
- Lecture 37 - Generating function
- Lecture 38 - Introduction to recurrence relations
- Lecture 39 - Second order recurrence relation with constant coefficients (1)
- Lecture 40 - Second order recurrence relation with constant coefficients (2)
- Lecture 41 - Application of recurrence relation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Mathematical Methods and its Applications

Subject Co-ordinator - Prof. P.N. Agarwal, S. K. Gupta

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to linear differential equations
- Lecture 2 - Linear dependence, independence and Wronskian of functions
- Lecture 3 - Solution of second-order homogenous linear differential equations with constant coefficients - I
- Lecture 4 - Solution of second-order homogenous linear differential equations with constant coefficients - II
- Lecture 5 - Method of undetermined coefficients
- Lecture 6 - Methods for finding Particular Integral for second-order linear differential equations with constant coefficients
- Lecture 7 - Methods for finding Particular Integral for second-order linear differential equations with constant coefficients
- Lecture 8 - Methods for finding Particular Integral for second-order linear differential equations with constant coefficients
- Lecture 9 - Euler-Cauchy equations
- Lecture 10 - Method of reduction for second-order linear differential equations
- Lecture 11 - Method of variation of parameters
- Lecture 12 - Solution of second order differential equations by changing dependent variable
- Lecture 13 - Solution of second order differential equations by changing independent variable
- Lecture 14 - Solution of higher-order homogenous linear differential equations with constant coefficients
- Lecture 15 - Methods for finding Particular Integral for higher-order linear differential equations
- Lecture 16 - Formulation of Partial differential equations
- Lecture 17 - Solution of Lagrange's equation - I
- Lecture 18 - Solution of Lagrange's equation - II
- Lecture 19 - Solution of first order nonlinear equations - I
- Lecture 20 - Solution of first order nonlinear equations - II
- Lecture 21 - Solution of first order nonlinear equations - III
- Lecture 22 - Solution of first order nonlinear equations - IV
- Lecture 23 - Introduction to Laplace transforms
- Lecture 24 - Laplace transforms of some standard functions
- Lecture 25 - Existence theorem for Laplace transforms
- Lecture 26 - Properties of Laplace transforms - I
- Lecture 27 - Properties of Laplace transforms - II
- Lecture 28 - Properties of Laplace transforms - III
- Lecture 29 - Properties of Laplace transforms - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Convolution theorem for Laplace transforms - I
- Lecture 31 - Convolution theorem for Laplace transforms - II
- Lecture 32 - Initial and final value theorems for Laplace transforms
- Lecture 33 - Laplace transforms of periodic functions
- Lecture 34 - Laplace transforms of Heaviside unit step function
- Lecture 35 - Laplace transforms of Dirac delta function
- Lecture 36 - Applications of Laplace transforms - I
- Lecture 37 - Applications of Laplace transforms - II
- Lecture 38 - Applications of Laplace transforms - III
- Lecture 39 - Z<sup>-1</sup> transform and inverse Z-transform of elementary functions
- Lecture 40 - Properties of Z-transforms - I
- Lecture 41 - Properties of Z-transforms - II
- Lecture 42 - Initial and final value theorem for Z-transforms
- Lecture 43 - Convolution theorem for Z-transforms
- Lecture 44 - Applications of Z-transforms - I
- Lecture 45 - Applications of Z-transforms - II
- Lecture 46 - Applications of Z-transforms - III
- Lecture 47 - Fourier series and its convergence - I
- Lecture 48 - Fourier series and its convergence - II
- Lecture 49 - Fourier series of even and odd functions
- Lecture 50 - Fourier half-range series
- Lecture 51 - Parseval's Identity
- Lecture 52 - Complex form of Fourier series
- Lecture 53 - Fourier integrals
- Lecture 54 - Fourier sine and cosine integrals
- Lecture 55 - Fourier transforms
- Lecture 56 - Fourier sine and cosine transforms
- Lecture 57 - Convolution theorem for Fourier transforms
- Lecture 58 - Applications of Fourier transforms to BVP - I
- Lecture 59 - Applications of Fourier transforms to BVP - II
- Lecture 60 - Applications of Fourier transforms to BVP - III



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC: Integral Equations, Calculus of Variations and its Applications

Subject Co-ordinator - Prof.D. N Pandey, Prof. P.N. Agarwal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition and classification of linear integral equations
- Lecture 2 - Conversion of IVP into integral equations
- Lecture 3 - Conversion of BVP into an integral equations
- Lecture 4 - Conversion of integral equations into differential equations
- Lecture 5 - Integro-differential equations
- Lecture 6 - Fredholm integral equation with separable kernel
- Lecture 7 - Fredholm integral equation with separable kernel
- Lecture 8 - Solution of integral equations by successive substitutions
- Lecture 9 - Solution of integral equations by successive approximations
- Lecture 10 - Solution of integral equations by successive approximations
- Lecture 11 - Fredholm integral equations with symmetric kernels
- Lecture 12 - Fredholm integral equations with symmetric kernels
- Lecture 13 - Fredholm integral equations with symmetric kernels
- Lecture 14 - Construction of Green function - I
- Lecture 15 - Construction of Green function - II
- Lecture 16 - Green function for self adjoint linear differential equations
- Lecture 17 - Green function for non-homogeneous boundary value problem
- Lecture 18 - Fredholm alternative theorem - I
- Lecture 19 - Fredholm alternative theorem - II
- Lecture 20 - Fredholm method of solutions
- Lecture 21 - Classical Fredholm theory
- Lecture 22 - Classical Fredholm theory
- Lecture 23 - Classical Fredholm theory
- Lecture 24 - Method of successive approximations
- Lecture 25 - Neumann series and resolvent kernels - I
- Lecture 26 - Neumann series and resolvent kernels - II
- Lecture 27 - Equations with convolution type kernels - I
- Lecture 28 - Equations with convolution type kernels - II
- Lecture 29 - Singular integral equations - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Singular integral equations - II
- Lecture 31 - Cauchy type integral equations - I
- Lecture 32 - Cauchy type integral equations - II
- Lecture 33 - Cauchy type integral equations - III
- Lecture 34 - Cauchy type integral equations - IV
- Lecture 35 - Cauchy type integral equations - V
- Lecture 36 - Solution of integral equations using Fourier transform
- Lecture 37 - Solution of integral equations using Hilbert transform - I
- Lecture 38 - Solution of integral equations using Hilbert transform - II
- Lecture 39 - Calculus of variations
- Lecture 40 - Calculus of variations
- Lecture 41 - Calculus of variations
- Lecture 42 - Calculus of variations
- Lecture 43 - Euler equation
- Lecture 44 - Euler equation
- Lecture 45 - Brachistochrone problem and Euler equation - I
- Lecture 46 - Euler's equation - II
- Lecture 47 - Functions of several independent variables
- Lecture 48 - Variational problems in parametric form
- Lecture 49 - Variational problems of general type
- Lecture 50 - Variational derivative and invariance of Euler's equation
- Lecture 51 - Invariance of Euler's equation and isoperimetric problem - I
- Lecture 52 - Isoperimetric problem - II
- Lecture 53 - Variational problem involving a conditional extremum - I
- Lecture 54 - Variational problem involving a conditional extremum - II
- Lecture 55 - Variational problems with moving boundaries - I
- Lecture 56 - Variational problems with moving boundaries - II
- Lecture 57 - Variational problems with moving boundaries - III
- Lecture 58 - Variational problems with moving boundaries; One sided variation
- Lecture 59 - Variational problem with a movable boundary for a functional dependent on two functions
- Lecture 60 - Hamilton's principle

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Nonlinear Programming

Subject Co-ordinator - S. K. Gupta

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Convex Sets and Functions

Lecture 2 - Properties of Convex Functions - I

Lecture 3 - Properties of Convex Functions - II

Lecture 4 - Properties of Convex Functions- III

Lecture 5 - Convex Programming Problems

Lecture 6 - KKT optimality conditions

Lecture 7 - Quadratic Programming Problems - I

Lecture 8 - Quadratic Programming Problems - II

Lecture 9 - Separable Programming - I

Lecture 10 - Separable Programming - II

Lecture 11 - Geometric Programming - I

Lecture 12 - Geometric Programming - II

Lecture 13 - Geometric Programming - III

Lecture 14 - Dynamic Programming - I

Lecture 15 - Dynamic Programming - II

Lecture 16 - Dynamic programming approach to find shortest path in any network

Lecture 17 - Dynamic Programming - IV

Lecture 18 - Search Techniques - I

Lecture 19 - Search Techniques - II

Lecture 20 - Search Techniques - III

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Numerical Methods

Subject Co-ordinator - Prof. Sanjeev Kumar, Prof. Ameeya Kumar Nayak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to error analysis and linear systems
- Lecture 2 - Gaussian elimination with Partial pivoting
- Lecture 3 - LU decomposition
- Lecture 4 - Jacobi and Gauss Seidel methods
- Lecture 5 - Iterative methods-II
- Lecture 6 - Introduction to Non-linear equations and Bisection method
- Lecture 7 - Regula Falsi and Secant methods
- Lecture 8 - Newton-Raphson method
- Lecture 9 - Fixed point iteration method
- Lecture 10 - System of Nonlinear equations
- Lecture 11 - Introduction to Eigenvalues and Eigenvectors
- Lecture 12 - Similarity Transformations and Gershgorin Theorem
- Lecture 13 - Jacobi's Method for Computing Eigenvalues
- Lecture 14 - Power Method
- Lecture 15 - Inverse Power Method
- Lecture 16 - Interpolation - Part I (Introduction to Interpolation)
- Lecture 17 - Interpolation - Part II (Some basic operators and their properties)
- Lecture 18 - Interpolation - Part III (Newton's Forward/ Backward difference and derivation of general error formula)
- Lecture 19 - Interpolation - Part IV (Error in approximating a function by a polynomial using Newton's Forward/ Backward difference formula)
- Lecture 20 - Interpolation - Part V (Solving problems using Newton's Forward and Backward difference formula)
- Lecture 21 - Interpolation - Part VI (Central difference formula)
- Lecture 22 - Interpolation - Part VII (Lagrange interpolation formula with examples)
- Lecture 23 - Interpolation - Part VIII (Divided difference interpolation with examples)
- Lecture 24 - Interpolation - Part IX (Hermite's interpolation with examples)
- Lecture 25 - Numerical differentiation - Part I (Introduction to numerical differentiation by interpolation formula)
- Lecture 26 - Numerical differentiation - Part II (Numerical differentiation based on Lagrange's interpolation formula)
- Lecture 27 - Numerical differentiation - Part III (Numerical differentiation based on Divided difference formula)
- Lecture 28 - Numerical differentiation - Part IV (Maxima and minima of a tabulated function and differentiation by finite difference operators)
- Lecture 29 - Numerical differentiation - Part V (Differentiation based on finite difference operators)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Numerical differentiation - Part VI (Method of undetermined coefficients and Derivatives with un
- Lecture 31 - Numerical Integration - Part I (Methodology of Numerical Integration and Rectangular rule )
- Lecture 32 - Numerical Integration - Part II (Quadrature formula and Trapezoidal rule with associated errors)
- Lecture 33 - Numerical Integration - Part III (Simpsons 1/3rd rule with associated errors)
- Lecture 34 - Numerical Integration - Part IV (Composite Simpsons 1/3rd rule and Simpsons 3/8th rule with exam
- Lecture 35 - Numerical Integration - Part V (Gauss Legendre 2-point and 3-point formula with examples)
- Lecture 36 - Introduction to Ordinary Differential equations
- Lecture 37 - Numerical methods for ODE-1
- Lecture 38 - Numerical Methods - II
- Lecture 39 - R-K Methods for solving ODEs
- Lecture 40 - Multi-step Method for solving ODEs

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Numerical Linear Algebra

Subject Co-ordinator - Prof.D. N Pandey, Prof. P.N. Agrawal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Matrix Operations and Types of Matrices  
Lecture 2 - Determinant of a Matrix  
Lecture 3 - Rank of a Matrix  
Lecture 4 - Vector Space - I  
Lecture 5 - Vector Space - II  
Lecture 6 - Linear dependence and independence  
Lecture 7 - Bases and Dimension - I  
Lecture 8 - Bases and Dimension - II  
Lecture 9 - Linear Transformation - I  
Lecture 10 - Linear Transformation - II  
Lecture 11 - Orthogonal Subspaces  
Lecture 12 - Row Space, Column Space and Null Space  
Lecture 13 - Eigen Values and Eigen Vectors - I  
Lecture 14 - Eigen Values and Eigen Vectors - II  
Lecture 15 - Diagonalizable Matrices  
Lecture 16 - Orthogonal Sets  
Lecture 17 - Gram Schmidt orthogonalization and orthogonal bases  
Lecture 18 - Introduction to Matlab  
Lecture 19 - Sign Integer Representation  
Lecture 20 - Computer Representation of Numbers  
Lecture 21 - Floating Point Representation  
Lecture 22 - Round-off Error  
Lecture 23 - Error Propagation in Computer Arithmetic  
Lecture 24 - Addition and Multiplication of Floating Point Numbers  
Lecture 25 - Conditioning and Condition Numbers - I  
Lecture 26 - Conditioning and Condition Numbers - II  
Lecture 27 - Stability of Numerical Algorithms - I  
Lecture 28 - Stability of Numerical Algorithms - II  
Lecture 29 - Vector Norms - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Vector Norms - II
- Lecture 31 - Matrix Norms - I
- Lecture 32 - Matrix Norms - II
- Lecture 33 - Convergent Matrices - I
- Lecture 34 - Convergent Matrices - II
- Lecture 35 - Stability of non linear system
- Lecture 36 - Condition number of a matrix
- Lecture 37 - Sensitivity Analysis - I
- Lecture 38 - Sensitivity Analysis - II
- Lecture 39 - Residual Theorem
- Lecture 40 - Nearness to Singularity
- Lecture 41 - Estimation of the Condition Number
- Lecture 42 - Singular value decomposition of a matrix - I
- Lecture 43 - Singular value decomposition of a matrix - II
- Lecture 44 - Orthonormal Projections
- Lecture 45 - Algebraic and geometric properties of SVD
- Lecture 46 - SVD and their applications
- Lecture 47 - Perturbation theorem for singular values
- Lecture 48 - Outer product expansion of a matrix
- Lecture 49 - Least square solutions - I
- Lecture 50 - Least square solutions - II
- Lecture 51 - Householder matrices
- Lecture 52 - Householder matrices and their applications
- Lecture 53 - Householder QR factorization - I
- Lecture 54 - Householder QR factorization - II
- Lecture 55 - Basic theorems on eigenvalues and QR method
- Lecture 56 - Power Method
- Lecture 57 - Rate of Convergence of Power Method
- Lecture 58 - Applications of Power Method with Shift
- Lecture 59 - Jacobi Method - I
- Lecture 60 - Jacobi Method - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Numerical Methods - Finite Difference Approach

Subject Co-ordinator - Prof. Ameeya Kumar Nayak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Numerical solutions

Lecture 2 - Numerical Solution of ODE

Lecture 3 - Numerical solution of PDE

Lecture 4 - Finite difference approximation

Lecture 5 - Polynomial fitting and one-sided approximation

Lecture 6 - Solution of parabolic equation

Lecture 7 - Implicit and C-N scheme for solving 1D parabolic equation

Lecture 8 - Stability analysis of Explicit scheme for solving parabolic equation

Lecture 9 - Stability of Crank-Nicolson's scheme

Lecture 10 - Approximation of derivative boundary conditions

Lecture 11 - Solution of two-dimensional parabolic equation

Lecture 12 - Solution of 2D parabolic equation using ADI scheme

Lecture 13 - Solution of Elliptic Equation

Lecture 14 - Solution of Elliptic equation using SOR method

Lecture 15 - Solution of Elliptic equation using ADI scheme

Lecture 16 - Solution of Hyperbolic equation

Lecture 17 - Stability analysis for Hyperbolic equations

Lecture 18 - Characteristics of PDE

Lecture 19 - Lax-Wendroff's method

Lecture 20 - Wendroff's method

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Multivariable Calculus

Subject Co-ordinator - Dr. Sanjeev Kumar, S. K. Gupta

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Functions of several variables  
Lecture 2 - Limits for multivariable functions - I  
Lecture 3 - Limits for multivariable functions - II  
Lecture 4 - Continuity of multivariable functions  
Lecture 5 - Partial Derivatives - I  
Lecture 6 - Partial Derivatives - II  
Lecture 7 - Differentiability - I  
Lecture 8 - Differentiability - II  
Lecture 9 - Chain rule - I  
Lecture 10 - Chain rule - II  
Lecture 11 - Change of variables  
Lecture 12 - Euler's theorem for homogeneous functions  
Lecture 13 - Tangent planes and Normal lines  
Lecture 14 - Extreme values - I  
Lecture 15 - Extreme values - II  
Lecture 16 - Lagrange multipliers  
Lecture 17 - Taylor's theorem  
Lecture 18 - Error approximation  
Lecture 19 - Polar-curves  
Lecture 20 - Multiple Integrals  
Lecture 21 - Change Of Order Of Integration  
Lecture 22 - Change of Variables in Multiple Integral  
Lecture 23 - Introduction to Gamma Function  
Lecture 24 - Introduction to Beta Function  
Lecture 25 - Properties of Beta and Gamma Functions - I  
Lecture 26 - Properties of Beta and Gamma Functions - II  
Lecture 27 - Dirichlet's Integral  
Lecture 28 - Applications of Multiple Integrals  
Lecture 29 - Vector Differentiation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gradient of a Scalar Field and Directional Derivative
- Lecture 31 - Normal Vector and Potential field
- Lecture 32 - Gradient (Identities), Divergence and Curl (Identities)
- Lecture 33 - Some Identities on Divergence and Curl
- Lecture 34 - Line Integral (I)
- Lecture 35 - Applications of Line Integrals
- Lecture 36 - Green's Theorem
- Lecture 37 - Surface Area
- Lecture 38 - Surface Integral
- Lecture 39 - Divergence Theorem of Gauss
- Lecture 40 - Stoke's Theorem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Ordinary and Partial Differential Equations and Applications

Subject Co-ordinator - Prof.D. N Pandey, Prof. P.N. Agrawal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to differential equations - I
- Lecture 2 - Introduction to differential equations - II
- Lecture 3 - Existence and uniqueness of solutions of differential equations - I
- Lecture 4 - Existence and uniqueness of solutions of differential equations - II
- Lecture 5 - Existence and uniqueness of solutions of differential equations - III
- Lecture 6 - Existence and uniqueness of solutions of a system of differential equations
- Lecture 7 - Linear System
- Lecture 8 - Properties of Homogeneous Systems
- Lecture 9 - Solution of Homogeneous Linear System with Constant Coefficients - I
- Lecture 10 - Solution of Homogeneous Linear System with Constant Coefficients - II
- Lecture 11 - Solution of Homogeneous Linear System with Constant Coefficients - III
- Lecture 12 - Solution of Non-Homogeneous Linear System with Constant Coefficients
- Lecture 13 - Power Series
- Lecture 14 - Uniform Convergence of Power Series
- Lecture 15 - Power Series Solution of Second Order Homogeneous Equations
- Lecture 16 - Regular singular points - I
- Lecture 17 - Regular singular points - II
- Lecture 18 - Regular singular points - III
- Lecture 19 - Regular singular points - IV
- Lecture 20 - Regular singular points - V
- Lecture 21 - Critical points
- Lecture 22 - Stability of Linear Systems - I
- Lecture 23 - Stability of Linear Systems - II
- Lecture 24 - Stability of Linear Systems - III
- Lecture 25 - Critical Points and Paths of Non-linear Systems
- Lecture 26 - Boundary value problems for second order differential equations
- Lecture 27 - Self - adjoint Forms
- Lecture 28 - Sturm - Liouville problem and its properties
- Lecture 29 - Sturm - Liouville problem and its applications

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Green's function and its applications - I
- Lecture 31 - Green's function and its applications - II
- Lecture 32 - Origins and Classification of First Order PDE
- Lecture 33 - Initial Value Problem for Quasi-linear First Order Equations
- Lecture 34 - Existence and Uniqueness of Solutions
- Lecture 35 - Surfaces orthogonal to a given system of surfaces
- Lecture 36 - Nonlinear PDE of first order
- Lecture 37 - Cauchy method of characteristics - I
- Lecture 38 - Cauchy method of characteristics - II
- Lecture 39 - Compatible systems of first order equations
- Lecture 40 - Charpit's method - I
- Lecture 41 - Charpit's method - II
- Lecture 42 - Second Order PDE with Variable Coefficients
- Lecture 43 - Classification and Canonical Form of Second Order PDE - I
- Lecture 44 - Classification and Canonical Form of Second Order PDE - II
- Lecture 45 - Classification and Characteristic Curves of Second Order PDEs
- Lecture 46 - Review of Integral Transforms - I
- Lecture 47 - Review of Integral Transforms - II
- Lecture 48 - Review of Integral Transforms - II
- Lecture 49 - Review of Integral Transforms - III
- Lecture 50 - Laplace Equation - I
- Lecture 51 - Laplace Equation - II
- Lecture 52 - Laplace and Poisson Equations
- Lecture 53 - One dimensional wave equation and its solution - I
- Lecture 54 - One dimensional wave equation and its solution - II
- Lecture 55 - One dimensional wave equation and its solution - III
- Lecture 56 - Two dimensional wave equation and its solution - I
- Lecture 57 - Solution of non-homogeneous wave equation
- Lecture 58 - Solution of homogeneous diffusion equation - I
- Lecture 59 - Solution of homogeneous diffusion equation - II
- Lecture 60 - Duhamel's principle

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Matrix Analysis with Applications

Subject Co-ordinator - Dr. Sanjeev Kumar, S. K. Gupta

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Elementary row operations
- Lecture 2 - Echelon form of a matrix
- Lecture 3 - Rank of a matrix
- Lecture 4 - System of Linear Equations - I
- Lecture 5 - System of Linear Equations - II
- Lecture 6 - Introduction to Vector Spaces
- Lecture 7 - Subspaces
- Lecture 8 - Basis and Dimension
- Lecture 9 - Linear Transformations
- Lecture 10 - Rank and Nullity
- Lecture 11 - Inverse of a Linear Transformation
- Lecture 12 - Matrix Associated with a LT
- Lecture 13 - Eigenvalues and Eigenvectors
- Lecture 14 - Cayley-Hamilton Theorem and Minimal Polynomial
- Lecture 15 - Diagonalization
- Lecture 16 - Special Matrices
- Lecture 17 - More on Special Matrices and Gerschgorin Theorem
- Lecture 18 - Inner Product Spaces
- Lecture 19 - Vector and Matrix Norms
- Lecture 20 - Gram Schmidt Process
- Lecture 21 - Normal Matrices
- Lecture 22 - Positive Definite Matrices
- Lecture 23 - Positive Definite and Quadratic Forms
- Lecture 24 - Gram Matrix and Minimization of Quadratic Forms
- Lecture 25 - Generalized Eigenvectors and Jordan Canonical Form
- Lecture 26 - Evaluation of Matrix Functions
- Lecture 27 - Least Square Approximation
- Lecture 28 - Singular Value Decomposition
- Lecture 29 - Pseudo-Inverse and SVD

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Ill-Conditioned Systems
- Lecture 31 - Regularization of Ill-Conditioned Systems
- Lecture 32 - Linear Systems
- Lecture 33 - Linear Systems
- Lecture 34 - Non-Stationary Iterative Methods
- Lecture 35 - Non-Stationary Iterative Methods
- Lecture 36 - Krylov Subspace Iterative Methods (Conjugate Gradient Method)
- Lecture 37 - Krylov Subspace Iterative Methods (CG and Pre-Conditioning)
- Lecture 38 - Introduction to Positive Matrices
- Lecture 39 - Positive Matrices, Positive Eigenpair, Perron Root and vector, Example
- Lecture 40 - Polar Decomposition

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Mathematical Modelling: Analysis and Applications

Subject Co-ordinator - Prof. Ameeya Kumar Nayak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Mathematical Modeling
- Lecture 2 - Discrete Time Linear Models in Population Dynamics - I
- Lecture 3 - Discrete Time Linear Models in Population Dynamics - II
- Lecture 4 - Discrete Time Linear Age Structured Models
- Lecture 5 - Numerical Methods to Compute Eigen Values
- Lecture 6 - Discrete Time Non-Linear Models in Population Dynamics - II
- Lecture 7 - Analysis on Logistic Difference Equation
- Lecture 8 - Classifications of Bifurcation
- Lecture 9 - Discrete Time Non - Linear Models in Population Dynamics - II
- Lecture 10 - Discrete Time Prey - Predator Model
- Lecture 11 - Introduction to Continuous Time Models
- Lecture 12 - Solution of First Order First Degree Differential Equations
- Lecture 13 - Continuous Time Models in Population Dynamics - I
- Lecture 14 - Continuous Time Models in Population Dynamics - II
- Lecture 15 - Stability and Linearization of System of Ordinary Differential Equations
- Lecture 16 - Continuous Time Single Species Models
- Lecture 17 - Qualitative Solution of Differential Equations - Phase Diagrams - I
- Lecture 18 - Qualitative Solution of Differential Equations - Phase Diagrams - II
- Lecture 19 - Continuous Time Lotka - Volterra Competition Model
- Lecture 20 - Continuous Time Prey - Predator Model

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Advanced Matrix Theory and Linear Algebra for Engineers

Subject Co-ordinator - Prof. Vittal Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Prologue - Part 1  
Lecture 2 - Prologue - Part 2  
Lecture 3 - Prologue - Part 3  
Lecture 4 - Linear Systems - Part 1  
Lecture 5 - Linear Systems - Part 2  
Lecture 6 - Linear Systems - Part 3  
Lecture 7 - Linear Systems - Part 4  
Lecture 8 - Vector Spaces - Part 1  
Lecture 9 - Vector Spaces - Part 2  
Lecture 10 - Linear Independence and Subspaces - Part 1  
Lecture 11 - Linear Independence and Subspaces - Part 2  
Lecture 12 - Linear Independence and Subspaces - Part 3  
Lecture 13 - Linear Independence and Subspaces - Part 4  
Lecture 14 - Basis - Part 1  
Lecture 15 - Basis - Part 2  
Lecture 16 - Basis - Part 3  
Lecture 17 - Linear Transformations - Part 1  
Lecture 18 - Linear Transformations - Part 2  
Lecture 19 - Linear Transformations - Part 3  
Lecture 20 - Linear Transformations - Part 4  
Lecture 21 - Linear Transformations - Part 5  
Lecture 22 - Inner Product and Orthogonality - Part 1  
Lecture 23 - Inner Product and Orthogonality - Part 2  
Lecture 24 - Inner Product and Orthogonality - Part 3  
Lecture 25 - Inner Product and Orthogonality - Part 4  
Lecture 26 - Inner Product and Orthogonality - Part 5  
Lecture 27 - Inner Product and Orthogonality - Part 6  
Lecture 28 - Diagonalization - Part 1  
Lecture 29 - Diagonalization - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diagonalization - Part 3
- Lecture 31 - Diagonalization - Part 4
- Lecture 32 - Hermitian and Symmetric matrices - Part 1
- Lecture 33 - Hermitian and Symmetric matrices - Part 2
- Lecture 34 - Hermitian and Symmetric matrices - Part 3
- Lecture 35 - Hermitian and Symmetric matrices - Part 4
- Lecture 36 - Singular Value Decomposition (SVD) - Part 1
- Lecture 37 - Singular Value Decomposition (SVD) - Part 2
- Lecture 38 - Back To Linear Systems - Part 1
- Lecture 39 - Back To Linear Systems - Part 2
- Lecture 40 - Epilogue

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Ordinary Differential Equations and Applications

Subject Co-ordinator - Prof. A.K. Nandakumaran, Prof. Raju K. George, Prof. P.S. Datti

Co-ordinating Institute - IISc - Bangalore | IIST - Trivandrum | TIFR-CAM - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - General Introduction

Lecture 2 - Examples

Lecture 3 - Examples (Continued - I)

Lecture 4 - Examples (Continued - II)

Lecture 5 - Linear Algebra

Lecture 6 - Linear Algebra (Continued - I)

Lecture 7 - Linear Algebra (Continued - II)

Lecture 8 - Analysis

Lecture 9 - Analysis (Continued...)

Lecture 10 - First Order Linear Equations

Lecture 11 - Exact Equations

Lecture 12 - Second Order Linear Equations

Lecture 13 - Second Order Linear Equations (Continued - I)

Lecture 14 - Second Order Linear Equations (Continued - II)

Lecture 15 - Well-posedness and Examples of IVP

Lecture 16 - Gronwall's Lemma

Lecture 17 - Basic Lemma and Uniqueness Theorem

Lecture 18 - Picard's Existence and Uniqueness Theorem

Lecture 19 - Picard's Existence and Uniqueness (Continued...)

Lecture 20 - Cauchy Peano Existence Theorem

Lecture 21 - Existence using Fixed Point Theorem

Lecture 22 - Continuation of Solutions

Lecture 23 - Series Solution

Lecture 24 - General System and Diagonalizability

Lecture 25 - 2 by 2 systems and Phase Plane Analysis

Lecture 26 - 2 by 2 systems and Phase Plane Analysis (Continued...)

Lecture 27 - General Systems

Lecture 28 - General Systems (Continued...) and Non-homogeneous Systems

Lecture 29 - Basic Definitions and Examples

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Stability Equilibrium Points
- Lecture 31 - Stability Equilibrium Points (Continued - I)
- Lecture 32 - Stability Equilibrium Points (Continued - II)
- Lecture 33 - Second Order Linear Equations (Continued - III)
- Lecture 34 - Lyapunov Function
- Lecture 35 - Lyapunov Function (Continued...)
- Lecture 36 - Periodic Orbits and Poincare Bendixon Theory
- Lecture 37 - Periodic Orbits and Poincare Bendixon Theory (Continued...)
- Lecture 38 - Linear Second Order Equations
- Lecture 39 - General Second Order Equations
- Lecture 40 - General Second Order Equations (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Linear Algebra

Subject Co-ordinator - Prof. Dilip P. Patil

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Algebraic Structures - Rings and Fields  
Lecture 2 - Definition of Vector Spaces  
Lecture 3 - Examples of Vector Spaces  
Lecture 4 - Definition of subspaces  
Lecture 5 - Examples of subspaces  
Lecture 6 - Examples of subspaces (Continued...)  
Lecture 7 - Sum of subspaces  
Lecture 8 - System of linear equations  
Lecture 9 - Gauss elimination  
Lecture 10 - Generating system, linear independence and bases  
Lecture 11 - Examples of a basis of a vector space  
Lecture 12 - Review of univariate polynomials  
Lecture 13 - Examples of univariate polynomials and rational functions  
Lecture 14 - More examples of a basis of vector spaces  
Lecture 15 - Vector spaces with finite generating system  
Lecture 16 - Steinitz's exchange theorem and examples  
Lecture 17 - Examples of finite dimensional vector spaces  
Lecture 18 - Dimension formula and its examples  
Lecture 19 - Existence of a basis  
Lecture 20 - Existence of a basis (Continued...)  
Lecture 21 - Existence of a basis (Continued...)  
Lecture 22 - Introduction to Linear Maps  
Lecture 23 - Examples of Linear Maps  
Lecture 24 - Linear Maps and Bases  
Lecture 25 - Pigeonhole principle in Linear Algebra  
Lecture 26 - Interpolation and the rank theorem  
Lecture 27 - Examples  
Lecture 28 - Direct sums of vector spaces  
Lecture 29 - Projections

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Direct sum decomposition of a vector space
- Lecture 31 - Dimension equality and examples
- Lecture 32 - Dual spaces
- Lecture 33 - Dual spaces (Continued...)
- Lecture 34 - Quotient spaces
- Lecture 35 - Homomorphism theorem of vector spaces
- Lecture 36 - Isomorphism theorem of vector spaces
- Lecture 37 - Matrix of a linear map
- Lecture 38 - Matrix of a linear map (Continued...)
- Lecture 39 - Matrix of a linear map (Continued...)
- Lecture 40 - Change of bases
- Lecture 41 - Computational rules for matrices
- Lecture 42 - Rank of a matrix
- Lecture 43 - Computation of the rank of a matrix
- Lecture 44 - Elementary matrices
- Lecture 45 - Elementary operations on matrices
- Lecture 46 - LR decomposition
- Lecture 47 - Elementary Divisor Theorem
- Lecture 48 - Permutation groups
- Lecture 49 - Canonical cycle decomposition of permutations
- Lecture 50 - Signature of a permutation
- Lecture 51 - Introduction to multilinear maps
- Lecture 52 - Multilinear maps (Continued...)
- Lecture 53 - Introduction to determinants
- Lecture 54 - Determinants (Continued...)
- Lecture 55 - Computational rules for determinants
- Lecture 56 - Properties of determinants and adjoint of a matrix
- Lecture 57 - Adjoint-determinant theorem
- Lecture 58 - The determinant of a linear operator
- Lecture 59 - Determinants and Volumes
- Lecture 60 - Determinants and Volumes (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Convective Heat and Mass Transfer

Subject Co-ordinator - Prof. A.W. Date

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Flow Classifications  
Lecture 3 - Laws of Convection  
Lecture 4 - Scalar Transport Equations  
Lecture 5 - Laminar Boundary Layers  
Lecture 6 - Similarity Method  
Lecture 7 - Similarity Solns Velocity BL  
Lecture 8 - Similarity Solns Temperature BL - I  
Lecture 9 - Similarity Solns Temperature BL - II  
Lecture 10 - Integral BL Equations  
Lecture 11 - Integral Solns Laminar Velocity BL  
Lecture 12 - Integral Solns Laminar Temperature BL  
Lecture 13 - Superposition Theory  
Lecture 14 - Laminar Internal Flows  
Lecture 15 - Fully-Developed Laminar Flows - 1  
Lecture 16 - Fully-Developed Laminar Flows - 2  
Lecture 17 - Fully-Developed Laminar Flows Heat Transfer - 1  
Lecture 18 - Fully-Developed Laminar Flows Heat Transfer - 2  
Lecture 19 - Laminar Internal Developing Flows Heat Transfer  
Lecture 20 - Superposition Technique  
Lecture 21 - Nature of Turbulent Flows  
Lecture 22A - Sustaining Mechanism of Turbulence - 1  
Lecture 22B - Sustaining Mechanism of Turbulence - 1  
Lecture 23 - Sustaining Mechanism of Turbulence - 2  
Lecture 24 - Near-Wall Turbulent Flows - 1  
Lecture 25 - Near-Wall Turbulent Flows - 2  
Lecture 26 - Turbulence Models - 1  
Lecture 27 - Turbulence Models - 2  
Lecture 28 - Turbulence Models - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Prediction of Turbulent Flows
- Lecture 30 - Prediction of Turbulent Heat Transfer
- Lecture 31 - Convective Mass Transfer
- Lecture 32 - Stefan Flow Model
- Lecture 33 - Couette Flow Model
- Lecture 34 - Reynolds Flow Model
- Lecture 35 - Boundary Layer Flow Model
- Lecture 36 - Evaluation of  $g$  and  $Nw$
- Lecture 37 - Diffusion Mass Transfer Problems
- Lecture 38 - Convective MT Couette Flow
- Lecture 39 - Convective MT Reynolds Flow Model - 1
- Lecture 40 - Convective MT Reynolds Flow Model - 2
- Lecture 41 - Natural Convection
- Lecture 42 - Diffusion Jet Flames

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Cryogenic Engineering

Subject Co-ordinator - Prof. M.D. Atrey

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Cryogenic Engineering
- Lecture 2 - Properties of Cryogenic Fluids - I
- Lecture 3 - Properties of Cryogenic Fluids - II
- Lecture 4 - Properties of Cryogenic
- Lecture 5 - Material Properties at Low Temperature - I
- Lecture 6 - Material Properties at Low Temperature - II
- Lecture 7 - Material Properties at Low Temperature - III
- Lecture 8 - Gas Liquefaction and Refrigeration Systems - I
- Lecture 9 - Gas Liquefaction and Refrigeration Systems - II
- Lecture 10 - Gas Liquefaction and Refrigeration Systems - III
- Lecture 11 - Gas Liquefaction and Refrigeration Systems - IV
- Lecture 12 - Gas Liquefaction and Refrigeration Systems - V
- Lecture 13 - Gas Liquefaction and Refrigeration Systems - VI
- Lecture 14 - Gas Liquefaction and Refrigeration Systems - VII
- Lecture 15 - Gas Liquefaction and Refrigeration Systems - VIII
- Lecture 16 - Gas Liquefaction and Refrigeration Systems - IX
- Lecture 17 - Gas Liquefaction and Refrigeration Systems - X
- Lecture 18 - Gas Separation - I
- Lecture 19 - Gas Separation - II
- Lecture 20 - Gas Separation - III
- Lecture 21 - Gas Separation - IV
- Lecture 22 - Gas Separation - V
- Lecture 23 - Gas Separation - VI
- Lecture 24 - Gas Separation - VII
- Lecture 25 - Gas Separation - VIII
- Lecture 26 - Cryocoolers
- Lecture 27 - Cryocoolers Ideal Stirling Cycle - I
- Lecture 28 - Cryocoolers Ideal Stirling Cycle - II
- Lecture 29 - Cryocoolers Ideal Stirling Cycle - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cryocoolers Ideal Stirling Cycle - IV
- Lecture 31 - Cryocoolers Ideal Stirling Cycle - V
- Lecture 32 - Cryocoolers
- Lecture 33 - Cryogenic Insulation - I
- Lecture 34 - Cryogenic Insulation - II
- Lecture 35 - Cryogenic Insulation - III
- Lecture 36 - Vacuum Technology - I
- Lecture 37 - Vacuum Technology - II
- Lecture 38 - Vacuum Technology - III
- Lecture 39 - Instrumentation in Cryogenics - I
- Lecture 40 - Instrumentation in Cryogenics - II
- Lecture 41 - Instrumentation in Cryogenics - III
- Lecture 42 - Safety in Cryogenics

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced Strength of Materials

Subject Co-ordinator - Prof. S.K. Maiti

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Stress and Strain Tensor

Lecture 2 - Stress and Strain Tensor (Continued) and Cauchy Formula for Traction

Lecture 3 - Examples on Calculation of Strains and Tractions, Principal Stresses and Directions

Lecture 4 - Example on Calculation of Principal Stresses and Directions, Orthogonality of Principal Directions

Lecture 5 - Maximum Shear Stress and Octahedral Shear Stress, Deviatoric and Hydrostatic Stresses

Lecture 6 - Transformation of Stresses and Mohr Circle in 3-D

Lecture 7 - Mohr Circle (Continued)

Lecture 8 - Deformation, Rotation and Strain Tensors, Principal Strains, Deviatoric and Hydrostatic Strains

Lecture 9 - Strain Transformations, Strains in Polar Coordinates, Equilibrium Equations in 2-D

Lecture 10 - Equilibrium Equations in 2-D Polar Coordinates Plane Stress and Plane Strain Conditions

Lecture 11 - Stress-Strain Relations for Isotropic, Orthotropic and Anisotropic Materials Stress-Strain-Temperature Relations

Lecture 12 - Relation between Elastic Constants and Strain Energy Densities Recap of Lectures 1 to 11

Lecture 13 - Stress Distribution in Thick Cylinder

Lecture 14 - Stresses due to Shrink Fitting

Lecture 15 - Stresses in Rotating Disc

Lecture 16 - Examples on Shrink Fitting and Rotating Disc

Lecture 17 - Torsion of Non-Circular Shaft

Lecture 18 - Torsion of Non-Circular Shaft (Continued)

Lecture 19 - Membrane Analogy for Torsion

Lecture 20 - Torsion of Thin Box Sections

Lecture 21 - Torsion of Box and Open Sections

Lecture 22 - Bending of Curved Bars

Lecture 23 - Bending of Curved Bars (Continued)

Lecture 24 - Theories of Failure

Lecture 25 - Theories of Failure (Continued)

Lecture 26 - Theories of Failure (Continued) and Their Applications, Griffith Theory of Brittle Fracture

Lecture 27 - Application of Griffith Theory, Irwin-Orowan Modification of Griffith Theory, Assessment of Effect of Stress Concentration

Lecture 28 - Theorems of Elasticity

Lecture 29 - Theorems of Elasticity (Continued)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Thermal Stress Distribution in Rectangular Sheet due to Symmetric and Asymmetric Temperature Field
- Lecture 31 - Thermal Stress Distribution in Cylinders
- Lecture 32 - Unsymmetrical Bending
- Lecture 33 - Shear Centre
- Lecture 34 - Plate Bending
- Lecture 35 - Plate Bending (Continued)
- Lecture 36 - Examples on Plate Bending
- Lecture 37 - Approximate Solutions for Bending of Rectangular and Circular Plates
- Lecture 38 - Thin Shells of Revolution
- Lecture 39 - Beam on Elastic Foundation
- Lecture 40 - Application of Beam on Elastic Foundation Analysis to Pressure Vessels for Calculation of Displacements

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Heat and Mass Transfer

Subject Co-ordinator - Prof. S.P. Sukhatme, Prof. U.N. Gaitonde

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Heat and Mass Transfer

Lecture 2 - Introduction

Lecture 3 - Introduction

Lecture 4 - Heat Conduction - 1

Lecture 5 - Heat Conduction - 2

Lecture 6 - Heat Conduction - 3

Lecture 7 - Heat Conduction - 4

Lecture 8 - Heat Conduction - 5

Lecture 9 - Heat Conduction - 6

Lecture 10 - Thermal Radiation - 1

Lecture 11 - Thermal Radiation - 2

Lecture 12 - Thermal Radiation - 3

Lecture 13 - Thermal Radiation - 4

Lecture 14 - Thermal Radiation - 5

Lecture 15 - Thermal Radiation - 6

Lecture 16 - Review Of Fluid Mechanics - 1

Lecture 17 - Review Of Fluid Mechanics - 2

Lecture 18 - Forced Convection - 1

Lecture 19 - Forced Convection - 2

Lecture 20 - Forced Convection - 3

Lecture 21 - Forced Convection - 4

Lecture 22 - Natural Convection - 1

Lecture 23 - Natural Convection - 2

Lecture 24 - Natural Convection - 3

Lecture 25 - Heat Exchangers - 1

Lecture 26 - Heat Exchangers - 2

Lecture 27 - Heat Exchangers - 3

Lecture 28 - Heat Exchangers - 4

Lecture 29 - Boiling and Condensation - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Boiling and Condensation - 2
- Lecture 31 - Boiling and Condensation - 3
- Lecture 32 - Boiling and Condensation - 4
- Lecture 33 - Introduction to Mass Transfer - 1
- Lecture 34 - Introduction to Mass Transfer - 2
- Lecture 35 - Introduction to Mass Transfer - 3

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Robotics

Subject Co-ordinator - Prof. P. Seshu, Prof. P.S. Gandhi, Prof. K. Kurien Issac, Prof. B. Seth, Prof. C. Amar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Robotics
- Lecture 2 - Technologies in Robots
- Lecture 3 - Industrial Robots
- Lecture 4 - Industrial Manipulators and its Kinematics
- Lecture 5 - Parallel Manipulators
- Lecture 6 - Grippers manipulators
- Lecture 7 - Electric Actuators
- Lecture 8 - Actuators - Electric, Hydraulic, Pneumatic
- Lecture 9 - Internal State Sensors
- Lecture 10 - Internal State Sensors
- Lecture 11 - External State Sensors
- Lecture 12 - Trajectory planning
- Lecture 13 - Trajectory planning
- Lecture 14 - Trajectory planning
- Lecture 15 - Trajectory planning
- Lecture 16 - Trajectory planning
- Lecture 17 - Trajectory planning
- Lecture 18 - Trajectory planning
- Lecture 19 - Trajectory planning
- Lecture 20 - Forward Position Control
- Lecture 21 - Inverse Problem
- Lecture 22 - Velocity Analysis
- Lecture 23 - Velocity Analysis
- Lecture 24 - Dynamic Analysis
- Lecture 25 - Image Processing
- Lecture 26 - Image Processing
- Lecture 27 - Image Processing
- Lecture 28 - Image Processing
- Lecture 29 - Image Processing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Image Processing
- Lecture 31 - Robot Dynamics and Control
- Lecture 32 - Robot Dynamics and Control
- Lecture 33 - Robot Dynamics and Control
- Lecture 34 - Robot Dynamics and Control
- Lecture 35 - Robot Dynamics and Control
- Lecture 36 - Robot Dynamics and Control
- Lecture 37 - Futuristic Topics in Robotics
- Lecture 38 - Robot Dynamic and Control-Case Studies
- Lecture 39 - Robot Dynamic and Control-Case Studies
- Lecture 40 - Futuristic Topics in Robotics

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Tribology

Subject Co-ordinator - Dr. Harish Hirani

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Interdisciplinary Approach and Economic Benefits
- Lecture 3 - Friction
- Lecture 4 - Friction Estimation
- Lecture 5 - Friction Instability
- Lecture 6 - Wear
- Lecture 7 - Adhesive Wear
- Lecture 8 - Wear Mechanisms
- Lecture 9 - Wear Mechanisms - 2
- Lecture 10 - Wear Analysis
- Lecture 11 - Lubrication and Lubricants
- Lecture 12 - Boundary Lubrication
- Lecture 13 - Lubrication Mechanisms
- Lecture 14 - Hydrodynamic Lubrication
- Lecture 15 - Lubricant Classifications
- Lecture 16 - Solid and Semi Solid Lubricants
- Lecture 17 - Liquid Lubricants
- Lecture 18 - Lubricant Additives
- Lecture 19 - Fluid Film Lubrication
- Lecture 20 - Reynolds Equation
- Lecture 21 - Solution of Reynolds Equation
- Lecture 22 - Hybrid Solution Approach (to solve Reynolds Equation)
- Lecture 23 - Finite Difference Method to Solve Reynolds Equation
- Lecture 24 - Viscosity Variation
- Lecture 25 - Estimating Elastic Deformation
- Lecture 26 - Thermo Hydrodynamic Lubrication
- Lecture 27 - Application of Tribology
- Lecture 28 - Rolling Element Bearings
- Lecture 29 - Rolling Element Bearings (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rolling Element Bearings (Continued...)
- Lecture 31 - Selection of Rolling Element Bearings
- Lecture 32 - Friction of Rolling Element Bearing
- Lecture 33 - Bearing Clearance
- Lecture 34 - Bearing Lubrication
- Lecture 35 - Tribology of Gears
- Lecture 36 - Friction and Lubrication of Gears
- Lecture 37 - Friction and Lubrication of Gears (Continued...)
- Lecture 38 - Surface Fatigue of Spur Gears
- Lecture 39 - Journal Bearings
- Lecture 40 - Hydrostatic Bearings
- Lecture 41 - Hydrodynamic Journal Bearings
- Lecture 42 - Design of Hydrodynamic Journal Bearings

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Computer Aided Design and Manufacturing

Subject Co-ordinator - Prof. P.V. Madhusudan Rao, Prof. Anoop Chawla

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction to CAD
- Lecture 2 - Input Output Devices, Raster Graphics
- Lecture 3 - Raster Graphics - I
- Lecture 4 - Raster Graphics - II
- Lecture 5 - Polygon Filling
- Lecture 6 - Windowing and Clipping
- Lecture 7 - Clipping of Polygons
- Lecture 8 - 2D Transformations
- Lecture 9 - 3D Transformations and Projection
- Lecture 10 - Perspective Projections
- Lecture 11 - Projections and Hidden Surface Removal
- Lecture 12 - Hidden Surface Removal
- Lecture 13 - Hidden Surface Removal
- Lecture 14 - Hidden Surface Removal
- Lecture 15 - Finite Element Method
- Lecture 16 - Galerkin's Approach
- Lecture 17 - Galerkin's Method
- Lecture 18 - 1D Finite Element Problems
- Lecture 19 - 1D Finite Element Problems
- Lecture 20 - FE Problems
- Lecture 21 - 1D - FE Problems
- Lecture 22 - Penalty Approach and Multi Point Boundary
- Lecture 23 - Quadratic Shape Functions
- Lecture 24 - 2D - FE Problems
- Lecture 25 - 2D - FE Problems (Continued.)
- Lecture 26 - 3D - FE Problems
- Lecture 27 - 3D - Tetrahedral and 2D - Quadrilateral Element
- Lecture 28 - Mesh Preparation
- Lecture 29 - Modeling of Curves

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Modeling of Curves
- Lecture 31 - Modeling of Curves
- Lecture 32 - Modeling of B-Spline Curves
- Lecture 33 - Modeling of B-spline Curves
- Lecture 34 - Surface Modeling
- Lecture 35 - Surface Modeling
- Lecture 36 - Display of Curves and Surfaces
- Lecture 37 - Solid Modeling
- Lecture 38 - Solid Modeling
- Lecture 39 - Solid Modeling Using Octrees
- Lecture 40 - (Lecture Missing)
- Lecture 41 - Computer Aided Design
- Lecture 42 - Computer Aided Manufacturing
- Lecture 43 - What is CAD/CAM
- Lecture 44 - An Overview of Geometric Modeling
- Lecture 45 - Parametric Cubic Curve
- Lecture 46 - Parametric Bezier Curve
- Lecture 47 - B-Spline Curve
- Lecture 48 - Parametric Surfaces - Part-1
- Lecture 49 - Parametric Surfaces - Part-2
- Lecture 50 - Solid Modeling
- Lecture 51 - Geometric & Product Data Exchange
- Lecture 52 - Reverse Engineering

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Project and Production Management

Subject Co-ordinator - Prof. Arun Kanda

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Project and Production Management - An Overview
- Lecture 2 - Project Management
- Lecture 3 - Project Identification and Screening
- Lecture 4 - Project Appraisal - Part I
- Lecture 5 - Project Appraisal - Part II
- Lecture 6 - Project Selection
- Lecture 7 - Project Representation
- Lecture 8 - Consistency and Redundancy in Project Networks
- Lecture 9 - Basic scheduling with A-O-A Networks
- Lecture 10 - Basic Scheduling with A-O-N Networks
- Lecture 11 - Project Scheduling with Probabilistic Activity
- Lecture 12 - Linear Time-Cost Tradeoffs in Projects
- Lecture 13 - Project Crashing with Multiple Objectives
- Lecture 14 - Resource Profiles and Leveling
- Lecture 15 - Limited Resource Allocation
- Lecture 16 - Project Monitoring and Control with PERT/Cost
- Lecture 17 - Team Building and Leadership in Projects
- Lecture 18 - Organizational and Behavioral Issues
- Lecture 19 - Computers in Project Management
- Lecture 20 - Project Completion and Review
- Lecture 21 - Life Cycle of a Production System
- Lecture 22 - Role of Models in Production Management
- Lecture 23 - Financial Evaluation of capital Decisions
- Lecture 24 - Decision Trees and Risk Evaluation
- Lecture 25 - Introducing New Products & Services
- Lecture 26 - Economic Evaluation of New Products & Services
- Lecture 27 - Product Mix Decisions
- Lecture 28 - Product & Process Design
- Lecture 29 - Issues in Location of Facilities

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Mathematical Models for Facility Location
- Lecture 31 - Layout planning
- Lecture 32 - Computerised Layout Planning
- Lecture 33 - Product Layouts and Assembly Line Balancing
- Lecture 34 - Forecasting
- Lecture 35 - The Analysis of Time Series
- Lecture 36 - Aggregate Production Planning
- Lecture 37 - Modelling Approaches
- Lecture 38 - Basic Inventory Principles
- Lecture 39 - Inventory Modelling
- Lecture 40 - Material Requirements Planning
- Lecture 41 - Scheduling of Job Shops

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:RAC Product Design

Subject Co-ordinator - Prof. Sanjeev Jain

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Design

Lecture 2 - Design Considerations

Lecture 3 - Basic Concepts Psychrometry and Air-Conditioning

Lecture 4 - Refrigerants

Lecture 5 - Refrigerant Properties and Applications

Lecture 6 - Refrigeration Cycle and Components

Lecture 7 - Compressor Selection

Lecture 8 - Expansion Devices

Lecture 9 - Condensers and Evaporators

Lecture 10 - Types of Heat Exchangers and Air Conditioning Systems

Lecture 11 - Selection of Air Conditioning Systems for Hostels

Lecture 12 - Case Study on a Railway Air Conditioning System

Lecture 13 - Vibration and noise issues in railway AC systems

Lecture 14 - New product launch process

Lecture 15 - Case study on a telecom cooling system and Emerging technologies

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Nonlinear Vibration

Subject Co-ordinator - Prof. S.K. Dwivedy

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of Nonlinear systems
- Lecture 2 - Review of Linear vibrating systems
- Lecture 3 - Phenomena associated with Nonlinear systems
- Lecture 4 - Commonly observed Phenomena in Nonlinear systems
- Lecture 5 - Force and Moment based Approach
- Lecture 6 - Energy based approach Extended Hamilton's principle and Lagrange Principle
- Lecture 7 - Derivation of Equation of motion of nonlinear discrete system (More examples)
- Lecture 8 - Derivation of Equation of motion of nonlinear continuous system - 1
- Lecture 9 - Derivation of Equation of motion of nonlinear continuous system - 2
- Lecture 10 - Ordering of nonlinear Equation of motion
- Lecture 11 - Qualitative Analysis Straight forward expansion
- Lecture 12 - Numerical method Straight forward expansion
- Lecture 13 - Lindstedt Poincare's technique
- Lecture 14 - Method of multiple scales
- Lecture 15 - Method of Harmonic balance
- Lecture 16 - Method of averaging
- Lecture 17 - Generalized Method of averaging
- Lecture 18 - Krylov-Bogoliubov-Mitropolski technique
- Lecture 19 - Incremental harmonic balance method and Intrinsic multiple scale harmonic balance method
- Lecture 20 - Modified Lindstedt Poincare's technique
- Lecture 21 - Stability and Bifurcation of Fixed-point response - 1
- Lecture 22 - Stability and Bifurcation of Fixed-point response - 2
- Lecture 23 - Stability and Bifurcation of Fixed-point response - 3
- Lecture 24 - Stability and Bifurcation of Fixed-point response - 4
- Lecture 25 - Stability Analysis of Periodic response
- Lecture 26 - Bifurcation of Periodic response And Introduction to quasi-periodic and Chaotic response
- Lecture 27 - Quasi-Periodic and Chaotic response
- Lecture 28 - Numerical methods to obtain roots of characteristic equation and time response
- Lecture 29 - Numerical methods to obtain time response

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Numerical methods to obtain frequency response
- Lecture 31 - Free Vibration of Single degree of freedom Nonlinear systems with Cubic and quadratic nonlinearities
- Lecture 32 - Free Vibration of Single degree of freedom Nonlinear systems with Cubic and quadratic nonlinearities
- Lecture 33 - Free Vibration of multi- degree of freedom Nonlinear systems with Cubic and quadratic nonlinearities
- Lecture 34 - Forced nonlinear Vibration Single degree of freedom Nonlinear systems with Cubic nonlinearities
- Lecture 35 - Forced nonlinear Vibration Single and multi- degree of freedom Nonlinear systems
- Lecture 36 - Nonlinear Forced-Vibration of Single and Multi Degree-of-Freedom System
- Lecture 37 - Analysis of Multi- degree of freedom system
- Lecture 38 - Nonlinear Vibration of Parametrically excited system
- Lecture 39 - Nonlinear Vibration of Parametrically excited system
- Lecture 40 - Nonlinear Vibration of Parametrically excited system with internal resonance



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Theory and Practice of Rotor Dynamics

Subject Co-ordinator - Prof. Rajiv Tiwari

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - A Brief History of Rotor Dynamics
- Lecture 3 - The State of the Art of Rotor Dynamics
- Lecture 4 - Simple Rotor Models with Rigid Bearings
- Lecture 5 - Jeffcott Rotor Model
- Lecture 6 - Variant of Jeffcott Rotor Model
- Lecture 7 - Rigid Rotor Mounted on Simple Anisotropic Springs as Bearings
- Lecture 8 - Rigid Rotor Mounted on Complex Anisotropic Bearings
- Lecture 9 - Flexible Shaft with a Rigid Disc Mounted on Anisotropic Supports
- Lecture 10 - Gyroscopic Effects
- Lecture 11 - Gyroscopic Effects
- Lecture 12 - Gyroscopic Effects
- Lecture 13 - Gyroscopic Effects
- Lecture 14 - Torsional Vibrations
- Lecture 15 - Three Disc Rotor System
- Lecture 16 - Transfer Matrix Approach - Part I
- Lecture 17 - Transfer Matrix Approach - Part II
- Lecture 18 - Transfer Matrix Approach - Part III
- Lecture 19 - Geared and Branched Systems
- Lecture 20 - Continuous System and Finite Element Method
- Lecture 21 - Finite Element Method
- Lecture 22 - Finite Element Analysis
- Lecture 23 - Finite Element Analysis - Part III
- Lecture 24 - Influence Coefficient Method
- Lecture 25 - Transfer Matrix Method - Part I
- Lecture 26 - Transfer Matrix Method - Part II
- Lecture 27 - Transfer Matrix Method - Part III
- Lecture 28 - Continuous System Approach
- Lecture 29 - Finite Element Method - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Finite Element Method - Part II
- Lecture 31 - Finite Element Method - Part III
- Lecture 32 - Instability in Rotor Systems
- Lecture 33 - Fluid-Film Bearings
- Lecture 34 - Internal Damping & Asymmetrical Shaft
- Lecture 35 - Steam Whirl and Seals
- Lecture 36 - Subcritical Speed Whirl
- Lecture 37 - Introduction to Rigid Rotor Balancing
- Lecture 38 - Dynamic Balancing of Rotors
- Lecture 39 - Dynamic Balancing of Rotors
- Lecture 40 - Dynamic Balancing of Rotors
- Lecture 41 - Common Faults & Vibration signatures
- Lecture 42 - Condition Based Monitoring

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Engineering Mechanics

Subject Co-ordinator - Prof. U.S. Dixit, Dr. G. Saravana Kumar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals Of Engineering Mechanics
- Lecture 2 - Equations of Equilibrium
- Lecture 3 - Truss Analysis - Part 1
- Lecture 4 - Truss Analysis - Part 2
- Lecture 5 - Analysis of Frames Machines
- Lecture 6 - Internal Forces
- Lecture 7 - Internal Forces in Beams
- Lecture 8 - Cables
- Lecture 9 - Friction
- Lecture 10 - Application of Friction - Part 1
- Lecture 11 - Application of Friction - Part 2
- Lecture 12 - Application of Friction - Part 3
- Lecture 13 - Centroids Center of Mass
- Lecture 14 - Centroids Area of Moments
- Lecture 15 - Product of Inertia, Rotation of Axis and Principle Moments of Inertia
- Lecture 16 - Principle Mass Moments of Inertia
- Lecture 17 - Second Moment of Mass
- Lecture 18 - Virtual Work of Ideal System
- Lecture 19 - Principle of Virtual Work
- Lecture 20 - Systems with Friction
- Lecture 21 - Potential Energy
- Lecture 22 - Stability of Equilibrium
- Lecture 23 - Kinematics of a Particles
- Lecture 24 - Kinematics of a Particle Moving on a Curve
- Lecture 25 - Relative Motion
- Lecture 26 - Plane Kinematics of Rigid Bodies
- Lecture 27 - Kinematics of a Particle
- Lecture 28 - Work and Energy
- Lecture 29 - Impulse and Momentum

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Direct and Oblique Impulse
- Lecture 31 - Plane Kinetics of Rigid Bodies
- Lecture 32 - Kinetics of a Body
- Lecture 33 - Method of Momentum and Analysis of Robot Manipulator
- Lecture 34 - Kinematics in 3D
- Lecture 35 - Kinetics in 3D
- Lecture 36 - Free Vibration
- Lecture 37 - Forced Vibration Damped Undamped
- Lecture 38 - Vibration of Rigid Bodies - Part 1
- Lecture 39 - Vibration of Rigid Bodies - Part 2
- Lecture 40 - Some Problems of Vibration

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Mechanical Vibrations

Subject Co-ordinator - Prof. S.K. Dwivedy, Prof. Rajiv Tiwari

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of the Course, Practical and Research Trends
- Lecture 2 - Harmonic and Periodic Motions, Vibration Terminology
- Lecture 3 - Vibration Model, Equation of Motion-Natural Frequency
- Lecture 4 - Energy Method, Principle of Virtual Work
- Lecture 5 - Viscously Damped Free Vibration Special Cases
- Lecture 6 - Logarithmic Decrement Experimental Determination of Damping Coefficient Hysteresis Loop
- Lecture 7 - Coulomb Damping other Damping Models
- Lecture 8 - Forced Harmonic Vibration, Magnification Factor
- Lecture 9 - Laplace Transform, Superposition Theorem
- Lecture 10 - Rotor Unbalance and Whirling of Shaft, Transmissibility
- Lecture 11 - Support Motion, Vibration Isolation
- Lecture 12 - Sharpness of Resonance, Vibration Measuring Instruments
- Lecture 13 - Generalized and Principle Coordinates, Derivation of Equation of Motion
- Lecture 14 - Lagranges's Equation
- Lecture 15 - Coordinate Coupling
- Lecture 16 - Forced Harmonic Vibration
- Lecture 17 - Tuned Absorber, Determination of Mass Ratio
- Lecture 18 - Tuned and Damped Absorber, Untuned Viscous Damper
- Lecture 19 - Derivation of Equations of Motion, Influence Coefficient Method
- Lecture 20 - Properties of Vibrating Systems
- Lecture 21 - Modal Analysis
- Lecture 22 - Modal Analysis
- Lecture 23 - Simple Systems With One Two or Three Discs Geared System
- Lecture 24 - Multi-Degree of Freedom Systems-Transfer Matrix Method Branched Systems
- Lecture 25 - Derivation of Equations of Motion Part 1 - Newton
- Lecture 26 - Derivation of Equations of Motion Part 2 - Newton
- Lecture 27 - Vibration of Strings
- Lecture 28 - Longitudinal and Torsional Vibration of Rods
- Lecture 29 - Transverse Vibration of Beams, Equations of Motion and Boundary Conditions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transverse Vibration of Beams
- Lecture 31 - Rayleigh's Energy Method
- Lecture 32 - Matrix Iteration Method
- Lecture 33 - Durkerley, Rayleigh-Ritz and Galerkin Method
- Lecture 34 - Finite Element Formulation for Rods, Gear Train and Branched System
- Lecture 35 - Finite Element Formulation for Beams
- Lecture 36 - Global Finite Element Assembly and Imposition of Boundary Conditions
- Lecture 37 - Vibration Testing Equipments
- Lecture 38 - Vibration Testing Equipments
- Lecture 39 - Field Balancing of Rotors
- Lecture 40 - Condition Monitoring

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Advanced Machining Processes

Subject Co-ordinator - Prof. Manas Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to advanced machining processes

Lecture 2 - Ultrasonic machining - Part I

Lecture 3 - Ultrasonic machining - Part II

Lecture 4 - Abrasive jet machining

Lecture 5 - Water jet cutting and Abrasive water jet machining

Lecture 6 - Magnetic abrasive finishing

Lecture 7 - Abrasive Flow Finishing

Lecture 8 - Magnetorheological Finishing

Lecture 9 - Magnetorheological Abrasive Flow Finishing - Part I

Lecture 10 - Magnetorheological Abrasive Flow Finishing - Part II

Lecture 11 - Magnetorheological Abrasive Flow Finishing - Part III

Lecture 12 - Electric discharge machining (EDM)

Lecture 13 - Electric Discharge Grinding, Electric Discharge Diamond Grinding and Wire Electric Discharge Machining

Lecture 14 - Electrochemical Machining (ECM)

Lecture 15 - Electrochemical Grinding, Electrostream Drilling, Shaped Tube Electrolytic Machining

Lecture 16 - Plasma Arc Machining (PAM)

Lecture 17 - Electron Beam Machining (EBM) Edit Lesson

Lecture 18 - Laser Beam Machining (LBM)

Lecture 19 - Chemical Machining (ChM)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Nuclear Power Generation

Subject Co-ordinator - Prof. Dipankar N. Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of nuclear energy
- Lecture 2 - Binding energy and mass defect
- Lecture 3 - Radioactivity and radioactive decay
- Lecture 4 - Different types of nuclear transmutation
- Lecture 5 - Artificial radioactivity and neutron-nucleus interactions
- Lecture 6 - Energy and momentum conservation
- Lecture 7 - Fission and role of neutron energy
- Lecture 8 - Theory of elastic scattering
- Lecture 9 - Neutron multiplication factor
- Lecture 10 - Neutron diffusion theory
- Lecture 11 - Solution of one-group diffusion equation
- Lecture 12 - Simple reactor theory
- Lecture 13 - Nuclear fuel and simple energy consideration
- Lecture 14 - Axial temperature distribution and heat transfer coefficient
- Lecture 15 - Prompt and delayed neutrons
- Lecture 16 - Delayed neutron kinetics
- Lecture 17 - Different control mechanisms and various effects
- Lecture 18 - Classical reactor designs
- Lecture 19 - Evolution of reactors from Gen-I to Gen-IV
- Lecture 20 - The concept of breeding
- Lecture 21 - Fuel cycles and FBR
- Lecture 22 - Gen-IV FBR designs
- Lecture 23 - Hydrogen fusion reactions
- Lecture 24 - Coulomb barrier and other critical factors
- Lecture 25 - Radiation dose and gross biological effects
- Lecture 26 - Stochastic and deterministic effects of human cells
- Lecture 27 - Lessons from TMI and Chernobyl
- Lecture 28 - Defence-in-depth Philosophy
- Lecture 29 - Waste classification and Disposal of Mill Tailings

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Disposal methodologies for HLW and IMW

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Advances in Welding and Joining Technologies

Subject Co-ordinator - Prof. Swarup bag

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Welding and Joining - Part I
- Lecture 2 - Fundamentals of Welding and Joining - Part II
- Lecture 3 - Fundamentals of Welding and Joining - Part III
- Lecture 4 - Fundamentals of Welding and Joining - Part IV
- Lecture 5 - Fundamentals of Welding and Joining - Part V
- Lecture 6 - Laser and Electron Beam Welding - Part I
- Lecture 7 - Laser and Electron Beam Welding - Part II
- Lecture 8 - Solid State Welding Processes - Part I
- Lecture 9 - Solid State Welding Processes - Part II
- Lecture 10 - Solid State Welding Processes - Part III
- Lecture 11 - Computational Welding Mechanics - Part I
- Lecture 12 - Computational Welding Mechanics - Part II
- Lecture 13 - Computational Welding Mechanics - Part III
- Lecture 14 - Micro and Nano Joining Processes - Part I
- Lecture 15 - Micro and Nano Joining Processes - Part II
- Lecture 16 - Micro and Nano Joining Processes - Part III
- Lecture 17 - Welding Metallurgy - Part I
- Lecture 18 - Welding Metallurgy - Part II
- Lecture 19 - Welding Metallurgy - Part III
- Lecture 20 - Welding Metallurgy - Part IV
- Lecture 21 - Welding and Joining of Non-Metals - Part I
- Lecture 22 - Welding and Joining of Non-Metals - Part II
- Lecture 23 - Metal Transfer in Welding and Metal Printing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Machining and Machining Fluids

Subject Co-ordinator - Prof. Mamilla Ravi Sankar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction and Importance of Machining
- Lecture 3 - Principles of Machining or Metal Cutting
- Lecture 4 - Cutting Tools
- Lecture 5 - Forces in Machining
- Lecture 6 - Tribology in Machining
- Lecture 7 - Lubrication surface roughness in Machining
- Lecture 8 - Machinability and Thermal Aspects
- Lecture 9 - Tool Wear and Tool life - Part 1
- Lecture 10 - Tool Wear and Tool life - Part 2
- Lecture 11 - Tool Wear and Tool life - Part 3
- Lecture 12 - Tool Materials and Coatings
- Lecture 13 - Machining Fluids / Cutting Fluids and its Additives - Part 1
- Lecture 14 - Machining Fluids / Cutting Fluids and its Additives - Part 2
- Lecture 15 - Machining Fluids / Cutting Fluids and its Emissions
- Lecture 16 - Eco Friendly Cutting Fluids - Part 1
- Lecture 17 - Eco Friendly Cutting Fluids - Part 2
- Lecture 18 - Rheology and Thermal Characterization of Machining / Cutting Fluids
- Lecture 19 - Bio-degradation Studies of Machining / Cutting Fluids
- Lecture 20 - Cutting Fluid Application in Machining Region
- Lecture 21 - Practical Machining Processes - 1
- Lecture 22 - Practical Machining Processes - 2
- Lecture 23 - Introduction to Abrasive Processes - Grinding
- Lecture 24 - Cutting fluids in Grinding Process
- Lecture 25 - Unbonded Conventional Abrasive Processes
- Lecture 26 - Advances in Metal Cutting\_Machining Processes
- Lecture 27 - Advances in Metal Cutting\_Machining Processes - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Mechanics of Machining

Subject Co-ordinator - Dr. Uday S. Dixit

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Deformation of Metals

Lecture 2 - Mechanism of Plastic Deformation

Lecture 3 - Machining Processes

Lecture 4 - Tool Geometry

Lecture 5 - Tool Specifications, Conversion Of Tool Angles, Multi-Point Cutting Tools

Lecture 6 - Mechanics of Orthogonal Cutting, Force Relationships

Lecture 7 - Determination of Stress, Strain, and Strain Rate

Lecture 8 - Measurement of Shear Angle

Lecture 9 - Other Analysis for Force Relationships

Lecture 10 - Mechanics of Oblique Cutting

Lecture 11 - Measurement of Cutting Forces

Lecture 12 - Thermal Aspects Of Machining

Lecture 13 - Tool Wear and Tool Life and Tool Life Equations

Lecture 14 - Economics in Machining

Lecture 15 - Practical Machining Operations

Lecture 16 - Practical Machining Operations

Lecture 17 - Grinding of Metals and Mechanics of Grinding Process

Lecture 18 - Abrasive Machining and Finishing Operations

Lecture 19 - CNC Machines and CNC Programming

Lecture 20 - Introduction to Advanced Machining Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Principle of Hydraulic Machines and System Design

Subject Co-ordinator - Prof. Pranab K. Mondal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to hydraulic machines
- Lecture 2 - Euler equation for turbomachines
- Lecture 3 - Velocity triangles of pumps, effect of inlet swirl on velocity triangles
- Lecture 4 - Pump casing, efficiencies, problems
- Lecture 5 - H-Q Curve, System resistance Curve
- Lecture 6 - Stodola slip model, problems - I
- Lecture 7 - Stodola slip model, problems - II
- Lecture 8 - Stodola slip model, problems - III
- Lecture 9 - NPSH
- Lecture 10 - Radial flow pump testing
- Lecture 11 - Degrees of reaction
- Lecture 12 - Radial equilibrium of axial flow machines - I
- Lecture 13 - Radial equilibrium of axial flow machines - II
- Lecture 14 - Pumps operation
- Lecture 15 - Pumps operation
- Lecture 16 - Affinity laws, specific speed - Part I
- Lecture 17 - Affinity laws, specific speed - Part II
- Lecture 18 - Pumping system design - 1
- Lecture 19 - Pumping system design - 2
- Lecture 20 - Pumping system design - 3
- Lecture 21 - Positive displacement pump, indicator diagram - I
- Lecture 22 - Positive displacement pump, indicator diagram - II
- Lecture 23 - Characteristic H-Q curve of positive displacement pump, problems
- Lecture 24 - Hydraulic Turbine
- Lecture 25 - Impulse Turbine
- Lecture 26 - Impulse Turbine
- Lecture 27 - Reaction Turbine
- Lecture 28 - Reaction Turbine
- Lecture 29 - Degrees of Reaction and Efficiency of Hydraulic Turbine

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Hydraulic Turbine

Lecture 31 - Cavitation in Hydraulic Turbine

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Abrasive Machining and Finishing Processes

Subject Co-ordinator - Prof. Mamilla Ravi Sankar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Abrasive Machining and Finishing Processes
- Lecture 2 - Grinding Process
- Lecture 3 - Grinding Fluids and Its Additives
- Lecture 4 - Grinding Fluids and its Emissions
- Lecture 5 - Sustainable Grinding Process
- Lecture 6 - Sustainable Grinding Process
- Lecture 7 - Honing Process
- Lecture 8 - Lapping Process
- Lecture 9 - Super Finishing and Sand Blasting
- Lecture 10 - Vibratory Bowl Finishing, Rotary Barrel Finishing or Tumbling
- Lecture 11 - Drag Finishing, Ice-bonded Abrasive Finishing, Pitch Polishing, Pad Polishing
- Lecture 12 - Introduction to Surface Texture in abrasive Process
- Lecture 13 - Representation of Surface Roughness
- Lecture 14 - Abrasive Jet Machining (AJM)
- Lecture 15 - Abrasive Water Jet Machining (AWJM)
- Lecture 16 - Ultrasonic Machining (USM)
- Lecture 17 - EDM, Wire-EDM, EDG, EDDG, AW-EDG
- Lecture 18 - Elastic Emission Machining
- Lecture 19 - PMEDM and ECD and ELID, ECH
- Lecture 20 - Abrasive Flow Finishing
- Lecture 21 - Abrasive Flow Finishing
- Lecture 22 - Magnetic Field Assisted Abrasive Finishing
- Lecture 23 - Magneto Rheological Finishing and BE-MRF
- Lecture 24 - Magnetic Field Assisted Abrasive Finishing
- Lecture 25 - Summary of the Course

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Theory of Rectangular Plates - Part 1

Subject Co-ordinator - Prof. Poonam Kumari

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic of Solid Mechanics

Lecture 2 - Energy Principles

Lecture 3 - Classification of Plate Theories and Some Basics

Lecture 4 - Tutorial

Lecture 5 - Governing Equation for Plate - 1

Lecture 6 - Governing Equation for Plate - 2

Lecture 7 - Tutorial

Lecture 8 - Navier Solution + Levy solution

Lecture 9 - Levy Solution

Lecture 10 - Tutorial

Lecture 11 - EKM and buckling of plates

Lecture 12 - 3D Solutions

Lecture 13 - Matlab Coding + ABAQUS

Lecture 14 - Tutorial



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Acoustics

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Intro, sound wave versus vibration, different types of waves, octave, music scales, sense of SPL  
Lecture 2 - Review  
Lecture 3 - Review  
Lecture 4 - Review  
Lecture 5 - 1-D wave equation, and its solution  
Lecture 6 - Solution for 1-D wave equation  
Lecture 7 - Waveguides, transmission line equations, and standing waves  
Lecture 8 - Waveguides, transmission line equations, and standing waves  
Lecture 9 - Examples of 1-D waves in tubes, short tubes, Kundt's tube  
Lecture 10 - Thermodynamic processes during sound transmission  
Lecture 11 - Numerical examples  
Lecture 12 - Sound transmission through walls  
Lecture 13 - Sound transmission through walls  
Lecture 14 - Leakage in walls, STC Ratings, Octave bands  
Lecture 15 - Instantaneous power flow  
Lecture 16 - Radial propagation of sound, monopoles, and dipoles  
Lecture 17 - Radial propagation of sound, monopoles, and dipoles  
Lecture 18 - Radial propagation of sound, monopoles, and dipoles  
Lecture 19 - Numerical examples  
Lecture 20 - Numerical examples  
Lecture 21 - Directivity  
Lecture 22 - Directivity  
Lecture 23 - Directivity  
Lecture 24 - Directivity  
Lecture 25 - Generalized elements  
Lecture 26 - Examples of electromechanical systems  
Lecture 27 - Transformers, radiation impedance, and Helmholtz resonator  
Lecture 28 - Radiation impedance  
Lecture 29 - Radiation impedance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Models of electro-mechanical-acoustic systems
- Lecture 31 - Solution for a loudspeaker model
- Lecture 32 - Microphones
- Lecture 33 - Vibro-meter, seismometer, accelerometer, shaker table
- Lecture 34 - Sound propagation in rooms, 1-D rooms, 2D rooms
- Lecture 35 - Sound in 3-D rooms
- Lecture 36 - Absorption coefficient, and irregular rooms
- Lecture 37 - Room constant, and Sabine's coefficient
- Lecture 38 - Design of a muffler
- Lecture 39 - Noise in machines, basics of noise management

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced Machining Processes

Subject Co-ordinator - Prof. Vijay K. Jain

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Advanced Machining Processes  
Lecture 2 - Advanced Machining Processes  
Lecture 3 - Advanced Machining Processes  
Lecture 4 - Advanced Machining Processes  
Lecture 5 - Advanced Machining Processes  
Lecture 6 - Advanced Machining Processes  
Lecture 7 - Advanced Machining Processes  
Lecture 8 - Advanced Machining Processes  
Lecture 9 - Advanced Machining Processes  
Lecture 10 - Advanced Machining Processes  
Lecture 11 - Advanced Machining Processes  
Lecture 12 - Advanced Machining Processes  
Lecture 13 - Advanced Machining Processes  
Lecture 14 - Advanced Machining Processes  
Lecture 15 - Advanced Machining Processes  
Lecture 16 - Advanced Machining Processes  
Lecture 17 - Advanced Machining Processes  
Lecture 18 - Advanced Machining Processes  
Lecture 19 - Advanced Machining Processes  
Lecture 20 - Advanced Machining Processes  
Lecture 21 - Advanced Machining Processes  
Lecture 22 - Advanced Machining Processes  
Lecture 23 - Advanced Machining Processes  
Lecture 24 - Advanced Machining Processes  
Lecture 25 - Advanced Machining Processes  
Lecture 26 - Advanced Machining Processes  
Lecture 27 - Advanced Machining Processes  
Lecture 28 - Advanced Machining Processes  
Lecture 29 - Advanced Machining Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Advanced Machining Processes
- Lecture 31 - Advanced Machining Processes
- Lecture 32 - Advanced Machining Processes
- Lecture 33 - Advanced Machining Processes
- Lecture 34 - Advanced Machining Processes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Biomicroelectromechanical systems

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10 (same as 9)

Lecture 11

Lecture 12 (Lecture Missing)

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25

Lecture 26

Lecture 27

Lecture 28

Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Computer Aided Engineering Design

Subject Co-ordinator - Dr. Anupam Saxena

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Mathematical Methods in Engineering and Science

Subject Co-ordinator - Dr. Bhaskar Dasgupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Basic Ideas of Applied Linear Algebra
- Lecture 3 - Systems of Linear Equations
- Lecture 4 - Square Non-Singular Systems
- Lecture 5 - Ill-Conditioned and Ill-Posed Systems
- Lecture 6 - The Algebraic Eigenvalue Problem
- Lecture 7 - Canonical Forms, Symmetric Matrices
- Lecture 8 - Methods of Plane Rotations
- Lecture 9 - Householder Method, Tridiagonal Matrices
- Lecture 10 - QR Decomposition, General Matrices
- Lecture 11 - Singular Value Decomposition
- Lecture 12 - Vector Space
- Lecture 13 - Multivariate Calculus
- Lecture 14 - Vector Calculus in Geometry
- Lecture 15 - Vector Calculus in Physics
- Lecture 16 - Solution of Equations
- Lecture 17 - Introduction to Optimization
- Lecture 18 - Multivariate Optimization
- Lecture 19 - Constrained Optimization
- Lecture 20 - Constrained Optimization
- Lecture 21 - Interpolation
- Lecture 22 - Numerical Integration
- Lecture 23 - Numerical Solution of ODE's as IVP
- Lecture 24 - Boundary Value Problems, Question of Stability in IVP Solution
- Lecture 25 - Stiff Differential Equations, Existence and Uniqueness Theory
- Lecture 26 - Theory of First Order ODE's
- Lecture 27 - Linear Second Order ODE's
- Lecture 28 - Methods of Linear ODE's
- Lecture 29 - ODE Systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Stability of Dynamic Systems
- Lecture 31 - Series Solutions and Special Functions
- Lecture 32 - Sturm-Liouville Theory
- Lecture 33 - Approximation Theory and Fourier Series
- Lecture 34 - Fourier Integral to Fourier Transform, Minimax Approximation
- Lecture 35 - Separation of Variables in PDE's, Hyperbolic Equations
- Lecture 36 - Parabolic and Elliptic Equations, Membrane Equation
- Lecture 37 - Analytic Functions
- Lecture 38 - Integration of Complex Functions
- Lecture 39 - Singularities and Residues
- Lecture 40 - Calculus of Variations

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Dynamics of Machines

Subject Co-ordinator - Prof. Amitabha Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Rigid Body Motion - Part 1
- Lecture 2 - Rigid Body Motion - Part 2
- Lecture 3 - Dynamic Force Analysis of Mechanisms
- Lecture 4 - Space Motion of Rigid Bodies
- Lecture 5 - Inertia Tensor Angular Momentum
- Lecture 6 - Euler's Equation of Motion
- Lecture 7 - Gyroscopic Action in Machines
- Lecture 8 - Unbalance in Machines
- Lecture 9 - Rotary Balancing
- Lecture 10 - Balancing Machines
- Lecture 11 - Field Balancing of Rotors
- Lecture 12 - Single-Cylinder Engine Balancing
- Lecture 13 - Balancing of Single Slider Machines
- Lecture 14 - In-Line Engine Balancing
- Lecture 15 - V and Radial Engine Balancing
- Lecture 16 - Turning Moment Diagram
- Lecture 17 - Flywheel Analysis
- Lecture 18 - Dynamics of Machines
- Lecture 19 - Dynamics of Machines
- Lecture 20 - Dynamics of Machines
- Lecture 21 - Dynamics of Machines
- Lecture 22 - Dynamics of Machines
- Lecture 23 - Dynamics of Machines
- Lecture 24 - Dynamics of Machines
- Lecture 25 - Dynamics of Machines
- Lecture 26 - Dynamics of Machines
- Lecture 27 - Dynamics of Machines
- Lecture 28 - Dynamics of Machines
- Lecture 29 - Rotating Vector Approach

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equivalent viscous damping
- Lecture 31 - Dynamics of Machines
- Lecture 32 - Systems with two degree of freedom
- Lecture 33 - Tuned Vibration Absorber
- Lecture 34 - Design of Vibration Absorbers
- Lecture 35 - Flexibility Matrix Influence Coeff
- Lecture 36 - Forced Vibration of multiple
- Lecture 37 - Forced Vibration of Multiple degrees
- Lecture 38 - Vibration of Continuous Systems
- Lecture 39 - Vibration of Continuous Systems
- Lecture 40 - Vibration of Beams
- Lecture 41 - Rayleigh's method
- Lecture 42 - Rayleigh-Ritz Method
- Lecture 43 - Vibration Measurement
- Lecture 44 - Vibration Measurement Types of Pickups

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Finite Element Method

Subject Co-ordinator - Prof. C.S. Upadhyay

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module 1 - Lecture 1  
Module 1 - Lecture 2  
Module 1 - Lecture 3  
Module 2 - Lecture 1  
Module 2 - Lecture 2  
Module 2 - Lecture 3  
Module 2 - Lecture 4  
Module 3 - Lecture 1  
Module 3 - Lecture 2  
Module 3 - Lecture 3  
Module 4 - Lecture 1  
Module 4 - Lecture 2  
Module 4 - Lecture 3  
Module 5 - Lecture 1  
Module 5 - Lecture 2  
Module 5 - Lecture 3  
Module 6 - Lecture 1  
Module 6 - Lecture 2  
Module 6 - Lecture 3  
Module 7 - Lecture 1  
Module 7 - Lecture 2  
Module 7 - Lecture 3  
Module 7 - Lecture 4  
Module 8 - Lecture 1  
Module 8 - Lecture 2  
Module 8 - Lecture 3  
Module 9 - Lecture 1  
Module 9 - Lecture 2  
Module 9 - Lecture 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Module 10 - Lecture 1  
Module 10 - Lecture 2  
Module 11 - Lecture 1  
Module 11 - Lecture 2  
Module 12 - Lecture 1  
Module 13 - Lecture 1  
Module 13 - Lecture 2  
Module 14 - Lecture 1  
Module 14 - Lecture 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Kinematics of Machines

Subject Co-ordinator - Prof. Ashok K Mallik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module 1 - Lecture 1  
Module 1 - Lecture 2  
Module 1 - Lecture 3  
Module 2 - Lecture 1  
Module 2 - Lecture 2  
Module 2 - Lecture 3  
Module 3 - Lecture 1  
Module 3 - Lecture 2  
Module 3 - Lecture 3  
Module 3 - Lecture 4  
Module 4 - Lecture 1  
Module 4 - Lecture 2  
Module 5 - Lecture 1  
Module 5 - Lecture 2  
Module 5 - Lecture 3  
Module 6 - Lecture 1  
Module 6 - Lecture 2  
Module 6 - Lecture 3  
Module 7 - Lecture 1  
Module 7 - Lecture 2  
Module 7 - Lecture 3  
Module 8 - Lecture 1  
Module 8 - Lecture 2  
Module 9 - Lecture 1  
Module 9 - Lecture 2  
Module 9 - Lecture 3  
Module 9 - Lecture 4  
Module 10 - Lecture 1  
Module 10 - Lecture 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Module 10 - Lecture 3  
Module 11 - Lecture 1  
Module 11 - Lecture 2  
Module 11 - Lecture 3  
Module 12 - Lecture 1  
Module 12 - Lecture 2  
Module 12 - Lecture 3  
Module 13 - Lecture 1  
Module 13 - Lecture 2  
Module 13 - Lecture 3



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced manufacturing process for micro sytem fabrication

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lab session 1 - Advanced manufacturing process for micro sytem fabrication

Lab session 2 - EDM Micro Machening

Lab session 3 - EDM Micro Drilling

Lab session 4 - Laser Machening Process

Lab session 5 - Vaccume Assisted Forming

Lab session 6 - Vaccume Forming

Lab session 7 - Photolithiography

Lab session 8 - Replication part 1

Lab session 9 - Replication part 2

Lab session 10 - PCB Making

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Engineering Drawing (Dr. Anupam Saxena)

Subject Co-ordinator - Dr. Anupam Saxena

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lab Session 1

Lab Session 2

Lab Session 3

Lab Session 4

Lab Session 5

Lab Session 6

Lab Session 7

Lab Session 8

Lab Session 9

Lab Session 10

Lab Session 11

Lab Session 12

Lecture 1 - Technical Arts 101

Lecture 2 - Technical Arts 101

Lecture 3 - Technical Arts 101

Lecture 4 - Technical Arts 101

Lecture 5 - Technical Arts 101

Lecture 6 - Technical Arts 101

Lecture 7 - Technical Arts 101

Lecture 8 - Technical Arts 101

Lecture 9 - Technical Arts 101

Lecture 10 - Technical Arts 101

Lecture 11 - Technical Arts 101

Lecture 12 - Technical Arts 101

Lecture 13 - Technical Arts 101

Lecture 14 - Technical Arts 101

Lecture 15 - Technical Arts 101

Lecture 16 - Technical Arts 101

Lecture 17 - Technical Arts 101

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 18 - Technical Arts 101  
Lecture 19 - Technical Arts 101  
Lecture 20 - Technical Arts 101  
Lecture 21 - Technical Arts 101  
Lecture 22 - Technical Arts 101  
Lecture 23 - Technical Arts 101  
Lecture 24 - Technical Arts 101  
Lecture 25 - Technical Arts 101  
Lecture 26 - Technical Arts 101  
Lecture 27 - Technical Arts 101  
Lecture 28 - Technical Arts 101

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:BioMEMS and Microsystems

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1  
Lecture 2 - Lecture 2  
Lecture 3 - Lecture 3  
Lecture 4 - Review Lecture 1,2,3  
Lecture 5 - Lecture 4  
Lecture 6 - Lecture 5  
Lecture 7 - Lecture 6  
Lecture 8 - Review Lecture 4,5,6  
Lecture 9 - Lecture 7  
Lecture 10 - Lecture 8  
Lecture 11 - Lecture 9-10  
Lecture 12 - Lecture-11  
Lecture 13 - Lecture-12  
Lecture 14 - Lecture-13  
Lecture 15 - Lecture-14  
Lecture 16 - Lecture-15  
Lecture 17 - Lecture-16  
Lecture 18 - Lecture-17  
Lecture 19 - Lecture-18  
Lecture 20 - Lecture-19  
Lecture 21 - Review Lecture 7 to 10  
Lecture 22 - Review Lecture 11 to 13  
Lecture 23 - Review Lecture 14 to 16  
Lecture 24 - Lecture-20  
Lecture 25 - Lecture-21  
Lecture 26 - Lecture-22  
Lecture 27 - Lecture-23  
Lecture 28 - Lecture-24  
Lecture 29 - Lecture-25

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Review Lecture 17,18,19  
Lecture 31 - Review Lecture 20,21,22  
Lecture 32 - Lecture-26  
Lecture 33 - Lecture-27  
Lecture 34 - Lecture-28  
Lecture 35 - Lecture-29  
Lecture 36 - Lecture-30  
Lecture 37 - Lecture-31  
Lecture 38 - Lecture-32  
Lecture 39 - Lecture-33  
Lecture 40 - Review lecture 23,24,25  
Lecture 41 - Review lecture 26,27,28  
Lecture 42 - Review lecture 29 to 33

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing Systems Technology

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44  
Lecture 45  
Lecture 46  
Lecture 47  
Lecture 48



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing Systems Technology - Part II

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Quality systems engineering  
Lecture 2 - Quality systems engineering  
Lecture 3 - Quality systems engineering  
Lecture 4 - Quality systems engineering  
Lecture 5 - Quality systems engineering  
Lecture 6 - Quality systems engineering  
Lecture 7 - Cost of quality and statistical quality control  
Lecture 8 - Cost of quality and statistical quality control  
Lecture 9 - Cost of quality and statistical quality control  
Lecture 10 - Cost of quality and statistical quality control  
Lecture 11 - Cost of quality and statistical quality control  
Lecture 12 - Cost of quality and statistical quality control  
Lecture 13 - Cost of quality and statistical quality control  
Lecture 14 - Cost of quality and statistical quality control  
Lecture 15 - Cost of quality and statistical quality control  
Lecture 16 - Cost of quality and statistical quality control  
Lecture 17 - Cost of quality and statistical quality control  
Lecture 18 - Cost of quality and statistical quality control  
Lecture 19 - Robotic systems planning and designing  
Lecture 20 - Robotic systems planning and designing  
Lecture 21 - Robotic systems planning and designing  
Lecture 22 - Robotic systems planning and designing  
Lecture 23 - Robotic systems planning and designing  
Lecture 24 - Robotic systems planning and designing  
Lecture 25 & 26 - Robotic systems planning and designing  
Lecture 27 - Robotic systems planning and designing  
Lecture 28 - Robotic systems planning and designing  
Lecture 29 - Robotic systems planning and designing  
Lecture 30 - Robotic systems planning and designing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Basics of Finite Element Analysis

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Finite Element Analysis(FEA)
- Lecture 2 - Introduction of FEA, Nodes, Elements and Shape Functions
- Lecture 3 - Nodes, Elements and Shape Functions
- Lecture 4 - Polynomials as Shape Functions, Weighted Residuals, Elements and Assembly Level Equations
- Lecture 5 - Types of Errors in FEA, Overall FEA Process and Convergence
- Lecture 6 - Strengths of FE Method, Continuity conditions at Interfaces
- Lecture 7 - Key concepts and terminologies
- Lecture 8 - Weighted integral statements
- Lecture 9 - Integration by parts - Review
- Lecture 10 - Gradient and Divergence Theorems-Part - I
- Lecture 11 - Gradient and Divergence Theorems Part - II
- Lecture 12 - Functionals
- Lecture 13 - Variational Operator
- Lecture 14 - Weighted Integral and Weak Formulation
- Lecture 15 - Weak Formulation
- Lecture 16 - Weak Formulation and Weighted Integral
- Lecture 17 - Variational Methods
- Lecture 18 - Rayleigh Ritz Method
- Lecture 19 - Method of Weighted Residuals
- Lecture 20 - Different types of Weighted Residual Methods - Part I
- Lecture 21 - Different types of Weighted Residual Methods - Part II
- Lecture 22 - FEA formulation for 2nd order BVP - Part I
- Lecture 23 - FEA formulation for 2nd order BVP - Part II
- Lecture 24 - Element Level Equations
- Lecture 25 - 2nd Order Boundary Value Problem
- Lecture 26 - Assembly of element equations
- Lecture 27 - Assembly of element equations and implementation of boundary conditions
- Lecture 28 - Assembly process and the connectivity matrix
- Lecture 29 - Radially Symmetric Problems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - One dimensional heat transfer
- Lecture 31 - 1D-Heat conduction with convective effects
- Lecture 32 - Euler-Bernoulli beam
- Lecture 33 - Interpolation functions for Euler-Bernoulli beam
- Lecture 34 - Finite element equations for Euler-Bernoulli beam
- Lecture 35 - Assembly equations for Euler-Bernoulli beam
- Lecture 36 - Boundary conditions for Euler-Bernoulli beam
- Lecture 37 - Shear deformable beams
- Lecture 38 - Finite element formulation for shear deformable beams
- Lecture 39 - Finite element formulation for shear deformable beams
- Lecture 40 - Equal interpolation but reduced integration element
- Lecture 41 - Eigenvalue problems
- Lecture 42 - Eigenvalue problems
- Lecture 43 - Introduction to time dependent problems
- Lecture 44 - Spatial approximation
- Lecture 45 - Temporal approximation for parabolic problems
- Lecture 46 - Temporal approximation for parabolic problems
- Lecture 47 - Temporal approximation for hyperbolic problems
- Lecture 48 - Explicit and implicit method, diagonalization of mass matrix, closure

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Basics of Noise and Its Measurements

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Vibration versus Waves
- Lecture 3 - Nature of Sound
- Lecture 4 - The Decibel Scale
- Lecture 5 - Some Key Terms
- Lecture 6 - Adding Decibels
- Lecture 7 - Modeling Sound Propagation
- Lecture 8 - The Momentum Equation
- Lecture 9 - The Continuity Equation and The Gas Law
- Lecture 10 - 1-D Wave Equation
- Lecture 11 - General Solution for 1-D Wave Equation
- Lecture 12 - Complex Time Signal and Transfer Functions
- Lecture 13 - Transmission line equations
- Lecture 14 - Planar Waves in Closed Tubes
- Lecture 15 - Planar Waves in 1-D Open Tubes
- Lecture 16 - A Semi-Infinite Tube and Overall Summary
- Lecture 17 - 1-D Tubes with Imperfect Terminations
- Lecture 18 - Measuring Impedance Through Kundt's Apparatus
- Lecture 19 - Classification of Microphones
- Lecture 20 - Classification of Microphones - Continuation
- Lecture 21 - Classification of Microphones by Application
- Lecture 22 - Microphone Sensitivity
- Lecture 23 - Microphone Sensitivity- Continuation
- Lecture 24 - Selecting the Right Microphone
- Lecture 25 - Fourier Series Expansion
- Lecture 26 - Fourier Series Expansion - Continuation
- Lecture 27 - Fourier Integral
- Lecture 28 - Fourier Integral - Continuation
- Lecture 29 - Fourier Transform

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fourier Transform - Continuation
- Lecture 31 - Discrete Fourier Transform (DFT)
- Lecture 32 - Discrete Fourier Transform (DFT) - Continuation
- Lecture 33 - DFT - Calculating Frequencies and Padding
- Lecture 34 - DFT - Influence of Duration and Sampling frequency on resolution
- Lecture 35 - FFT and Inverse FFT
- Lecture 36 - Considerations while deciding instrumentation
- Lecture 37 - Considerations while selecting instruments for noise measurements
- Lecture 38 - Measuring impedance through two microphone method
- Lecture 39 - Designing an impedance measurement tube
- Lecture 40 - Octave band analysis
- Lecture 41 - Calculating results in octave bands
- Lecture 42 - Weighting
- Lecture 43 - Short time Fourier transforms (STFT)
- Lecture 44 - Spectrograms
- Lecture 45 - Reverberation time
- Lecture 46 - Anechoic rooms
- Lecture 47 - STC, NRC and sound attenuation
- Lecture 48 - Reverberant rooms

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing Process Technology - Part I

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Manufacturing Process Tecnology
- Lecture 2 - Structure of Matter (Bonding of Solids, Crystal Structures)
- Lecture 3 - Brief introduction of non-conventional machining processes
- Lecture 4 - Structure of matters (bonding of solids, crystal structures)
- Lecture 5 - Elastic and Plastic Deformation
- Lecture 6 - Crystal imperfection and dislocation
- Lecture 7 - Plastic Deformation
- Lecture 8 - Material Properties, Stress Strain Diagram for differnt types of materials
- Lecture 9 - Friction and Wear, Solid solutions
- Lecture 10 - Equilibrium Phase Diagram
- Lecture 11 - Iron-carbon equilibrium phase diagram
- Lecture 12 - Control of material properties (Alloying and heat treatment), Mechanical properties and Recrysta
- Lecture 13 - Introduction To Casting Process
- Lecture 14 - Pattern and Mold Design
- Lecture 15 - Mold Making Procedures
- Lecture 16 - Fundamentals of Melting and Furnaces & Pouring and Gating Design
- Lecture 17 - Vertical and Bottom Gating Systems Edit Lesson
- Lecture 18 - Numerical Estimation To Find Mold Filling Time and Mold Design
- Lecture 19 - Effects of friction and velocity distribution in time of filling
- Lecture 20 - Numerical design of gating systems using frictional and bending losses
- Lecture 21 - Principle of cooling and solidification in single and multiphase systems
- Lecture 22 - Estimation of rate of solidification
- Lecture 23 - Principles of cooling and solidification of casting
- Lecture 24 - Modeling of Solidification Rates of Thin Casting in a Metal Mold
- Lecture 25 - Solidification with Predominant Interface Resistance
- Lecture 26 - Solidification with Constant Casting Surface Temperature
- Lecture 27 - Solidification of Casting with Predominant Resistance in Mold and Solidified Metal
- Lecture 28 - Solidification Time for Permanent Mold Casting
- Lecture 29 - Solidification with Constant Casting Surface

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Riser Design and Placement - Part 1
- Lecture 31 - Riser Design and Placement - Part 2
- Lecture 32 - Riser Design and Placement - Part 3
- Lecture 33 - Introduction of Machining Processes
- Lecture 34 - Review of Basic Machining Processes and the Mechanics of Chip Formation
- Lecture 35 - Estimation of Cutting Ratio and Shear Angle
- Lecture 36 - Merchant's Force Analysis
- Lecture 37 - Merchant Theory (Cutting Forces Analysis)
- Lecture 38 - Merchant Theory (Force analysis) Part-2
- Lecture 39 - Lee Shaffer's Solution
- Lecture 40 - Specific Energy Model for Cutting
- Lecture 41 - Modeling of Heat Generation and Cutting Tool Temperature
- Lecture 42 - Temperature in Cutting and Builtup Edge Formation
- Lecture 43 - Metal Cutting Operation
- Lecture 44 - Tool life and Tool wear
- Lecture 45 - Economics of Machining
- Lecture 46 - Joining Process
- Lecture 47 - Principle of Solid State Welding
- Lecture 48 - Numerical Design of Welding Power Sources in Arc Welding

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Nature and Property of Materials

Subject Co-ordinator - Prof. Bishakh Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - History and Evolution of Materials
- Lecture 2 - Classification of Materials
- Lecture 3 - Advanced and Exotic Materials
- Lecture 4 - Mechanical Properties of Materials - I
- Lecture 5 - Mechanical Properties of Materials - II
- Lecture 6 - Mechanical Properties of Materials - III
- Lecture 7 - Bonding between atoms
- Lecture 8 - The Role of Crystal Structure - I
- Lecture 9 - The Role of Crystal Structure - II
- Lecture 10 - The Role of Crystal Structure - III
- Lecture 11 - Metals - I (Ferrous alloys)
- Lecture 12 - Metals - II (Non-Ferrous alloys)
- Lecture 13 - Metals - III (Strengthening and Degradation)
- Lecture 14 - Ceramics - I
- Lecture 15 - Ceramics - II
- Lecture 16 - Polymers
- Lecture 17 - Polymeric Structure
- Lecture 18 - Effects of Glass transition temperature
- Lecture 19 - Polymer Mechanical properties
- Lecture 20 - Composites - I
- Lecture 21 - Composites - II
- Lecture 22 - Composites - III
- Lecture 23 - Smart Materials - I (Introduction)
- Lecture 24 - Smart Materials - II (Piezoelectricity)
- Lecture 25 - Smart Materials - III (Magnetostriction)
- Lecture 26 - Smart Materials - IV (Smart Polymers)
- Lecture 27 - Smart Materials - V (SMA)
- Lecture 28 - Materials Selection in Engineering Design
- Lecture 29 - Numerical

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- Lecture 30 - Numerical
- Lecture 31 - Numerical
- Lecture 32 - Numerical
- Lecture 33 - Optical Properties
- Lecture 34 - Optical Fiber
- Lecture 35 - Thermal Properties
- Lecture 36 - Numerical
- Lecture 37 - Electric Properties - I
- Lecture 38 - Electric Properties - II
- Lecture 39 - Magnetic Properties
- Lecture 40 - Laboratory demonstration

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing Process Technology - Part II

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Advanced Machining Processes
- Lecture 2 - Classification of Machining Processes
- Lecture 3 - Silicon growth and Crystallography
- Lecture 4 - Micro Fabrication Technology
- Lecture 5 - Photolithography
- Lecture 6 - Soft Lithography
- Lecture 7 - Introduction to Wet Etching Techniques
- Lecture 8 - Introduction to Dry Etching Techniques
- Lecture 9 - Introduction of Additive Techniques
- Lecture 10 - Introduction to Abrasive Jet Machining Process
- Lecture 11 - Ultrasonic Machining Process
- Lecture 12 - Determination of MRR of Ultrasonic Machining Process
- Lecture 13 - Mechanics of Ultrasonic Machining (USM)
- Lecture 14 - Effect of Process parameters of USM
- Lecture 15 - Ultrasonic Machining Unit
- Lecture 16 - Electrochemical Machining Processes (ECM)
- Lecture 17 - Material Removal Rate of ECM
- Lecture 18 - Electrode Double Layer
- Lecture 19 - Material removal rate of an alloy in ECM
- Lecture 20 - Kinematics and Dynamics of ECM
- Lecture 21 - Temperature and Pressure rise during ECM
- Lecture 22 - Determination of Electrolyte flow velocity in ECM
- Lecture 23 - Effect of heat and Hydrogen bubble generation during ECM Process
- Lecture 24 - Theoretical determination of Tool shape
- Lecture 25 - Design for Electrolyte flow in ECM
- Lecture 26 - Introductions of Electro-chemical Drilling Process
- Lecture 27 - Introduction to Finishing Process
- Lecture 28 - Electric Discharge Machining Process
- Lecture 29 - EDM part-2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Effect of various process parameters on EDM process
- Lecture 31 - Analysis of RC circuit for EDM
- Lecture 32 - Electrodischarge machining system
- Lecture 33 - Effect of various parameters on EDM Process
- Lecture 34 - Tool Electrodes and Dielectric fluids and Electron Beam Machining
- Lecture 35 - Mechanics of Electron Beam Machining Process
- Lecture 36 - Functional Characteristics of EBM Process Edit Lesson
- Lecture 37 - Introduction of Laser Beam Machining Process
- Lecture 38 - Material removal rate of LBM
- Lecture 39 - Heat conduction and Temperature rise during LBM
- Lecture 40 - Modelling of LBM processes
- Lecture 41 - Metal forming Processes Edit Lesson
- Lecture 42 - Yield Criterion used in Metal Forming Processes Edit Lesson
- Lecture 43 - Concept of Principal stress, strain
- Lecture 44 - Trescas' Yield criteria and Rolling Process
- Lecture 45 - Rolling Processes - Part 1
- Lecture 46 - Rolling Processes - Part 2
- Lecture 47 - Additive Manufacturing Processes
- Lecture 48 - Fused Deposition Modeling Process

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Basics of Finite Element Analysis - II

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of the Course
- Lecture 2 - Fundamental principles
- Lecture 3 - Steps followed in FEA
- Lecture 4 - Weak Formulation
- Lecture 5 - Weak Formulation
- Lecture 6 - Assembling element level equations
- Lecture 7 - Errors in FEA Solution
- Lecture 8 - Measures of Errors in FEA Solution
- Lecture 9 - Convergence and Accuracy of Solution - Part I
- Lecture 10 - Convergence and Accuracy of Solution - Part II
- Lecture 11 - Convergence - Part I
- Lecture 12 - Convergence - Part II
- Lecture 13 - Numerical Integration Schemes - Part I
- Lecture 14 - Numerical Integration Schemes - Part II
- Lecture 15 - Approximations - Part I
- Lecture 16 - Approximations - Part II
- Lecture 17 - Approximations - Part III
- Lecture 18 - Gauss Quadrature
- Lecture 19 - Gaussian Quadrature review
- Lecture 20 - Gaussian Quadrature - Part II
- Lecture 21 - Gaussian Quadrature - Part III
- Lecture 22 - Newton-Cotes Quadrature
- Lecture 23 - Two dimensional FEM problem
- Lecture 24 - Two dimensional one variable FEM problem
- Lecture 25 - 2D Finite element problems with single variable (Model equation)
- Lecture 26 - 2D Finite element problems with single variable (Weak formulation)
- Lecture 27 - Elemental level 2D finite element equations
- Lecture 28 - Interpolation functions for 2D finite element problems
- Lecture 29 - Interpolation functions for linear triangular elements - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interpolation functions for linear triangular elements - Part II
- Lecture 31 - Interpolation functions for Triangular and Rectangular elements
- Lecture 32 - Evaluation of Stiffness and Force matrices
- Lecture 33 - Stiffness and Force matrices for Triangular element
- Lecture 34 - Stiffness and Force matrices for Rectangular element
- Lecture 35 - Boundary elements for Finite element Equations
- Lecture 36 - Boundary integrals for Triangular element
- Lecture 37 - Assembly of 2-D finite elements - Part I
- Lecture 38 - Assembly of 2-D finite elements - Part II
- Lecture 39 - 2-D Heat transfer problems - Part I
- Lecture 40 - 2-D Heat transfer problems - Part II
- Lecture 41 - Numerical integration schemes for 2-D problems
- Lecture 42 - Jacobian and transformation matrix for 2-D problems
- Lecture 43 - Numerical Integration Schemes for 2-D Problems
- Lecture 44 - Post-processing
- Lecture 45 - Plane Elasticity Problems
- Lecture 46 - Plane Elasticity Problems
- Lecture 47 - Plane Elasticity Problems
- Lecture 48 - Plane Elasticity Problems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Principles of Vibration Control

Subject Co-ordinator - Prof. Bishakh Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Vibration control
- Lecture 2 - Strategies and Steps in Vibration Control
- Lecture 3 - Strategies, Active control, Detuning and Decoupling
- Lecture 4 - Viscous damping model
- Lecture 5 - Coulomb and Hysteretic damping model
- Lecture 6 - Energy Dissipation in Structural Materials
- Lecture 7 - Material Selection Criterion against Damping
- Lecture 8 - Design for Enhanced Material Damping
- Lecture 9 - Linear Viscoelastic Materials and Models
- Lecture 10 - Maxwell and 3-Parameter Models
- Lecture 11 - Complex modulus and Applications of VEM
- Lecture 12 - Basics of Dynamic Vibration Absorber
- Lecture 13 - Modelling of Dynamic Vibration Absorber
- Lecture 14 - Proof mass Actuator
- Lecture 15 - Springs for Vibration Isolation
- Lecture 16 - Introduction to Active Vibration Control
- Lecture 17 - Basics of Classical Control System
- Lecture 18 - Basics of State Space Control
- Lecture 19 - Controllability and Observability of System
- Lecture 20 - Full State Feedback Control
- Lecture 21 - SMSS Laboratory Demonstration

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Acoustics

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lesson 1 - Course Overview  
Lecture 2 - Lesson 2 - Introduction  
Lecture 3 - Lesson 3 - Nature Of Sound  
Lecture 4 - Lesson 4 - The Decibel scale  
Lecture 5 - Lesson 5 - Key Terms In Acoustics  
Lecture 6 - Lesson 6 - Adding Decibels  
Lecture 7 - Lesson 1 - Important Mathematical Concepts-Complex Algebra  
Lecture 8 - Lesson 2 - Important Mathematical Concepts-Complex Time Signals  
Lecture 9 - Lesson 3 - Important Mathematical Concepts-Transfer Function  
Lecture 10 - Lesson 4 - Important Mathematical Concepts-Pole Zero Plot  
Lecture 11 - Lesson 5 - Important Mathematical Concepts - Bode Plot For Simple Pole  
Lecture 12 - Lesson 6 - Important Mathematical Concepts - Bode Plot For Simple Zero  
Lecture 13 - Lesson 1 - Bode Plots (Magnitude) for Complex Transfer Functions  
Lecture 14 - Lesson 2 - Momentum Equation for 1-D Sound Propagation  
Lecture 15 - Lesson 3 - Continuity Equation for 1-D Sound Propagation  
Lecture 16 - Lesson 4 - Gas Law for 1-D Sound Propagation  
Lecture 17 - Lesson 5 - 1-D Wave Equation  
Lecture 18 - Lesson 6 - Solution for 1-D Wave Equation  
Lecture 19 - Lesson 1 - Waveguide  
Lecture 20 - Lesson 2 - Transmission Line Equations - Part I  
Lecture 21 - Lesson 3 - Transmission Line Equations - Part II  
Lecture 22 - Lesson 4 - Transmission Line Equations - Part III  
Lecture 23 - Lesson 5 - Transmission Line Equations - Part IV  
Lecture 24 - Lesson 6 - Transmission Line Equations - Part V  
Lecture 25 - Lesson 1 - Instantaneous Power  
Lecture 26 - Lesson 2 - Instantaneous Power in a L-R Circuit  
Lecture 27 - Lesson 3 - Power Factor, and Acoustic Power  
Lecture 28 - Lesson 4 - Power Flow into an Infinitely Long Tube  
Lecture 29 - Lesson 5 - Point Sources of Sound

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lesson 6 - Relations for Outward Travelling Spherical Acoustic Wave
- Lecture 31 - Lesson 1 - Specific Acoustic Impedance for a Closed Tube
- Lecture 32 - Lesson 2 - Specific Acoustic Impedance for an Open Tube and an Infinitely Long Tube
- Lecture 33 - Lesson 3 - Specific Acoustic Impedance for a Tube with Imperfect Termination
- Lecture 34 - Lesson 4 - Kundt's Tube
- Lecture 35 - Lesson 5 - Volume Velocity
- Lecture 36 - Lesson 6 - Comparison of Impedances for a Radially Propagating Wave and a Planar Wave
- Lecture 37 - Lesson 1 - Interference of sound sources - Part I
- Lecture 38 - Lesson 2 - Interference of sound sources - Part II
- Lecture 39 - Lesson 3 - Interference of sound sources - Part III
- Lecture 40 - Lesson 4 - Interference of sound sources - Part IV
- Lecture 41 - Lesson 5 - Directivity
- Lecture 42 - Lesson 6 - Complex power, pressure and velocity for a spherical source
- Lecture 43 - Lesson 1 - Noise reduction - Mass Attenuation Method
- Lecture 44 - Lesson 2 - Noise Reduction - Pressure Ratio
- Lecture 45 - Lesson 3 - Noise Reduction - Velocity of Wall
- Lecture 46 - Lesson 4 - 3 Media Problem - Introduction
- Lecture 47 - Lesson 5 - 3 Media Problem - Apply Boundary Conditions
- Lecture 48 - Lesson 6 - 3 Media Problem - Special cases
- Lecture 49 - Lesson 1 - Mufflers
- Lecture 50 - Lesson 2 - Designing of Reactive Mufflers
- Lecture 51 - Lesson 3 - Designing of Dissipative Mufflers
- Lecture 52 - Lesson 4 - Time and Frequency Domain Representation of a Signal
- Lecture 53 - Lesson 5 - Fourier Series
- Lecture 54 - Lesson 6 - Fourier Series
- Lecture 55 - Lesson 1 - Fourier Transform
- Lecture 56 - Lesson 2 - Fourier Transform
- Lecture 57 - Lesson 3 - Fourier Transform
- Lecture 58 - Lesson 4 - Discrete Fourier Transform (DFT)
- Lecture 59 - Lesson 5 - Discrete Fourier Transform (DFT)
- Lecture 60 - Lesson 6 - Discrete Fourier Transform (DFT)
- Lecture 61 - Lesson 1 - Measuring Sound Signals
- Lecture 62 - Lesson 2 - Microphones
- Lecture 63 - Lesson 3 - Microphones
- Lecture 64 - Lesson 4 - Weighting
- Lecture 65 - Lesson 5 - Loudness
- Lecture 66 - Lesson 6 - Loudness
- Lecture 67 - Lesson 1 - Octave Band Analysis - Part I
- Lecture 68 - Lesson 2 - Octave Band Analysis - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Lesson 3 - Octave Band Analysis & Part III
- Lecture 70 - Lesson 4 - Reverberation Time
- Lecture 71 - Lesson 5 - Calculation of Reverberation Time and Sound Transmission Class (STC)
- Lecture 72 - Lesson 6 - Noise Reduction Coefficient (NRC)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Heat Treatment and Surface Hardening - II

Subject Co-ordinator - Dr. Kallol Mondal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Recap - I

Lecture 2 - Recap - II

Lecture 3 - Recap - III

Lecture 4 - Determination of Phase Diagram (Experimentally) - I

Lecture 5 - Determination of Phase Diagram (Experimentally) - II

Lecture 6 - Determination of Phase Diagram (Thermodynamically)

Lecture 7 - Effect of pressure on phase transformation temperature and concept of equilibrium between condens

Lecture 8 - Effect of different parameters on heat treatment and concept of saturation vapor pressure with ex

Lecture 9 - Title

Lecture 10 - G-X diagrams (Part- II) and concept of chemical potential (Micro Sign) from G-X diagrams.

Lecture 11 - Concept of common tangent for equilibrium between two phases

Lecture 12 - Expressions for equilibrium of two phases - I

Lecture 13 - Expressions for equilibrium of two phases - II

Lecture 14 - Expressions for equilibrium of two phases - III

Lecture 15 - Determining nucleation of phases using G-X plot

Lecture 16 -  $\hat{I} G$  for nucleation and overall transformation, concepts of solid state transformation including

Lecture 17 - Introduction to real solutions and expression of  $\hat{I} H_{mix}$  based on the Quasi-Chemical Model (QCM)

Lecture 18 - Expression for  $\hat{I} H_{mix}$  as a function of interaction energy and mole fraction, based on the QCM -

Lecture 19 - Expression for  $\hat{I} H_{mix}$  as a function of interaction energy and mole fraction, based on the QCM -

Lecture 20 - Graphical representation of  $\hat{I} G_{mix}$ ,  $\hat{I} H_{mix}$ , and  $-T\hat{I} S_{mix}$  for real solutions and evolution of eut

Lecture 21 - Effect of  $\hat{I} H_{mix}$  on determination of phase diagrams (same crystal structure)

Lecture 22 - Effect of  $\hat{I} H_{mix}$  on determination of phase diagrams (Continued...)

Lecture 23 - Importance of phase diagrams

Lecture 24 - Effect of heat treatment on microstructure evolution in steel - I

Lecture 25 - Effect of heat treatment on microstructure evolution in steel - II

Lecture 26 - Recap of homogeneous and heterogeneous nucleation for solid to solid transformation

Lecture 27 - Nucleation rate and its dependence on T (temp. of interest),  $\hat{I} T$ ,  $\hat{I} G_v$  and  $\hat{I} G^*$  and, introducti

Lecture 28 - Growth kinetics (Continued...)

Lecture 29 - Growth rate variation with undercooling and kinetics of overall phase transformation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Implication of Avrami's equation with example on excel spreadsheet
- Lecture 31 - Experimental verification of Avrami Equation
- Lecture 32 - Linear regression (least squares) method to find the value of n and k in Avrami equation
- Lecture 33 - In this lecture, method to determine the goodness of fit has been explained. Procedure to estimate
- Lecture 34 - Stereology and quantitative metallography - I
- Lecture 35 - Stereology and quantitative metallography - II
- Lecture 36 - Grain size measurements methods
- Lecture 37 - Statistical tools for analysis and reporting of obtained data with examples
- Lecture 38 - Evolution of TTT and CCT diagram from f vs. t plots
- Lecture 39 - TTT, CCT continue and hardenability of steel
- Lecture 40 - Importance of heat treatment practices in real life (with examples)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Phase Transformation in Materials

Subject Co-ordinator - Dr. Krishanu Biswas

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Brief Introduction

Lecture 2 - Define Phase, Equilibrium

Lecture 3 - Free Energy, Stability of Phases

Lecture 4 - Gibbs Free Energy of Binary Solution

Lecture 5 - Ideal Solution and Chemical Potential

Lecture 6 - Thermodynamics of solid solutions

Lecture 7 - G vs X curves

Lecture 8 - Solid solutions

Lecture 9 - Heterogeneous phase equilibria

Lecture 10 - G vs X curves for eutectic system

Lecture 11 - G-X plot for peritectic system

Lecture 12 - Effect of temperature of solid solubility, Influence of interfaces on Equilibrium

Lecture 13 - Introduction of Diffusion

Lecture 14 - Mechanism of Diffusion, Fick's I law

Lecture 15 - Fick's II law

Lecture 16 - Fick's II law (Continued...), Diffusion and Temperature

Lecture 17 - Interfacial Free Energy, Solid/Vapor Interface

Lecture 18 - Boundaries in single phase solids

Lecture 19 - High angle grain boundaries, Equilibrium in poly-crystalline materials, Interphase interfaces in

Lecture 20 - Interphase interfaces in solids (Continued...)

Lecture 21 - CSL Boundaries

Lecture 22 - Types of Nucleations

Lecture 23 - Homogeneous Nucleation

Lecture 24 - Homogeneous Nucleation (Continued...)

Lecture 25 - Heterogeneous Nucleation

Lecture 26 - Heterogeneous nucleation (Continued...)

Lecture 27 - Growth

Lecture 28 - Atomic mechanism of growth

Lecture 29 - Dendritic Solidification

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Growth rate for dendrite formation
- Lecture 31 - Alloy solidification
- Lecture 32 - Alloy solidification (Continued...)
- Lecture 33 - Eutectic
- Lecture 34 - Eutectic
- Lecture 35 - Solidification of casting / ingot
- Lecture 36 - Precipitation hardenable alloy
- Lecture 37 - Precipitation age- hardening alloy (Continued...)
- Lecture 38 - Age hardening alloy
- Lecture 39 - Eutectoid transformation
- Lecture 40 - Eutectoid transformation (Continued...)
- Lecture 41 - Eutectoid transformation in steel (Continued...)
- Lecture 42 - Martensite
- Lecture 43 - Martensite (Continued...)
- Lecture 44 - Martensite (Continued...) and TTT curves
- Lecture 45 - TTT diagram
- Lecture 46 - Recovery, Recrystallization and Grain growth
- Lecture 47 - Recovery
- Lecture 48 - Recrystallization
- Lecture 49 - Recrystallization (Continued...)
- Lecture 50 - Introduction to spinodal decomposition

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing of Composites

Subject Co-ordinator - Prof. J. Ramkumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Composites
- Lecture 2 - Matrices
- Lecture 3 - Fiber reinforcements
- Lecture 4 - Fiber reinforcements (Continued...)
- Lecture 5 - Composites properties
- Lecture 6 - Composites testing
- Lecture 7 - Selection of material
- Lecture 8 - Selection of material (Continued...)
- Lecture 9 - Design for Manufacturing
- Lecture 10 - Design for Manufacturing (Continued...)
- Lecture 11 - Composite Manufacturing Processes
- Lecture 12 - Filament winding Processes
- Lecture 13 - Resin transfer moulding
- Lecture 14 - Pultrusion
- Lecture 15 - Compression Moulding Process
- Lecture 16 - Vacuum Impregnation Methods
- Lecture 17 - Stacking of Composites
- Lecture 18 - Thermoplastic Composites Manufacturing Processes - Part 1
- Lecture 19 - Thermoplastic Composites Manufacturing Processes - Part 2 (Continued...)
- Lecture 20 - Non-destructive testing methods for composite materials
- Lecture 21 - Metal Matrix Composites
- Lecture 22 - Metal Matrix Composites applications (Continued...)
- Lecture 23 - Processing of Metal Matrix Composites - Part 1
- Lecture 24 - Processing of Metal Matrix Composites - Part 2
- Lecture 25 - Ceramic Matrix Composites
- Lecture 26 - Fabrication of Ceramic Matrix Composites (CMCs)
- Lecture 27 - Carbon - Carbon Composites
- Lecture 28 - Polymer Matrix and Nano Composites
- Lecture 29 - Machining of Composites

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Repair of Composites

Lecture 31 - Manufacturing Processes

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Applied Ergonomics

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Work Systems
- Lecture 31 - Measures of Productivity
- Lecture 32 - Productivity Measurement
- Lecture 33 - Work Study
- Lecture 34 - Motion and time study
- Lecture 35 - (Missing)
- Lecture 36 - (Missing)
- Lecture 37 - (Missing)
- Lecture 38 - (Missing)
- Lecture 39 - (Missing)
- Lecture 40 - Industrial accidents
- Lecture 41 - Human Errors
- Lecture 42 - Workers compensation laws
- Lecture 43 - Organisation Ergonomics - Part 1
- Lecture 44 - Organisation Ergonomics - Part 2
- Lecture 45 - Job Satisfaction
- Lecture 46 - Worker behavior

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Sustainability through Green Manufacturing Systems - An App

Subject Co-ordinator - Dr. Deepu Philip, Dr. Amandeep Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basics of Production

Lecture 2 - Basics of Production (Continued...)

Lecture 3 - Sustainability and Manufacturing

Lecture 4 - Introduction to Simulation

Lecture 5 - Introduction to Simulation (Continued...)

Lecture 6 - Basic Statistical Concepts for Sustainable Manufacturing Analysis

Lecture 7 - Basic Statistical Concepts for Sustainable Manufacturing Analysis (Continued...)

Lecture 8 - Life Cycle Assessment

Lecture 9 - Life Cycle Assessment Elements

Lecture 10 - Life Cycle Assessment Procedure

Lecture 11 - Life Cycle Assessment (Continued...)

Lecture 12 - Sustainability Framework

Lecture 13 - Basic Modeling Concepts for Factory Simulation

Lecture 14 - Basic Modeling Concepts for Factory Simulation (Continued...)

Lecture 15 - Green Manufacturing Modelling

Lecture 16 - Green Manufacturing Modelling (Continued...) Indices for Green Manufacturing

Lecture 17 - Green Manufacturing Modelling (Continued...) Developing Green Manufacturing System

Lecture 18 - Productivity and Sustainability

Lecture 19 - Productivity and Sustainability (Continued...)

Lecture 20 - Green Manufacturing Techniques

Lecture 21 - Green Manufacturing Techniques (Continued...)

Lecture 22 - Renewable Sources of Energy

Lecture 23 - Renewable Sources of Energy (Continued...)

Lecture 24 - Renewable energy in India and Industrial Symbiosis

Lecture 25 - Demonstration of Various Instruments Used for Green Machining

Lecture 26 - Laboratory demonstration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Noise Management and Control

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview  
Lecture 2 - Introduction  
Lecture 3 - Nature Of Sound  
Lecture 4 - Beats  
Lecture 5 - The Decibel Scale  
Lecture 6 - Key Terms in Acoustics  
Lecture 7 - Decibel Scale - Part 1  
Lecture 8 - Decibel Scale - Part 2  
Lecture 9 - Decibel Scale - Part 3  
Lecture 10 - Complex Numbers  
Lecture 11 - Complex Time Function  
Lecture 12 - Linear Systems  
Lecture 13 - Transfer Functions  
Lecture 14 - Introduction to One Dimensional Wave Equation  
Lecture 15 - The Momentum Equation  
Lecture 16 - The Continuity Equation and The Gas Law  
Lecture 17 - One Dimensional Wave Equation  
Lecture 18 - Solution for One Dimensional Wave Equation  
Lecture 19 - Transmission Line Equations  
Lecture 20 - One Dimensional Example Problems  
Lecture 21 - Impedance  
Lecture 22 - Pressure Wave Travels in a Closed Tube  
Lecture 23 - Standing Wave Formation in a Closed Tube With Rigid Termination  
Lecture 24 - Pressure Wave Travels in an Open Tube  
Lecture 25 - 1-D sound wave propagation  
Lecture 26 - 1-D sound wave propagation  
Lecture 27 - Radially propagating sound waves in spherical coordinate system - I  
Lecture 28 - Radially propagating sound waves in spherical coordinate system - II  
Lecture 29 - Complex impedance for radially propagating sound waves in spherical coordinate system

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Volume velocity - I
- Lecture 31 - Interference of 1-D spherically propagating sound waves - I
- Lecture 32 - Interference of 1-D spherically propagating sound waves - II
- Lecture 33 - Noise sources and introduction to microphones
- Lecture 34 - Classification of microphones - I
- Lecture 35 - Classification of microphones - II
- Lecture 36 - Classification of microphones - III
- Lecture 37 - Microphone Parameters
- Lecture 38 - Understanding microphone specifications
- Lecture 39 - Noise Source
- Lecture 40 - Noise Source
- Lecture 41 - Noise Source
- Lecture 42 - Noise Source
- Lecture 43 - Noise Source
- Lecture 44 - Noise Source
- Lecture 45 - Measuring Sound Power Level - Understanding standard octave bands
- Lecture 46 - Measuring Sound Power Level - Fan noise - Part I
- Lecture 47 - Measuring Sound Power Level - Fan noise - Part II
- Lecture 48 - Measuring Sound Power Level - Fan noise - Part III
- Lecture 49 - Weighting
- Lecture 50 - Noise coming from Motors
- Lecture 51 - Noise coming from Motors and Pumps
- Lecture 52 - Noise coming from Pump and Motor Working Simultaneously
- Lecture 53 - Noise coming from Compressors
- Lecture 54 - Example problems regarding Noise coming from Compressor
- Lecture 55 - Noise Spread Mechanisms
- Lecture 56 - Reverberation time
- Lecture 57 - Reverberation time example problem
- Lecture 58 - Noise from Adjacent Room
- Lecture 59 - Acoustic Enclosures
- Lecture 60 - Acoustic Enclosures - Example Problems
- Lecture 61 - Large acoustical enclosures - I
- Lecture 62 - Large acoustical enclosures - II
- Lecture 63 - Acoustic barriers - I
- Lecture 64 - Acoustic barriers - II
- Lecture 65 - Acoustic barriers - III
- Lecture 66 - Helmholtz resonator - I

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Design Practice

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Brief introduction of Design systems  
Lecture 2 - Product Development  
Lecture 3 - Basic protocols of industrial design  
Lecture 4 - Design thinking and innovation  
Lecture 5 - Brain Storming  
Lecture 6 - Design prototyping  
Lecture 7 - Generic Phases of the Design  
Lecture 8 - Configurational Design Aspects  
Lecture 9 - Concurrent Engineering  
Lecture 10 - Concurrent Engineering - 2  
Lecture 11 - Concurrent Engineering Approaches  
Lecture 12 - Concurrent Engineering Approaches - 2  
Lecture 13 - Benefits of concurrent engineering  
Lecture 14 - Concurrent engineering environment influencing dimensions  
Lecture 15 - Concurrent engineering environment influencing dimensions - 2  
Lecture 16 - Program and product Interface dimensions in Concurrent engineering  
Lecture 17 - Product Development Methodology  
Lecture 18 - Elements of concurrent engineering  
Lecture 19 - Business relationships in concurrent engineering  
Lecture 20 - Organizational elements in concurrent engineering  
Lecture 21 - Techniques for the Implementation of concurrent engineering environment  
Lecture 22 - Average quality loss  
Lecture 23 - Robustness in Design  
Lecture 24 - Robustness in Design - 2  
Lecture 25 - Material selection in Engineering design  
Lecture 26 - Material selection in Engineering Design.  
Lecture 27 - Basic steps in Material Selection Process  
Lecture 28 - Design of Work Systems  
Lecture 29 - Motion Study

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Axiomatic Design
- Lecture 31 - Introduction to group technology
- Lecture 32 - Failure Mode Effect Analysis

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Composites

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition of the composite materials
- Lecture 2 - Composite materials and its applications
- Lecture 3 - Classification of the composite materials
- Lecture 4 - What Makes fiber so strong?
- Lecture 5 - Advantages and limitations of composite materials
- Lecture 6 - Properties of the composite materials.
- Lecture 7 - Different Types of Fiber
- Lecture 8 - Production process and different types of Glass Fiber
- Lecture 9 - Graphite Fibers
- Lecture 10 - Aramid and Boron Fibers
- Lecture 11 - Ceramic Fibers
- Lecture 12 - Matrix - Properties and classifications
- Lecture 13 - Polymers as matrix material and its classification
- Lecture 14 - Thermosets and thermoplastics
- Lecture 15 - Properties of thermosets and thermoplastics
- Lecture 16 - Thermoset materials and its production methods
- Lecture 17 - Thermoplastics and metals as matrix materials
- Lecture 18 - Ceramic and carbon matrices
- Lecture 19 - What is a good fabrication process of a composite?
- Lecture 20 - Fabrication of Thermoset Composites
- Lecture 21 - Hand Lay-Up Process
- Lecture 22 - Bag Molding Process
- Lecture 23 - Resin Transfer Molding Process
- Lecture 24 - Fabrication of Thermoplastic, Metal and Ceramic Matrix based Composites
- Lecture 25 - Terminologies and basic concepts
- Lecture 26 - Orthotropic material
- Lecture 27 - Modeling of unidirectional composites
- Lecture 28 - Composite density as a function of mass fraction and volume fraction
- Lecture 29 - Calculation of longitudinal modulus for unidirectional composites

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Failure modes of unidirectional composite
- Lecture 31 - Failure of Unidirectional Lamina
- Lecture 32 - Minimum Volume Fraction and Critical Volume Fraction
- Lecture 33 - Example based on Failure of Composite Material
- Lecture 34 - Example based on Minimum and Critical Volume Fraction
- Lecture 35 - Transverse Modulus of Unidirectional Composite
- Lecture 36 - Halpin-Tsai Relation for Transverse Modulus
- Lecture 37 - Transverse modulus of unidirectional composites
- Lecture 38 - Transverse strength of unidirectional composites
- Lecture 39 - Poisson's ratio of unidirectional composites
- Lecture 40 - Failure modes of composite materials
- Lecture 41 - Failure modes of composite materials
- Lecture 42 - Other properties
- Lecture 43 - Concept of Tensor
- Lecture 44 - Stress Transformation (Two Dimensional)
- Lecture 45 - Analysis of Specially Orthotropic Lamina
- Lecture 46 - Analysis of Generally Orthotropic Lamina
- Lecture 47 - Transformation of Engineering Constants - Part I
- Lecture 48 - Transformation of Engineering Constants - Part II
- Lecture 49 - Variation of elastic constants with respect to fiber orientation for generally orthotropic lamina
- Lecture 50 - Generally orthotropic lamina
- Lecture 51 - Generalized Hooke's law for anisotropic materials
- Lecture 52 - Generalized Hooke's law for anisotropic materials
- Lecture 53 - Elastic constants for Specially orthotropic materials
- Lecture 54 - Elastic constants for Specially orthotropic materials in plane stress
- Lecture 55 - Relation Between Engineering Constants and Elements of Stiffness and Compliance Matrices - Part I
- Lecture 56 - Relation Between Engineering Constants and Elements of Stiffness and Compliance Matrices - Part II
- Lecture 57 - Stress Strain Relations for A Lamina With Arbitrary Orientation - Part I
- Lecture 58 - Stress- Strain Relation for A Lamina With Arbitrary Orientation - Part II
- Lecture 59 - Strength of An Orthotropic Lamina
- Lecture 60 - Importance of Sign of Shear Stress in context of Strength of A Unidirectional Lamina
- Lecture 61 - Strain displacement relations for a laminate
- Lecture 62 - Stress-strain relations for individual layers of a laminate
- Lecture 63 - Resultant forces and moments
- Lecture 64 - Relations between force and moment resultants and mid-plane strains and curvatures
- Lecture 65 - Physical significance of extensional stiffness matrix [A], coupling matrix [B] and bending stiffness matrix [D]
- Lecture 66 - Lamination sequence (standard laminate code)
- Lecture 67 - Calculation of A, B and D Matrices.
- Lecture 68 - Simplification of Stiffness Matrices - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Simplification of Stiffness Matrices - Part II
- Lecture 70 - Quasi-Isotropic Laminates - Part I
- Lecture 71 - Quasi-Isotropic Laminates - Part II
- Lecture 72 - Failure of Composite Laminates

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Product Design and Manufacturing

Subject Co-ordinator - Prof. J. Ramkumar, Dr. Amandeep Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to product design and Manufacturing
- Lecture 2 - Introduction to product design and Manufacturing (Continued...)
- Lecture 3 - Fundamentals of Manufacturing towards Product Development
- Lecture 4 - Fundamentals of Manufacturing towards Product Development (Continued...)
- Lecture 5 - Engineering Design Process
- Lecture 6 - Product design morphology
- Lecture 7 - Product characteristics
- Lecture 8 - Elements of Visual Design - Part 1
- Lecture 9 - Elements of Visual Design - Part 2
- Lecture 10 - Translating Customer Needs
- Lecture 11 - Value Engineering, an introduction
- Lecture 12 - Value Engineering Methodology - Part 1
- Lecture 13 - Value Engineering Methodology - Part 2, FAST diagramming
- Lecture 14 - Value Engineering Methodology - Part 3
- Lecture 15 - Value Engineering, case study
- Lecture 16 - Materials Selection - Part 1
- Lecture 17 - Materials Selection - Part 2
- Lecture 18 - Manufacturing Process Selection - Part 1
- Lecture 19 - Manufacturing Process Selection - Part 2
- Lecture 20 - Product Costing
- Lecture 21 - Design for Manufacturing
- Lecture 22 - Design for Assembly
- Lecture 23 - Quality Control
- Lecture 24 - Patent - Part 1
- Lecture 25 - Patent - Part 2
- Lecture 26 - Rapid Prototyping, an introduction
- Lecture 27 - Rapid Prototyping Modelling
- Lecture 28 - Rapid Prototyping Processes - Part 1
- Lecture 29 - Rapid Prototyping Processes - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Plant Layout Planning - Part 1
- Lecture 31 - Plant Layout Planning - Part 2
- Lecture 32 - Managing Competitiveness

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Phase Equilibria in Materials - Nature and Properties of Ma

Subject Co-ordinator - Dr. Ashish Garg

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Thermodynamics

Lecture 2 - Basic Thermodynamics

Lecture 3 - Phase Stability in Materials

Lecture 4 - Effects of Temperature and Pressure on Single Components System

Lecture 5 - Clausius-Clapeyron Equation and Binary Solution

Lecture 6 - Calculation of Configurational Entropy

Lecture 7 - Chemical Potential

Lecture 8 - Phase Stability in Binary Solution

Lecture 9 - Activity and Thermodynamics of Regular Solution

Lecture 10 - Thermodynamic of Real Solution

Lecture 11 - Free Energy Curves and Various Systems

Lecture 12 - Solubility Limits 2-phase Co-existence

Lecture 13 - Phase Diagram Formation

Lecture 14 - Phase Diagram Construction

Lecture 15 - Phase Diagram Construction

Lecture 16 - Intermetallics and Phase Diagrams

Lecture 17 - Phase Rule

Lecture 18 - Gibb's Phase Rule

Lecture 19 - Gibb's Phase Rule

Lecture 20 - Phase Fraction Calculation in a Phase Diagram

Lecture 21 - Microstructure evolution in Cu-Ni binary system

Lecture 22 - Microstructure evolution (Continued...)

Lecture 23 - Phase evolution in hypoeutectic region

Lecture 24 - Phase evolution at Eutectic point

Lecture 25 - Phase Diagrams of Cu-Ni and Al-Si

Lecture 26 - Phase Diagrams of Pb-Sn and Fe-C

Lecture 27 - Phase Diagram of Fe-C (Continued...)

Lecture 28 - Fe-C Phase Diagram (Continued...)

Lecture 29 - Fe-C Phase Diagram (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Phase Diagrams for non-Ferrous Alloys
- Lecture 31 - Method of measuring Phase diagram
- Lecture 32 - Methods of measuring phase diagram (Continued...)
- Lecture 33 - Methods of measuring phase diagram
- Lecture 34 - Ternary Phase Diagram
- Lecture 35 - Ternary Phase Diagram (Continued...)
- Lecture 36 - Ternary system with two phases
- Lecture 37 - Ternary system with three phases
- Lecture 38 - Ternary phase diagram with 4 phases
- Lecture 39 - Application of Phases diagrams
- Lecture 40 - Summary of Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Advanced Composites

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics of composite materials
- Lecture 2 - Different type of Fibers
- Lecture 3 - Properties of single layer continuous fiber composites
- Lecture 4 - Properties of single layer continuous fiber composites
- Lecture 5 - Strength of single layer continuous fiber composites
- Lecture 6 - Strength of single layer continuous fiber composites
- Lecture 7 - Concept of Tensor
- Lecture 8 - General Anisotropic Material
- Lecture 9 - Specially Orthotropic Material
- Lecture 10 - Specially Orthotropic Material Under Plane Stress
- Lecture 11 - Stress and Strain Transformation
- Lecture 12 - Transformation of Stiffness and Compliance Matrices
- Lecture 13 - Strain - Displacement relations
- Lecture 14 - Relations for stress and strain along thickness of laminate
- Lecture 15 - Stress - Strain variation along Laminate thickness
- Lecture 16 - Force and Moment resultant - Part 1
- Lecture 17 - Force and Moment resultant - Part 2
- Lecture 18 - Important observation related to [A], [B] and [D] matrices
- Lecture 19 - Quasi-Isotropic Laminates
- Lecture 20 - Maximum Stress Theory
- Lecture 21 - Maximum Strain Theory
- Lecture 22 - Importance of Sign of Shear Stress.
- Lecture 23 - Failure Initiation in Composite Laminate.
- Lecture 24 - Progressive Failure of Laminae in A Laminate
- Lecture 25 - Governing equations for composite plates
- Lecture 26 - Force equilibrium in Z-direction
- Lecture 27 - Moment equilibrium equations
- Lecture 28 - Equilibrium equations for composite plates
- Lecture 29 - Boundary conditions associated with different edges of composite plate - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Boundary conditions associated with different edges of composite plate - Part 2
- Lecture 31 - Generalized Solution for Semi-Infinite Plate - Part I
- Lecture 32 - Generalized Solution for Semi-Infinite Plate - Part II
- Lecture 33 - Particular Solution for Semi-Infinite Plate
- Lecture 34 - Particular Solution for Semi-Infinite Plate
- Lecture 35 - Particular Solution for Semi-Infinite Plate
- Lecture 36 - Particular Solution for Semi-Infinite Plate
- Lecture 37 - Solution for governing equation related to semi-infinite composite plate
- Lecture 38 - Nature of displacement  $u_0(x)$  and how it gets influence by important parameters of lamination sequence
- Lecture 39 - Semi-infinite plate loaded in the x-direction - Part 1
- Lecture 40 - Semi-infinite plate loaded in the x-direction - Part 2
- Lecture 41 - Thermal effects in composite laminates - Part 1
- Lecture 42 - Thermal effects in composite laminates - Part 2
- Lecture 43 - Thermal effects in composite laminates - Part 3
- Lecture 44 - Finite Rectangular Plate
- Lecture 45 - Different Boundary Conditions in Finite Rectangular Plate
- Lecture 46 - Example Based On a Finite Rectangular Plate
- Lecture 47 - Example Based On a Finite Rectangular Plate
- Lecture 48 - Example Based On a Finite Rectangular Plate
- Lecture 49 - Anticlastic curvature
- Lecture 50 - Principle of virtual work
- Lecture 51 - Virtual work method
- Lecture 52 - Virtual work method
- Lecture 53 - Beam (two term solution)
- Lecture 54 - 3rd Interpretation of special Galerkin method
- Lecture 55 - Role of  $D_{16}$  and  $D_{26}$  Terms On Laminated Plate Response
- Lecture 56 - Role of  $D_{16}$  and  $D_{26}$  Terms On Laminated Plate Response
- Lecture 57 - Role of  $D_{16}$  and  $D_{26}$  Terms On Laminated Plate Response
- Lecture 58 - Role of  $D_{16}$  and  $D_{26}$  Terms On Laminated Plate Response
- Lecture 59 - Free Vibration in Composite Plate
- Lecture 60 - Free Vibration in Composite Plate
- Lecture 61 - Buckling of composite plates
- Lecture 62 - Force equilibrium in z-direction for buckling of composite plates
- Lecture 63 - Moment equilibrium around x, y and z-directions for buckling of composite plates
- Lecture 64 - Buckling of an infinitely long composite plate
- Lecture 65 - Buckling of a simply supported finite plate
- Lecture 66 - Composite plate under bidirectional compression
- Lecture 67 - Shear Buckling in Rectangular Composite Plate
- Lecture 68 - Shear Buckling in Rectangular Composite Plate

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Introduction to Short-Fiber Composites
- Lecture 70 - Theories of Stress Transfer
- Lecture 71 - Theories of Stress Transfer
- Lecture 72 - Modulus of Short-Fiber Composites and Closure



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Engineering Metrology

Subject Co-ordinator - Dr. Amandeep Singh, Prof. J. Ramkumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to measurements and metrology

Lecture 2 - Instruments in measurement systems

Lecture 3 - Instruments in measurement systems

Lecture 4 - General concepts and definitions in metrology

Lecture 5 - Standards of measurement

Lecture 6 - Limits, Fits, and Tolerances - Part 1

Lecture 7 - Limits, Fits, and Tolerances - Part 2

Lecture 8 - Limits, Fits, and Tolerances - Part 3

Lecture 9 - Limits, Fits, and Tolerances - Part 4

Lecture 10 - Linear Measurements - Part 1

Lecture 11 - Linear Measurements - Part 2

Lecture 12 - Laboratory demonstration, Vernier Caliper

Lecture 13 - Laboratory demonstration, Dial gauge and vernier, micrometer, surface plate, feeler gauge

Lecture 14 - Angular Measurements - Part 1

Lecture 15 - Angular Measurements - Part 2

Lecture 16 - Laboratory demonstration, Vernier height gauge

Lecture 17 - Laboratory demonstration, Thread gauge, spirit level

Lecture 18 - Laboratory demonstration, Combination set, slip gauges, sine bar

Lecture 19 - Comparators - Part 1

Lecture 20 - Comparators - Part 2

Lecture 21 - Transducers - Part 1

Lecture 22 - Transducers - Part 2

Lecture 23 - Screw thread metrology

Lecture 24 - Gears metrology - Part 1

Lecture 25 - Gears metrology - Part 2

Lecture 26 - Laboratory demonstration, Gear Vernier

Lecture 27 - Surface metrology

Lecture 28 - Temperature measurements

Lecture 29 - Pressure measurements - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pressure measurements - Part 2
- Lecture 31 - Strain measurements - Part 1
- Lecture 32 - Strain measurements - Part 2
- Lecture 33 - Optical measurements and Nanometrology - Part 1
- Lecture 34 - Optical measurements and Nanometrology - Part 2
- Lecture 35 - Optical measurements and Nanometrology - Part 3
- Lecture 36 - Statistics in Metrology, an introduction - Part 1
- Lecture 37 - Statistics in Metrology, an introduction - Part 2
- Lecture 38 - Data and scales in measurements
- Lecture 39 - Discrete and continuous data
- Lecture 40 - Statistics for metrology, fundamental concepts - Part 1
- Lecture 41 - Statistics for metrology, fundamental concepts - Part 2
- Lecture 42 - Statistics for metrology, fundamental concepts - Part 3
- Lecture 43 - Probability distributions for estimating measurement
- Lecture 44 - Normal distribution
- Lecture 45 - Statistics for proportions
- Lecture 46 - Chi square distribution, and Data outlier detection
- Lecture 47 - Quality Control, introduction
- Lecture 48 - Quality Control, control charts for variables
- Lecture 49 - Quality Control, control charts for attributes
- Lecture 50 - Quality Control, critical aspects
- Lecture 51 - 3D measurements, Coordinate Measuring Machine (CMM)
- Lecture 52 - Laboratory demonstration, Coordinate Measuring Machine (CMM)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Smart Materials and Intelligent System Design

Subject Co-ordinator - Prof. Bisakh Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Smart Materials
- Lecture 2 - Piezoelectric Material
- Lecture 3 - Magnetostrictive Material
- Lecture 4 - Active Smart Polymer
- Lecture 5 - Shape Memory Alloys
- Lecture 6 - Introduction to composites
- Lecture 7 - Classification of Composites
- Lecture 8 - Micromechanics and Macromechanics of Composites
- Lecture 9 - Classical Laminated Plate Theory
- Lecture 10 - ABD Matrices
- Lecture 11 - Modelling of piezoelectric material 1
- Lecture 12 - Modelling of piezoelectric material 2
- Lecture 13 - Modelling of Magnetostrictive material
- Lecture 14 - Modelling of Shape memory Alloys
- Lecture 15 - Smart Actuators
- Lecture 16 - Smart Materials based MEMS
- Lecture 17 - Smart MEMS Applications
- Lecture 18 - Energy Harvesting
- Lecture 19 - Concept of Self Healing

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Design Practice-II

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Design concepts
- Lecture 2 - Computer Aided Design (CAD)
- Lecture 3 - Geometrical transformation
- Lecture 4 - Composition of geometrical transformation
- Lecture 5 - Geometric modeling
- Lecture 6 - Representation of curves
- Lecture 7 - Parametric representation of synthetic curves
- Lecture 8 - Curve fitting problem (Hermite case)
- Lecture 9 - Problem solving (based on Bezier curve)
- Lecture 10 - Representation of Surfaces
- Lecture 11 - Introduction to Micro-Electro mechanical Systems (MEMS)
- Lecture 12 - Lab-on-Chip
- Lecture 13 - Introduction to Sensors
- Lecture 14 - Introduction to Transducers
- Lecture 15 - Introduction to device fabrications
- Lecture 16 - Introduction to Silicon as a MEMS material
- Lecture 17 - Etching processes
- Lecture 18 - Types of Photolithography
- Lecture 19 - Introduction to actuators
- Lecture 20 - Designing of the Micro-Valve
- Lecture 21 - Electrochemical valves
- Lecture 22 - Micropumps
- Lecture 23 - Designing of peristaltic pumps
- Lecture 24 - Different types of pumps and sensors
- Lecture 25 - Computer Numerical Control
- Lecture 26 - Numerical control programming
- Lecture 27 - NC part programming
- Lecture 28 - Introduction to rapid prototyping
- Lecture 29 - Different types of rapid prototyping technologies

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fused Deposition Modeling
- Lecture 31 - LAB demonstration of Fused Deposition Modelling Techniques
- Lecture 32 - LAB demonstrtion of Fused Deposition Modelling Process
- Lecture 33
- Lecture 34
- Lecture 35
- Lecture 36
- Lecture 37

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Computational Fluid Dynamics (Prof. S. Chakraborty)

Subject Co-ordinator - Prof. S. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Computational Fluid Dynamics and Principles of Conservation

Lecture 2 - Conservation of Mass and Momentum

Lecture 3 - Navier Stokes Equation (Continued.)

Lecture 4 - Energy Equation and General Structure of Conservation Equations

Lecture 5 - Classification of Partial Differential Equations and Physical Behaviour

Lecture 6 - Classification of Partial Differential Equations and Physical Behaviour (Continued.)

Lecture 7 - Approximate Solutions of Differential Equations

Lecture 8 - Approximate Solutions of Differential Equations

Lecture 9 - Weighted Residual Approach and Introduction to Discretization

Lecture 10 - Fundamentals of Discretization

Lecture 11 - Fundamentals of Discretization

Lecture 12 - Fundamentals of Discretization

Lecture 13 - Finite Volume Method

Lecture 14 - Finite Volume Method

Lecture 15 - Finite Volume Method

Lecture 16 - Important Consequences of Discretization of Unsteady State Problems

Lecture 17 - Important Consequences of Discretization of Time Dependent Diffusion Type Problems (Continued.)

Lecture 18 - Discretization of Hyperbolic Equations

Lecture 19 - PART 1

Lecture 20 - PART 1

Lecture 21 - Solution of Systems of Linear Algebraic Equations

Lecture 22 - Solution of Systems of Linear Algebraic Equations

Lecture 23 - Solution of Systems of Linear Algebraic Equations

Lecture 24 - Elimination Methods

Lecture 25 - Iterative Methods for Numerical Solution of Systems of Linear Algebraic Equations

Lecture 26 - Iterative Methods for Numerical Solution of Systems of Linear Algebraic Equations (Continued.)

Lecture 27 - Iterative Methods

Lecture 28 - PART 1

Lecture 29 - Gradient Search Methods (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discretization of Convection-Diffusion Equations
- Lecture 31 - Discretization of Convection-Diffusion Equations
- Lecture 32 - Discretization of Convection- Diffusion Equations
- Lecture 33 - Discretization of Convection -Diffusion Equations
- Lecture 34 - Discretization of Convection-Diffusion Equations
- Lecture 35 - Discretization of Navier Stokes Equations
- Lecture 36 - Discretization of Navier Stokes Equations ( Continued.)
- Lecture 37 - Discretization of Navier Stokes Equations ( Continued. )
- Lecture 38 - PART 1
- Lecture 39 - Unstructured Grid Formulation (Continued.)
- Lecture 40 - What is there in implementing a CFD Code
- Lecture 41 - Introduction to Turbulence Modeling
- Lecture 42 - Introduction to Turbulence Modeling (Continued.)
- Lecture 43 - End Semester Questions Review

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Fundamentals of Industrial Oil Hydraulics and Pneumatics

Subject Co-ordinator - Prof. R.N. Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Hydraulic and Pneumatic System
- Lecture 2 - Basic Components, Symbols and Circuits
- Lecture 3 - Incompressible Fluids - Some Fundamental Properties
- Lecture 4 - Incompressible Fluid Flow related to Fluid Drive
- Lecture 5 - Capillary Fluid (incompressible) Flow and Hydrodynamic Lubrication
- Lecture 6 - Basis for Calculating Hydraulic Systems
- Lecture 7 - Different types of Valves - Features and Operations - I
- Lecture 8 - Hydraulic Valves (General) Different types of Valves - Features and Operations - II
- Lecture 9 - Hydraulic Circuits and Valves
- Lecture 10 - Hydraulic Servomechanism and Servo and Proportional Control Valves
- Lecture 11 - Basic Spool Valve Design Analysis
- Lecture 12 - General Control Valve Analysis
- Lecture 13 - Critical Centre Spool Valve Analysis
- Lecture 14 - Critical Centre Spool Valve Analysis - Stroking Forces
- Lecture 15 - Proportional Solenoid Pilot Operated Two Stage Pressure Relief Valve
- Lecture 16 - Proportional Solenoid Pilot Operated Two Stage Pressure Relief Valve (Continued...)
- Lecture 17 - Introduction to Positive Displacement Hydrostatic Units (Hydraulic Pumps and Motors)
- Lecture 18 - Basic features of some Hydraulic Pumps and Motors
- Lecture 19 - Analysis of an axial - Piston Swash Plate type Hydrostatic Pump (Discharge Flow Characteristics)
- Lecture 20 - Analysis of an axial - Piston Swash Plate type Hydrostatic Pump (Estimation of Torque on Drive S)
- Lecture 21 - Analysis of an Axial - Piston Swash Plate type Hydrostatic unit (Pressure Ripple and Swash Plate
- Lecture 22 - Design Analysis of Gear Pumps - I
- Lecture 23 - Design Analysis of Gear Pumps - II
- Lecture 24 - Basic Concept of Hydrostatic Transmission (HST) System
- Lecture 25 - Selection of HST units and components
- Lecture 26 - Regenerative Circuits
- Lecture 27 - Introduction to Fluid Logic
- Lecture 28 - Basic Devices, Symbols and Circuits
- Lecture 29 - Logic Circuits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design Analysis of ORBIT Motor - I
- Lecture 31 - Design Analysis of ORBIT Motor - II
- Lecture 32 - Design Analysis of ORBIT Motor - III
- Lecture 33 - Application and Selection of Accumulators - Part I
- Lecture 34 - Application and Selection of Accumulators - Part II
- Lecture 35 - Hydraulic Circuits in Industrial Applications
- Lecture 36 - Air preparation - Compressor and Accessories
- Lecture 37 - Pneumatic Circuits
- Lecture 38 - Analysis of Three - Way (Spool and Flapper Nozzle Valve)
- Lecture 39 - Analysis of Flapper Nozzle Valves
- Lecture 40 - Flow Force Compensation and Spool Design (Electro - hydraulic valves)
- Lecture 41 - Premier and Guide to Oil - hydraulic fluids ; and Introduction to Fluid Power Symbols
- Lecture 42 - Symbols in Oil Hydraulics
- Lecture 43 - AppendicesTutorial on Basic Calculation on HST System and Hydraulic Fluids

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Machinery fault diagnosis and signal processing

Subject Co-ordinator - Prof. A.R. Mohanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Principles of Maintenance
- Lecture 3 - Failure Modes Effects and Criticality Analysis
- Lecture 4 - Fault Diagnostics and Prognostics
- Lecture 5 - Basics of Machinery Vibration
- Lecture 6 - Engineering Applications of Vibration
- Lecture 7 - Rotordynamics
- Lecture 8 - Time Domain Signal Analysis
- Lecture 9 - Frequency Domain Signal Analysis
- Lecture 10 - Computer Aided Data Acquisition
- Lecture 11 - FFT Analysis
- Lecture 12 - Modulation and Sidebands
- Lecture 13 - Envelope Analysis
- Lecture 14 - Cepstrum Analysis
- Lecture 15 - Order Analysis
- Lecture 16 - Basics of Instrumentation
- Lecture 17 - Sensors and Transducers
- Lecture 18 - Data Recording and Transmission
- Lecture 19 - Vibration Transducers
- Lecture 20 - Vibration Monitoring
- Lecture 21 - Basics of Noise and Noise Monitoring
- Lecture 22 - Numericals in Noise Vibration and Data Acquisition
- Lecture 23 - Unbalance Detection
- Lecture 24 - Field Balancing
- Lecture 25 - Misalignment Detection
- Lecture 26 - Cracked Shaft Detection
- Lecture 27 - Looseness and Rub Detection
- Lecture 28 - Ball and Journal Bearings
- Lecture 29 - Gear Fault Detection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fans, Blowers and Compressors
- Lecture 31 - Pumps and Turbines
- Lecture 32 - Contaminant Analysis
- Lecture 33 - Oil Analysis
- Lecture 34 - Fault Detection in Motors and Transformers
- Lecture 35 - Motor Current Signature Analysis
- Lecture 36 - Thermography
- Lecture 37 - Ultrasonics
- Lecture 38 - Acoustic Emission and Eddy Current Testing
- Lecture 39 - Radiography, Dye Penetrant Test and Visual Inspection
- Lecture 40 - Case Studies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Solar Energy Technology

Subject Co-ordinator - Prof. V.V. Satyamurty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Energy and Dependence on External Sources and Sun, Physical Descriptions and Reactions
- Lecture 2 - Sun - Earth Geometry
- Lecture 3 - Terminology Extra - Terrestrial Radiation Terrestria Radiation
- Lecture 4 - Measuring Instruments
- Lecture 5 - Estimation of Solar Radiation or Details
- Lecture 6 - Radiation Processing - Long Term
- Lecture 7 - Evaluation of the Apparent Sunrise and Sunset Angles
- Lecture 8 - Estimation of Daily/Monthly Average daily Tilt Factor Under Terrestrial Conditions
- Lecture 9 - Solar Collector Basics
- Lecture 10 - Transmission - Absorptance Product
- Lecture 11 - Daily (Or Monthly Average Daily) Transmittance - Absorptance Product Analytical Evaluation
- Lecture 12 - Theory of Flat Plate Collectors - Liquid Based (A)
- Lecture 13 - Theory of Flat Plate Collectors - Liquid Based (B)
- Lecture 14 - Theory of Flat Plate Collectors - Liquid Based (C)
- Lecture 15 - Mean temperature and Heat Capacity Effects
- Lecture 16 - Theory of Air Based Solar Flat Plate Collectors
- Lecture 17 - Theory of Air Based Solar Flat Plate Collectors (Continued.)
- Lecture 18 - Other Collector Geometries
- Lecture 19 - Concentrating Collectors
- Lecture 20 - Concentrating Collectors (Continued.)
- Lecture 21 - Concentrating Collectors (Continued.)
- Lecture 22 - Compound Parabolic Collectors
- Lecture 23 - Exercise - I
- Lecture 24 - Exercise - I (Continued.)
- Lecture 25 - Device and System Performance
- Lecture 26 - Long Term Solar Energy System Performance
- Lecture 27 - Exercise - I (Continued.)
- Lecture 28 - Long Term Solar Energy System Performance Simplified Design Methods
- Lecture 29 - Long Term Solar Energy System Performance Simplified Design Methods (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Monthly Average Daily Utilizability
- Lecture 31 - The  $\phi(\bar{h}) - f$  chart method (Continued.)
- Lecture 32 - The  $\phi(\bar{h}) - f$  chart method Tank Losses and Finite Heat Exchanger
- Lecture 33 - Exercise - 2
- Lecture 34 - Exercise - 2 (Continued.)
- Lecture 35 - Exercise - 2 (Continued.)
- Lecture 36 - Economic Analysis
- Lecture 37 - Life Cycle Savings
- Lecture 38 - Passive Devices
- Lecture 39 - Passive Architecture, Overhangs and Wing Walls
- Lecture 40 - Passive Architecture, Overhangs and Wing Walls (Continued.)
- Lecture 41 - Summary
- Lecture 42 - Summary (Continued.)
- Lecture 43 - Summary (Continued.)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Technology of Surface Coating

Subject Co-ordinator - Prof. A.K. Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - CVD Reaction
- Lecture 3 - Adhesion of Surface Coating
- Lecture 4 - CVD System
- Lecture 5 - CDV of Tic
- Lecture 6 - Chemical Vapour Deposition of Nitride Coating
- Lecture 7 - Chemical Vapour Deposition of Carbo-Nitride Coating
- Lecture 8 - Chemical Vapour Deposition of Chromium
- Lecture 9 - Chemical Vapour Deposition of Aluminium Oxide
- Lecture 10 - Chemical Vapour Deposition of Diamond
- Lecture 11 - Vacuum Evaporation Deposition
- Lecture 12 - Reactive Evaporation Deposition
- Lecture 13 - Cathodic Arc Evaporation Deposition
- Lecture 14 - Sputtering
- Lecture 15 - Magnetron Sputtering
- Lecture 16 - Unbalanced Magnetron Sputtering
- Lecture 17 - Radio frequency and pulsed DC sputtering
- Lecture 18 - Sputter Deposition of Nitride Coating
- Lecture 19 - Sputter Deposition of Molybdenum Di Sulphide Coating
- Lecture 20 - Influence of Architecture of Sputter Deposited Molybdenum Di Sulphide Coating
- Lecture 21 - Electro Plating, Anodizing and Electro-Less Plating
- Lecture 22 - Coating of Monolayer Abrasive Grain by Electro Plating
- Lecture 23 - Mechanism of Wetting
- Lecture 24 - Coating on Ceramics by Wetting
- Lecture 25 - Coating of Monolayer Abrasive Grain by Wetting
- Lecture 26 - Coating on Abrasive Grain
- Lecture 27 - Combustion Spray Process
- Lecture 28 - Plasma Spray Process
- Lecture 29 - Mechanical, Chemical and Ion-Assisted Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Combustion Spray Process
- Lecture 31 - Production of Low Vacuum
- Lecture 32 - Production of High Vacuum
- Lecture 33 - Measurement of Low Pressure and Gas Flow in Coating Deposition System
- Lecture 34 - Physical Characterization
- Lecture 35 - Assessment of Coating Hardness
- Lecture 36 - Assessment of Friction and Wear of Coating
- Lecture 37 - Assessment of Surface Roughness and Thickness of Coating
- Lecture 38 - Assessment of Adhesion of Coating
- Lecture 39 - Performance Evaluation of TiN Coated Tool
- Lecture 40 - Performance Evaluation of HFCVD Diamond Coated Tool

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Vibration of Structures

Subject Co-ordinator - Prof. A. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Transverse Vibrations of Strings - I
- Lecture 2 - Transverse Vibrations of Strings - II
- Lecture 3 - Axial and Torsional Vibrations of Bars
- Lecture 4 - Variational Formulation - I
- Lecture 5 - Variational Formulation - II
- Lecture 6 - Modal Analysis - I
- Lecture 7 - Modal Analysis - II
- Lecture 8 - Properties of the Eigenvalue Problem
- Lecture 9 - Modal Analysis
- Lecture 10 - Modal Analysis
- Lecture 11 - The Initial Value Problem
- Lecture 12 - Forced Vibration Analysis - I
- Lecture 13 - Forced Vibration Analysis - II
- Lecture 14 - Forced Vibration Analysis - III
- Lecture 15 - Damping in Structures
- Lecture 16 - Axially Translating Strings
- Lecture 17 - d' Alembert's Solution - I
- Lecture 18 - d' Alembert's Solution - II
- Lecture 19 - Harmonic Waves and Energetics of Wave Motion
- Lecture 20 - Scattering of Waves
- Lecture 21 - Applications of Wave Solution - I
- Lecture 22 - Applications of Wave Solution - II
- Lecture 23 - Beam Models - I
- Lecture 24 - Beam Models - II
- Lecture 25 - Modal Analysis of Beams
- Lecture 26 - Applications of Modal Solution
- Lecture 27 - Approximate Methods
- Lecture 28 - Topic in Beam Vibration - I
- Lecture 29 - Topic in Beam Vibration - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wave Propagation in Beams
- Lecture 31 - Dynamics of Curved Beams
- Lecture 32 - Vibrations of Rings and Arches
- Lecture 33 - Dynamics of Membranes
- Lecture 34 - Vibrations of Rectangular Membrane
- Lecture 35 - Vibrations of Circular Membrane
- Lecture 36 - Special Problems in Membrane Vibrations
- Lecture 37 - Dynamics of Plates
- Lecture 38 - Vibrations of Rectangular Plates
- Lecture 39 - Vibrations of Circular Plates
- Lecture 40 - Special Problems in Plate Vibrations

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Basic Thermodynamics

Subject Co-ordinator - Prof. S.K. Som

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Fundamental Concepts  
Lecture 2 - Zeroth Law and Fundamental Concepts  
Lecture 3 - Different Kind of Energy and First Law - I  
Lecture 4 - First Law - II  
Lecture 5 - First Law - III  
Lecture 6 - Second Law and Its Corollaries - I  
Lecture 7 - Second Law and Its Corollaries - II  
Lecture 8 - Second Law and Its Corollaries - III  
Lecture 9 - Second Law and Its Corollaries - IV  
Lecture 10 - Second Law and Available Energy - I  
Lecture 11 - Second Law and Available Energy - II  
Lecture 12 - Second Law and Available Energy - III  
Lecture 13 - Thermodynamic Property Relations - I  
Lecture 14 - Thermodynamic Property Relations - II  
Lecture 15 - Joule-Kelvin Expansion  
Lecture 16 - Properties of Pure Substances - I  
Lecture 17 - Properties of Pure Substances - II  
Lecture 18 - Properties of Pure Substances  
Lecture 19 - Properties of Ideal Gases  
Lecture 20 - Vapors Power Cycle - I  
Lecture 21 - Vapor Power Cycle - II  
Lecture 22 - Vapor Power Cycle - III  
Lecture 23 - Vapor Power Cycle - IV  
Lecture 24 - Gas Power Cycle - I  
Lecture 25 - Gas Power Cycle - II  
Lecture 26 - Gas Power Cycle - III  
Lecture 27 - Thermodynamics of Reacting System - I  
Lecture 28 - Thermodynamics of Reacting System - II  
Lecture 29 - Thermodynamics of Reacting System - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Thermodynamics of Multi Component System - I
- Lecture 31 - Thermodynamics of Multi Component System - II
- Lecture 32 - Thermodynamics of Multi Component System - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Design of Machine Elements I

Subject Co-ordinator - Prof. G. Chakraborty, Prof. B. Maiti, Prof. S.K. Roychowdhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Design Philosophy  
Lecture 2 - Design And Manufacturing  
Lecture 3 - Engineering Materials  
Lecture 4 - Engineering Materials  
Lecture 5 - Simple Stresses In Machine Elements  
Lecture 6 - Simple Stresses In Machine Elements  
Lecture 7 - Compound Stresses In Machine Elements  
Lecture 8 - Design For Strength  
Lecture 9 - Design for Strength  
Lecture 10 - Design For Strength  
Lecture 11 - Design for Strength  
Lecture 12 - Design for Strength  
Lecture 13 - Design of Fasteners - I  
Lecture 14 - Design of Fasteners - II  
Lecture 15 - Design Of Keys and Splines  
Lecture 16 - Threaded Fasteners  
Lecture 17 - Design Of Threaded Fasteners  
Lecture 18 - Power Screws  
Lecture 19 - Design Of Power Screws  
Lecture 20 - Shaft Coupling - I  
Lecture 21 - Shaft Coupling - II  
Lecture 22 - Rivet Joints  
Lecture 23 - Design of Welded Joints - I  
Lecture 24 - Design of Welded Joints - II  
Lecture 25 - Design of Joints With Eccentric Loading  
Lecture 26 - Design of Joints With Variable Loading  
Lecture 27 - Design of Springs  
Lecture 28 - Design Of Springs  
Lecture 29 - Design Of Springs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Belt Drives
- Lecture 31 - Belt Drives
- Lecture 32 - Belt Drives
- Lecture 33 - Design for Strength
- Lecture 34 - Design of Shafts
- Lecture 35 - Design of Machine Elements - I (V & W)
- Lecture 36 - Design of Machine Elements - II (V & W)
- Lecture 37 - Design of Cylinders & Pressure Vessels - II
- Lecture 38 - Design of Cylinders & Pressure Vessels - III
- Lecture 39 - Design of Brakes - I
- Lecture 40 - Design of Brakes - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Manufacturing Processes II

Subject Co-ordinator - Prof. S. Paul, Prof. A.B. Chattopadhyay, Prof. A.K. Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Instructional Objectives - I (Manufacturing Process II)

Lecture 2 - Instructional Objectives - II

Lecture 3 - On Tool Geometry

Lecture 4 - Interrelations Among The Tool Angles

Lecture 5 - Mechanism of Chip Formation

Lecture 6 - Orthogonal and Oblique Cutting

Lecture 7 - Use of Chip Breaker in Machining

Lecture 8 - Machining Forces

Lecture 9 - Analytical and Experimental

Lecture 10 - Dynamometers for Measuring Cutting Forces

Lecture 11 - CTCEAC

Lecture 12 - CCTCFA

Lecture 13 - Concept of Machinability and its Improvement

Lecture 14 - Tool Life

Lecture 15 - Conventional Cutting Tool Maths

Lecture 16 - Advanced Tool Materials

Lecture 17 - Kinematics System of Centre Lathe

Lecture 18 - General Purpose Machine Tool Drills

Lecture 19 - Kinematic Systems and Operations

Lecture 20 - Configuration and Kinematic System

Lecture 21 - Mounting of jobs and Cutting Tools in Machine

Lecture 22 - Mounting of jobs and Cutting Tools in Machine

Lecture 23 - Construction, Operation and Tool Layout

Lecture 24 - Use of Attachments In Machine Tools

Lecture 25 - Forces Developing and Acting In Machine Tools

Lecture 26 - Estimation of Machining Time

Lecture 27 - Broaching - Principle Systems and Applications

Lecture 28 - Grinding Principle and Application

Lecture 29 - Abrasive Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Abrasive Processes (Grinding)
- Lecture 31 - Super finishing Processes
- Lecture 32 - Production of Screw Threads
- Lecture 33 - Gear Manufacturing
- Lecture 34 - Jigs and Fixtures For Machine Shops
- Lecture 35 - Design and Applications of Jigs and Fixtures
- Lecture 36 - Non Traditional Manufacturing
- Lecture 37 - Ultrasonic Machining
- Lecture 38 - Water Jet Machining and Abrasive Water Jet
- Lecture 39 - Electro - Chemical Machining
- Lecture 40 - Electro - Discharge Machining
- Lecture 41 - EBM and LBM

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Refrigeration and Air Conditioning

Subject Co-ordinator - Prof. M. Ramgopal, Prof. R.C. Arora

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - History of Refrigeration
- Lecture 2 - Refrigerant Compressors & Development
- Lecture 3 - Applications of RTAC
- Lecture 4 - Review of Fundamentals Thermodynamics - I
- Lecture 5 - Review of Fundamentals
- Lecture 6 - Fundamentals of Fluid Flow
- Lecture 7 - Fundamentals of Heat Transfer
- Lecture 8 - Methods of Producing low Temperatures
- Lecture 9 - Air Cycle Refrigeration Systems
- Lecture 10 - Vapour Compression Refrigeration Systems
- Lecture 11 - Vapour Compression Refrigeration Systems (Continued...)
- Lecture 12 - Vapour Compression Refrigeration Systems (Continued...)
- Lecture 13 - Vapour Compression Refrigeration Systems (Continued...)
- Lecture 14 - Vapour Absorption Refrigeration Systems
- Lecture 15 - Vapour Absorption Refrigeration System
- Lecture 16 - Vapour Absorption Refrigeration Systems (Continued...)
- Lecture 17 - Vapour Absorption Refrigeration Systems (Continued...)
- Lecture 18 - Worked Out Examples - I
- Lecture 19 - Worked Out Examples - II
- Lecture 20 - Refrigeration System Components
- Lecture 21 - Refrigeration System Components
- Lecture 22 - Refrigeration System Components
- Lecture 23 - Refrigeration System Components
- Lecture 24 - Refrigeration System Components
- Lecture 25 - Refrigeration System Components
- Lecture 26 - Refrigeration System Components
- Lecture 27 - Refrigeration System Components
- Lecture 28 - Refrigeration System Components
- Lecture 29 - Refrigeration System Components

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Refrigeration System Components
- Lecture 31 - Refrigeration System Components
- Lecture 32 - Analysis of Complete Vapour Compression System
- Lecture 33 - Refrigerants
- Lecture 34 - Psychrometry
- Lecture 35 - Psychrometric Processes
- Lecture 36 - Inside Design Condition Thermal Comfort
- Lecture 37 - Psychrometry of Air Conditioning Systems
- Lecture 38 - Air Conditioning Systems
- Lecture 39 - Cooling and Heating Load Calculation
- Lecture 40 - Cooling and Heating Load Calculations
- Lecture 41 - Cooling and Heating Load Calculations (Continued...)
- Lecture 42 - Cooling and Heating Load Calculations (Continued...)
- Lecture 43 - Selection of Air Conditioning Systems
- Lecture 44 - Transmission and Distribution of Air
- Lecture 45 - Transmission and Distribution of Air (Continued..)
- Lecture 46 - Space Air Distribution

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Fluid Mechanics

Subject Co-ordinator - Prof. S.K. Som

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Fundamental Concepts - Part I
- Lecture 2 - Introduction and Fundamental Concepts - Part II
- Lecture 3 - Introduction and Fundamental Concepts - Part III
- Lecture 4 - Fluid Statics - Part I
- Lecture 5 - Fluid Statics - Part II
- Lecture 6 - Fluid Statics - Part III
- Lecture 7 - Fluid Statics - Part IV
- Lecture 8 - Fluid Statics - Part V
- Lecture 9 - Fluid Statics - Part VI
- Lecture 10 - Kinematics of Fluid - Part I
- Lecture 11 - Kinematics of Fluid - Part II
- Lecture 12 - Kinematics of Fluid - Part III
- Lecture 13 - Conservation Equations in Fluid Flow - Part I
- Lecture 14 - Conservation Equations in Fluid Flow - Part II
- Lecture 15 - Conservation Equations in Fluid Flow - Part III
- Lecture 16 - Conservation Equations in Fluid Flow - Part IV
- Lecture 17 - Conservation Equations in Fluid Flow - Part V
- Lecture 18 - Conservation Equations in Fluid Flow - Part VI
- Lecture 19 - Conservation Equations in Fluid Flow - Part VII
- Lecture 20 - Conservation Equations in Fluid Flow - Part VIII
- Lecture 21 - Conservation Equations in Fluid Flow - Part IX
- Lecture 22 - Fluid Flow Applications - Part I
- Lecture 23 - Fluid Flow Applications - Part II
- Lecture 24 - Fluid Flow Applications - Part III
- Lecture 25 - Fluid Flow Applications - Part IV
- Lecture 26 - Fluid Flow Applications - Part V
- Lecture 27 - Fluid Flow Applications - Part VI
- Lecture 28 - Fluid Flow Applications - Part VII
- Lecture 29 - Incompressible Viscous Flows - Part I

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Incompressible Viscous Flows - Part II
- Lecture 31 - Incompressible Viscous Flows - Part III
- Lecture 32 - Incompressible Viscous Flows - Part IV
- Lecture 33 - Application of ViscousFlow Through Pipes - Part I
- Lecture 34 - Application of ViscousFlow Through Pipes - Part II
- Lecture 35 - Application of ViscousFlow Through Pipes - Part III
- Lecture 36 - Principles of Similarity - Part I
- Lecture 37 - Principles of Similarity - Part II
- Lecture 38 - Principles of Similarity - Part III
- Lecture 39 - Flow of Ideal Fluids - Part I
- Lecture 40 - Flow of Ideal Fluids - Part II
- Lecture 41 - Flows with a Free Surface - Part I
- Lecture 42 - Flows with a Free Surface - Part II
- Lecture 43 - Flows with a Free Surface - Part III
- Lecture 44 - A Few Unsteady Flow Phenomena in Practice - Part I
- Lecture 45 - A Few Unsteady Flow Phenomena in Practice - Part II
- Lecture 46 - Introduction to Laminar Boundary Layer - Part I
- Lecture 47 - Introduction to Laminar Boundary Layer - Part II
- Lecture 48 - Introduction to Turbulent Flow - Part I
- Lecture 49 - Introduction to Turbulent Flow - Part II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Introduction to Fluid Machines and Compressible Flow

Subject Co-ordinator - Prof. S.K. Som

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Fluid Machines 1
- Lecture 2 - Energy Transfer in Fluid Machines Part - I
- Lecture 3 - Energy Transfer in Fluid Machines Part - II
- Lecture 4 - Energy Transfer - impulse and Reaction Machines, efficiencies of Fluid Machines
- Lecture 5 - Principles of Similarity in Fluid Machines
- Lecture 6 - Concept of specific speed and introduction to Impulse Hydraulic Turbine
- Lecture 7 - Analysis of force on the Bucket of Pelton wheel and Power Generation
- Lecture 8 - Specific speed, Governing and Limitation of a Pelton Turbine
- Lecture 9 - Introduction to reaction Type of Hydraulic Turbine - A Francis Turbine
- Lecture 10 - Analysis of Force on Francis Runner and Power Generation
- Lecture 11 - Axial Flow Machine and Draft Tube
- Lecture 12 - Governing of Reaction Turbine
- Lecture 13 - Introduction to Rotodynamic Pumps
- Lecture 14 - Flow and Energy Transfer in a Centrifugal Pump
- Lecture 15 - Characteristics of a Centrifugal Pump
- Lecture 16 - Matching of Pump and System Characteristics
- Lecture 17 - Diffuser and Cavitation
- Lecture 18 - Axial Flow Pump
- Lecture 19 - Reciprocating Pump - Part I
- Lecture 20 - Reciprocating Pump - Part II
- Lecture 21 - Centrifugal Compressor - Part I
- Lecture 22 - Centrifugal Compressor - Part II
- Lecture 23 - Centrifugal Compressor - Part III
- Lecture 24 - Axial Flow Compressor - Part I
- Lecture 25 - Axial Flow Compressor - Part II
- Lecture 26 - Introduction to Compressible Flow - Part I
- Lecture 27 - Introduction to Compressible Flow - Part II
- Lecture 28 - Thermodynamic Relations and Speed of Sound
- Lecture 29 - Disturbance propagation, Stagnation and Sonic Properties

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Effects of Area Variation on Properties in an Isentropic Flow
- Lecture 31 - Choking in a Converging Nozzle
- Lecture 32 - Isentropic Flow through Convergent - Divergent Duct
- Lecture 33 - Normal Shock - Part I
- Lecture 34 - Normal Shock - Part II
- Lecture 35 - Normal Shock - Part III
- Lecture 36 - Normal Shock - Part IV
- Lecture 37 - Normal Shock - Part V
- Lecture 38 - Oblique Shock - Part I
- Lecture 39 - Oblique Shock - Part II
- Lecture 40 - Introduction to Expansion Wave and Prandtl Meyer Flow

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Introduction to Fluid Mechanics and Fluid Engineering

Subject Co-ordinator - Prof. S. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introductory Concepts

Lecture 2 - Introductory Concepts (Continued...)

Lecture 3 - Introductory Concepts (Continued...)

Lecture 4 - Viscosity

Lecture 5 - Viscosity (Continued...)

Lecture 6 - Viscosity (Continued...) and Surface Tension

Lecture 7 - Surface Tension (Continued...) and Fluid Statics

Lecture 8 - Fluid Statics (Continued...)

Lecture 9 - Fluid Statics (Continued...)

Lecture 10 - Fluid Statics (Continued...) and Fluid Under Rigid Body Motion

Lecture 11 - Fluid Kinematics

Lecture 12 - Fluid Kinematics (Continued...)

Lecture 13 - Fluid Kinematics (Continued...)

Lecture 14 - Fluid Kinematics (Continued...)

Lecture 15 - Fluid Kinematics (Continued...)

Lecture 16 - Dynamics of Inviscid Flows

Lecture 17 - Dynamics of Inviscid Flows (Continued...)

Lecture 18 - Dynamics of Inviscid Flows (Continued...)

Lecture 19 - Dynamics of Inviscid Flows (Continued...)

Lecture 20 - Dynamics of Inviscid Flows (Continued...)

Lecture 21 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem)

Lecture 22 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem) (Continued...)

Lecture 23 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem) (Continued...)

Lecture 24 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem) (Continued...)

Lecture 25 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem) (Continued...)

Lecture 26 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem) (Continued...)

Lecture 27 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem) (Continued...)

Lecture 28 - Dynamics of Viscous Flows

Lecture 29 - Dynamics of Viscous Flows

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Some Exact Solutions of Navier Stokes Equation
- Lecture 31 - Some Exact Solutions of Navier Stokes Equation (Continued...)
- Lecture 32 - Some Exact Solutions of Navier Stokes Equation (Continued...)
- Lecture 33 - Introduction to Turbulence
- Lecture 34 - Introduction to Turbulence (Continued...)
- Lecture 35 - Introduction to Turbulence (Continued...)
- Lecture 36 - Introduction to Turbulence (Continued...)
- Lecture 37 - Boundary Layer Theory
- Lecture 38 - Boundary Layer Theory (Continued...)
- Lecture 39 - Boundary Layer Theory (Continued...)
- Lecture 40 - Boundary Layer Theory (Continued...) and Flow Past Immersed Bodies
- Lecture 41 - Flow past Immersed Bodies (Continued...)
- Lecture 42 - Potential Flow Past Immersed Bodies
- Lecture 43 - Potential Flow (Continued...) and Flow Past Immersed Bodies of Special Shapes
- Lecture 44 - Flow Past Immersed Bodies (Continued...) and Sports Ball Aerodynamics
- Lecture 45 - Pipe Flow
- Lecture 46 - Pipe Flow (Continued...)
- Lecture 47 - Pipe Flow (Continued...)
- Lecture 48 - Principles of Similarity and Dimensional Analysis
- Lecture 49 - Introduction to Fluid Machines
- Lecture 50 - Introduction to Fluid Machines (Continued...)
- Lecture 51 - Introduction to Fluid Machines (Continued...)
- Lecture 52 - Introduction to Fluid Machines (Continued...)
- Lecture 53 - Introduction to Fluid Machines (Continued...)
- Lecture 54 - Compressible Flows
- Lecture 55 - Compressible Flows (Continued...)
- Lecture 56 - Compressible Flows (Continued...)
- Lecture 57 - Compressible Flows (Continued...)
- Lecture 58 - Compressible Flows (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Micro fluidics

Subject Co-ordinator - Prof. S. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Microfluidics

Lecture 2 - Microfluidics

Lecture 3 - Microfluidics

Lecture 4 - Equations of Conservation

Lecture 5 - Navier Stokes Equation

Lecture 6 - Navier Stokes Equation (Continued...)

Lecture 7 - Energy Equation

Lecture 8 - Energy Equation (Continued...) and Species Conservation Equation

Lecture 9 - Pressure-driven Microflows

Lecture 10 - Pressure-driven Microflows (Continued...)

Lecture 11 - Pressure-driven Microflows (Continued...)

Lecture 12 - Pressure-driven Microflows (Continued...)

Lecture 13 - Pressure -driven Microflows (Continued...)

Lecture 14 - Some Examples of Unsteady Flows

Lecture 15 - Some Examples of Unsteady Flows (Continued...)

Lecture 16 - Some Examples of Unsteady Flows (Continued...)

Lecture 17 - Stokes Drag on a Sphere

Lecture 18 - Stokes Drag on a Sphere (Continued...) and Introduction to Lubrication Theory

Lecture 19 - Lubrication Theory (Continued...)

Lecture 20 - Lubrication Theory (Continued...)

Lecture 21 - Boundary Condition in Fluid Mechanics

Lecture 22 - Boundary Condition in Fluid Mechanics

Lecture 23 - Surface Tension Driven Flows

Lecture 24 - Surface Tension Driven Flows (Continued...)

Lecture 25 - Surface Tension Driven Flows (Continued...)

Lecture 26 - Surface Tension Driven Flows (Continued...)

Lecture 27 - Surface Tension Driven Flows (Continued...) and Modulating Surface Tension

Lecture 28 - Modulating Surface Tension (Continued...)

Lecture 29 - Thin Film Dynamics

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- Lecture 30 - Thin Film Dynamics (Continued...)
- Lecture 31 - Thin Film Dynamics (Continued...)
- Lecture 32 - Thin Film Dynamics (Continued...)
- Lecture 33 - Lab on a CD
- Lecture 34 - Lab on a CD (Continued...)
- Lecture 35 - Introduction to Microfabrication
- Lecture 36 - Electrokinetics
- Lecture 37 - Electrokinetics (Continued...)
- Lecture 38 - Electrokinetics (Continued...)
- Lecture 39 - Electrokinetics (Continued...)
- Lecture 40 - Electrokinetics (Continued...)
- Lecture 41 - Electrokinetics (Continued...)
- Lecture 42 - Dispersion
- Lecture 43 - Introduction to Nanofluidics
- Lecture 44 - Introduction to Nanofluidics (Continued...) and Molecular Dynamics Simulations
- Lecture 45 - Introduction to Molecular Dynamics Simulations (Continued...)
- Lecture 46 - Biomicrofluidics
- Lecture 47 - Biomicrofluidics (Continued...)
- Lecture 48 - Nanofluidic Energy Conversion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Conduction and Convection Heat Transfer

Subject Co-ordinator - Prof. S.K. Som, Prof. S. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Fundamental Concepts - I
- Lecture 2 - Introduction and Fundamental Concepts - II
- Lecture 3 - Heat Conduction Equation
- Lecture 4 - Heat Conduction Equation and Different Types of Boundary Conditions
- Lecture 5 - 1D Steady State Heat Conduction In Plane Wall Without Generation of Thermal Energy
- Lecture 6 - 1D Steady State Heat Conduction In Plane Wall With Generation of Thermal Energy
- Lecture 7 - Problems on 1D Steady State Heat Conduction In Plane Wall
- Lecture 8 - 1D Steady State Heat Conduction In Cylindrical Geometry
- Lecture 9 - 1D Steady State Heat Conduction In Cylindrical Geometry (Continued...)
- Lecture 10 - 1D Steady State Heat Conduction in Spherical Geometry
- Lecture 11 - Heat Transfer from Extended Surfaces (Fins)
- Lecture 12 - Heat Transfer from Extended Surfaces (Continued...)
- Lecture 13 - Two-dimensional Steady State Heat Conduction
- Lecture 14 - Unsteady State Heat Conduction
- Lecture 15 - Unsteady State Heat Conduction (Continued...)
- Lecture 16 - One Dimensional Unsteady State Heat Conduction - I
- Lecture 17 - One Dimensional Unsteady State Heat Conduction - II
- Lecture 18 - Introduction to Convection
- Lecture 19 - Convection - I
- Lecture 20 - Review of Fluid Mechanics - I
- Lecture 21 - Review of Fluid Mechanics - II
- Lecture 22 - Review of Fluid Mechanics - III
- Lecture 23 - Review of Fluid Mechanics - IV
- Lecture 24 - Review of Fluid Mechanics - V
- Lecture 25 - Review of Fluid Mechanics - VI
- Lecture 26 - Review of Fluid Mechanics - VIII
- Lecture 27 - Energy Equation - I
- Lecture 28 - Energy Equation - II and Thermal Boundary Layer - I
- Lecture 29 - Thermal Boundary Layer - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Integral Method for Thermal BL Analysis
- Lecture 31 - Internal Forced Convection - I
- Lecture 32 - Internal Forced Convection - II
- Lecture 33 - Internal Forced Convection - III
- Lecture 34 - Internal Forced Convection - IV
- Lecture 35 - Free Convection - I (Natural Convection)
- Lecture 36 - Free Convection - II (Natural Convection)
- Lecture 37 - Boiling and Condensation - I
- Lecture 38 - Boiling and Condensation - II
- Lecture 39 - Heat Exchanger - I
- Lecture 40 - Heat Exchanger - II
- Lecture 41 - Heat Exchanger - II (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Vibrations of Structures

Subject Co-ordinator - Prof. A. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Transverse Vibrations of Strings - I
- Lecture 2 - Transverse Vibrations of Strings - II
- Lecture 3 - Axial and Torsional Vibrations of Bars
- Lecture 4 - Variational Formulation - I
- Lecture 5 - Variational Formulation - II
- Lecture 6 - Modal Analysis - I
- Lecture 7 - Modal Analysis - II
- Lecture 8 - Properties of the Eigenvalue Problem
- Lecture 9 - Modal Analysis
- Lecture 10 - Modal Analysis
- Lecture 11 - The Initial Value Problem
- Lecture 12 - Forced Vibration Analysis - I
- Lecture 13 - Forced Vibration Analysis - II
- Lecture 14 - Forced Vibration Analysis - III
- Lecture 15 - Damping in Structures - I
- Lecture 16 - Damping in Structures - II
- Lecture 17 - Beam Models - I
- Lecture 18 - Beam Models - II
- Lecture 19 - Modal Analysis of Beams
- Lecture 20 - Application of Modal Solution
- Lecture 21 - Approximate Methods
- Lecture 22 - Topics in Beam Vibrations - I
- Lecture 23 - Topics in Beam Vibrations - II
- Lecture 24 - Dynamics of Curved Beams
- Lecture 25 - Vibrations of Rings and Arches - I
- Lecture 26 - Vibrations of Rings and Arches - II
- Lecture 27 - Dynamics of Membranes
- Lecture 28 - Vibrations of Rectangular Membranes
- Lecture 29 - Vibrations of Circular Membranes - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Vibrations of Circular Membranes - II
- Lecture 31 - Dynamics of Plates
- Lecture 32 - Vibrations of Rectangular Plates
- Lecture 33 - Vibrations of Circular Plates
- Lecture 34 - Special Problems in Plate Vibrations - I
- Lecture 35 - Special Problems in Plate Vibrations - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fluid Machines

Subject Co-ordinator - Prof. S.K. Som

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition of Fluid Machines and Energy Transfer in Fluid Machines - Part I
- Lecture 2 - Energy Transfer in Fluid Machines - Part II
- Lecture 3 - Impulse and Reaction Machines
- Lecture 4 - Principles of Similarity in Fluid Machine
- Lecture 5 - Concept of Specific Speed
- Lecture 6 - Basic Principles, Analysis of Force and Power Generation - Part I
- Lecture 7 - Basic Principles, Analysis of Force and Power Generation - Part II
- Lecture 8 - Specific Speed Governing and Limitations of Impulse Turbine
- Lecture 9 - Tutorial - I
- Lecture 10 - Tutorial - II
- Lecture 11 - Introduction and Analysis of Force on Francis Turbine (Radial Flow) - Part I
- Lecture 12 - Analysis of Force (Part-II) and Power Generation
- Lecture 13 - Draft Tube
- Lecture 14 - Tutorial - III
- Lecture 15 - Tutorial - IV
- Lecture 16 - Axial Flow Turbine
- Lecture 17 - Governing of Reaction Turbine
- Lecture 18 - Introduction to Rotodynamic Pumps
- Lecture 19 - Flow and Energy Transfer to Centrifugal Pumps
- Lecture 20 - Tutorial - V
- Lecture 21 - Characteristics of a Centrifugal Pump
- Lecture 22 - Matching of Pump and System Characteristics
- Lecture 23 - Diffuser and Cavitation
- Lecture 24 - Tutorial - VI
- Lecture 25 - Tutorial - VIII
- Lecture 26 - Axial Flow Pump
- Lecture 27 - Reciprocating Pump - Part I
- Lecture 28 - Reciprocating Pump - Part II
- Lecture 29 - Tutorial - VIII

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Basic Principles and Energy Transfer in Centrifugal Compressor - Part I
- Lecture 31 - Basic Principles and Energy Transfer in Centrifugal Compressor - Part II
- Lecture 32 - Basic Principles and Energy Transfer in Centrifugal Compressor - Part III
- Lecture 33 - Basic Principles and Energy Transfer in Centrifugal Compressor - Part IV and Losses in Centrifugal Compressor
- Lecture 34 - Performance Characteristics of Centrifugal Compressors - Part I
- Lecture 35 - Performance Characteristics of Centrifugal Compressors - Part II
- Lecture 36 - Basic Principles and Energy Transfer in Axial Flow Compressor - Part I
- Lecture 37 - Basic Principles and Energy Transfer in Axial Flow Compressor - Part II
- Lecture 38 - Fans and Blowers - Part I
- Lecture 39 - Fans and Blowers - Part II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Computer numerical control (CNC) of machine tools and processes

Subject Co-ordinator - Prof. Asimava Roy Choudhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to computer control & role of computers in automation

Lecture 2 - Introduction (Continued...) - binary logic and logic gates

Lecture 3 - Classification of Computer numerical control (CNC) & Point to point and continuous control

Lecture 4 - Classification (Continued...) - Closed loop and open loop control

Lecture 5 - Tutorial involving simple calculations on different aspects of CNC controls

Lecture 6 - Questions, MCQ Discussions on Motors, Encoders, Decoders and Programming Practice

Lecture 7 - Stepper motors, Permanent magnet DC motors

Lecture 8 - Binary circuits and decoders

Lecture 9 - Tachogenerator, printed circuit motors, Encoders

Lecture 10 - Programming Practice - I

Lecture 11 - Programming Practice - II

Lecture 12 - Computer Aided Offline Programming

Lecture 13 - Interpolators - Linear

Lecture 14 - Interpolators - Curvilinear

Lecture 15 - Questions on Programming and Interpolation

Lecture 16 - 3-D Machining - Basic Concepts

Lecture 17 - Curved Surface Geometry

Lecture 18 - Cutter Path Generation for Curved Surfaces

Lecture 19 - Cutter Path Generation (Concluding Part) and Current Status - CNC Machining and Related Processes

Lecture 20 - Questions and Discussions on Curved Surface Machining

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Non Traditional Abrasive Machining Processes - Ultrasonic,

Subject Co-ordinator - Prof. Asimava Roy Choudhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Non-traditional abrasive machining

Lecture 2 - Ultrasonic Machining

Lecture 3 - Ultrasonic Machining (Continued...)

Lecture 4 - Ultrasonic Machining - Free Impacts and Problem Solving

Lecture 5 - Ultrasonic Machining - Problems and MCQs

Lecture 6 - USM - Horn Design

Lecture 7 - USM - Horn Design (Continued...)

Lecture 8 - Ultrasonic Machining - Feed Mechanism, Head design and other aspects

Lecture 9 - Ultrasonic Machining - Effects of Various Inputs on the Output

Lecture 10 - Ultrasonic Machining - Numerical and MCQs

Lecture 11 - A JM (Abrasive jet machining)

Lecture 12

Lecture 13 - A JM - Numerical problems

Lecture 14 - A JM - Process Parameters and Response Characteristics take - home assignment discussing

Lecture 15 - A JM - MCQs

Lecture 16

Lecture 17 - AWJM - Equipment

Lecture 18 - AWJM - Numerical Problems

Lecture 19 - AWJM - Application Equipment Details

Lecture 20 - AWJM - MCQs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Fluid Mechanics

Subject Co-ordinator - Dr. Suman Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Lagrangian and Eulerian Approach, Types of fluid flow
- Lecture 2 - Streamlines, Streakline and Pathline
- Lecture 3 - Acceleration of fluid flow
- Lecture 4 - Deformation and Conservation of mass of fluid a element
- Lecture 5 - Angular deformation of a fluid element, vorticity and streamfunction and velocity potential
- Lecture 6 - Euler's equation
- Lecture 7 - Bernoulli's equation - Part I
- Lecture 8 - Kinematic viscosity, Reynolds number
- Lecture 9 - Non-Newtonian fluids
- Lecture 10 - Problems and Solutions
- Lecture 11 - Problems and Solutions
- Lecture 12 - Surface Tension - Part I
- Lecture 13 - Surface Tension - Part II
- Lecture 14 - Governing equation of fluid statics
- Lecture 15 - Manometers
- Lecture 16 - Force on a surface immersed in fluid - Part I
- Lecture 17 - Force on a surface immersed in fluid - Part II
- Lecture 18 - Force on a surface immersed in fluid - Part III, Stability of solid bodies in fluid - Part I
- Lecture 19 - Stability of solid bodies in fluid - Part II
- Lecture 20 - Fluid under rigid body motion
- Lecture 21 - Lagrangian and Eulerian approaches
- Lecture 22 - Concept of different flow lines
- Lecture 23 - Acceleration of fluid flow
- Lecture 24 - Deformation of fluid elements - Part I
- Lecture 25 - Derivation of continuity equation
- Lecture 26 - Problems and Solutions
- Lecture 27 - Deformation of fluid elements - Part II
- Lecture 28 - Deformation of fluid elements - Part III
- Lecture 29 - Stream Function

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Circulation, Velocity Potential
- Lecture 31 - Euler's equation
- Lecture 32 - Bernoulli's equation - Part I
- Lecture 33 - Bernoulli's equation - Part II
- Lecture 34 - Bernoulli's equation - Part III
- Lecture 35 - Euler's equation in streamline coordinates
- Lecture 36
- Lecture 37
- Lecture 38
- Lecture 39
- Lecture 40
- Lecture 41
- Lecture 42
- Lecture 43
- Lecture 44
- Lecture 45
- Lecture 46
- Lecture 47
- Lecture 48
- Lecture 49
- Lecture 50
- Lecture 51 - Navier-Stokes equation - Part I
- Lecture 52 - Navier-Stokes equation - Part II
- Lecture 53 - Navier-Stokes equation - Part III
- Lecture 54 - Navier-Stokes equation - Part IV
- Lecture 55 - Pipe Flow - Part I
- Lecture 56 - Pipe Flow - Part II
- Lecture 57 - Pipe Flow - Part III
- Lecture 58 - Pipe Flow - Part IV
- Lecture 59 - Principle of Similarity and Dynamical Analysis - Part I
- Lecture 60 - Principle of Similarity and Dynamical Analysis - Part II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Spur and Helical Gear Cutting

Subject Co-ordinator - Prof. Asimava Roy Choudhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Simple Gear Calculations
- Lecture 3 - Gear Geometry
- Lecture 4 - Helical Gear Problems
- Lecture 5 - Numerical Problem MCQ
- Lecture 6 - Numerical Problem Milling of Helical Gears
- Lecture 7 - Simple and Compound Indexing
- Lecture 8 - Differential Indexing
- Lecture 9 - Helical Gear Cutting on Milling Machine
- Lecture 10 - Numerical Problems on Gear Milling
- Lecture 11 - Gear Shaping - I
- Lecture 12 - Gear Shaping - II
- Lecture 13 - Gear Shaping - III
- Lecture 14 - Gear Shaping - IV
- Lecture 15 - Gear Hobbing - I
- Lecture 16 - Gear Hobbing - II
- Lecture 17 - Gear Hobbing - III
- Lecture 18 - Gear Hobbing - IV
- Lecture 19 - Gear Hobbing - V
- Lecture 20 - Gear Hobbing - VI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Laws of Thermodynamics

Subject Co-ordinator - Prof. Suman Chakraborty, Prof. S.K. Som

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Definition of System, Properties and State of a System
- Lecture 2 - Properties of pure substances
- Lecture 3 - Properties of pure substances (Continued...)
- Lecture 4 - Heat and Work
- Lecture 5 - Tutorial 1
- Lecture 6 - Zeroth Law of Thermodynamics
- Lecture 7 - First law of thermodynamics for closed systems - Part I
- Lecture 8 - First law of thermodynamics for closed systems - Part II, some examples
- Lecture 9 - Tutorial 2
- Lecture 10 - First law of thermodynamics for open systems
- Lecture 11 - Tutorial 3
- Lecture 12 - Second law and its corollaries - Part I
- Lecture 13 - Second law and its corollaries - Part II
- Lecture 14 - Second law and its corollaries - Part III
- Lecture 15 - Definition of entropy and entropy change in closed systems
- Lecture 16 - Entropy change in closed systems (Continued...)
- Lecture 17 - Tutorial 4
- Lecture 18 - Entropy and its transport
- Lecture 19 - Tutorial 5
- Lecture 20 - Introduction to Third Law
- Lecture 21 - Review of learning concepts

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Energy Conservation and Waste Heat Recovery

Subject Co-ordinator - Prof. PK Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to waste heat recovery  
Lecture 2 - Introduction to waste heat recovery (Continued...)  
Lecture 3 - Introduction to waste heat recovery (Continued...)  
Lecture 4 - Introduction to waste heat recovery (Continued...)  
Lecture 5 - Thermodynamic principles of waste heat recovery  
Lecture 6 - Thermodynamic principles of waste heat recovery (Continued...)  
Lecture 7 - Thermodynamic principles of waste heat recovery (Continued...)  
Lecture 8 - Thermodynamic principles of waste heat recovery (Continued...)  
Lecture 9 - Reversible Cycles  
Lecture 10 - Reversible Cycles (Continued...)  
Lecture 11 - Entropy  
Lecture 12 - Entropy (Continued...)  
Lecture 13 - Entropy (Continued...), Exergy  
Lecture 14 - Exergy, Second Law efficiency  
Lecture 15 - Second Law efficiency (Continued...)  
Lecture 16 - Recapitulation of common power cycles  
Lecture 17 - Recapitulation of common power cycles (Continued...)  
Lecture 18 - Recapitulation of common power cycles (Continued...)  
Lecture 19 - Recapitulation of common power cycles (Continued...)  
Lecture 20 - Recapitulation of common power cycles (Continued...)  
Lecture 21 - Recapitulation of common power cycles (Continued...)  
Lecture 22 - Gas Turbine cycle  
Lecture 23 - Combined cycle  
Lecture 24 - Combined cycle (Continued...)  
Lecture 25 - Combined Cycle (Continued...)  
Lecture 26 - Heat recovery steam generator  
Lecture 27 - Thermodynamic cycles for low temperature application  
Lecture 28 - Thermodynamic cycles for low temperature application (Continued...), Cogeneration  
Lecture 29 - Heat Exchanger

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heat Exchanger (Continued...)
- Lecture 31 - Heat Exchanger (Continued...)
- Lecture 32
- Lecture 33
- Lecture 34
- Lecture 35
- Lecture 36
- Lecture 37 - Heat Pipe - Part I
- Lecture 38 - Heat Pipe - Part II
- Lecture 39 - Heat Pipe - Part III
- Lecture 40 - Direct Conversion - Introduction to TEG
- Lecture 41 - Thermoelectric Generators - Functioning and Applications
- Lecture 42 - TEG - performance analysis
- Lecture 43 - TEG - performance optimization
- Lecture 44 - Direct Conversion - Magneto Hydro dynamics (MHD)
- Lecture 45 - Direct Conversion - Thermo-Ionic generation
- Lecture 46 - Direct Conversion - Thermo Photo Voltaic generation (TPV)
- Lecture 47 - Heat Pumps - I
- Lecture 48 - Heat Pumps - II
- Lecture 49 - Heat Pumps - III
- Lecture 50 - Waste Heat Recovery from Incinerator Plants
- Lecture 51 - Energy Storage Systems - I
- Lecture 52 - Energy Storage Systems - II
- Lecture 53 - Energy Storage Systems - III
- Lecture 54 - Energy Storage Systems - IV
- Lecture 55 - Energy Storage Systems - V
- Lecture 56 - Energy Storage Systems - VI
- Lecture 57
- Lecture 58
- Lecture 59
- Lecture 60
- Lecture 61
- Lecture 62
- Lecture 63
- Lecture 64
- Lecture 65
- Lecture 66
- Lecture 67
- Lecture 68 - Corrigendum

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Mechanical Micro Machining

Subject Co-ordinator - Prof. Ajay M Sidpara

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Introduction (Continued...)  
Lecture 5 - Introduction (Continued...)  
Lecture 6 - Introduction (Continued...)  
Lecture 7 - Scaling Laws  
Lecture 8 - Scaling laws (Continued...)  
Lecture 9 - Scaling laws (Continued...)  
Lecture 10 - Difference between macro and micro machining  
Lecture 11 - Difference between macro and micro machining (Continued...)  
Lecture 12 - Difference between micro and macro machining (Continued...)  
Lecture 13 - Difference between micro and macro machining (Continued...)  
Lecture 14 - Difference between macro and micro machining (Continued...)  
Lecture 15 - Difference between macro and micro machining (Continued...)  
Lecture 16 - Difference between macro and micro machining (Continued...)  
Lecture 17 - Difference between macro and micro machining (Continued...)  
Lecture 18 - Difference between macro and micro machining (Continued...)  
Lecture 19 - Difference between macro and micro machining (Continued...)  
Lecture 20 - Difference between macro and micro machining (Continued...)  
Lecture 21 - Difference between macro and micro machining (Continued...)  
Lecture 22 - Component of the machine tool  
Lecture 23 - Components of the machine tool (Continued...)  
Lecture 24 - Components of the machine tool (Continued...)  
Lecture 25 - Components of the machine tool (Continued...)  
Lecture 26 - Components of the machine tool (Continued...)  
Lecture 27 - Errors in machine tool (Continued...)  
Lecture 28 - Errors in machine tool (Continued...)  
Lecture 29 - Errors in machine tool (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Errors in machine tool (Continued...)
- Lecture 31 - Components of machine tool
- Lecture 32 - Components of machine tool (Continued...)
- Lecture 33 - Components of machine tool (Continued...)
- Lecture 34 - Components of machine tool (Continued...)
- Lecture 35 - Components of machine tool (Continued...)
- Lecture 36 - Components of machine tool (Continued...)
- Lecture 37 - Components of machine tool (Continued...)
- Lecture 38 - Components of machine tool (Continued...)
- Lecture 39 - Components of machine tool (Continued...)
- Lecture 40 - Components of machine tool (Continued...)
- Lecture 41 - Components of machine tool (Continued...)
- Lecture 42 - Components of machine tool (Continued...)
- Lecture 43 - Components of machine tool (Continued...)
- Lecture 44 - Components of machine tool (Continued...)
- Lecture 45 - Components of machine tool (Continued...)
- Lecture 46 - Components of machine tool (Continued...)
- Lecture 47 - Components of machine tool (Continued...)
- Lecture 48 - Components of machine tool (Continued...)
- Lecture 49 - Micro tools
- Lecture 50 - Micro tools (Continued...)
- Lecture 51 - Micro tools (Continued...)
- Lecture 52 - Fabrication of micro tool by EDM process
- Lecture 53 - Micro tools (Continued...)
- Lecture 54 - Micro machines
- Lecture 55 - Micro machines (Continued...)
- Lecture 56 - Diamond turning
- Lecture 57 - Diamond turning (Continued...)
- Lecture 58 - Diamond turning (Continued...)
- Lecture 59 - Diamond turning (Continued...)
- Lecture 60 - Sensors and metrology for micro machining
- Lecture 61 - Sensors and metrology for micro machining (Continued...)
- Lecture 62 - Sensors and metrology for micro machining (Continued...)
- Lecture 63 - 3D surface measurement using interferometer

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Machinery Fault Diagnosis and Signal Processing

Subject Co-ordinator - Prof. Amiya Ranjan Mohanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Maintenance Principles
- Lecture 3 - FMECA
- Lecture 4 - Fault Diagnostics and Prognostics
- Lecture 5 - Machine Learning in CBM
- Lecture 6 - Basics of Vibration
- Lecture 7 - Free and Forced Response
- Lecture 8 - Vibration and Shock Isolation
- Lecture 9 - Rotordynamics
- Lecture 10 - Practical Examples of Vibration
- Lecture 11 - Time Domain Analysis
- Lecture 12 - Frequency Domain Analysis
- Lecture 13 - Non Stationary Signal Analysis
- Lecture 14 - Modulation and Beats
- Lecture 15 - Orbit and Order Analysis
- Lecture 16 - Computer aided data acquisition
- Lecture 17 - Orbit and Order Analysis
- Lecture 18 - Data Recording
- Lecture 19 - Cepstrum Analysis
- Lecture 20 - Hilbert Transform in Condition Monitoring
- Lecture 21 - Introduction to MATLAB
- Lecture 22 - Signal Processing using MATLAB
- Lecture 23 - Numericals in Signal Processing and Data Acquisition
- Lecture 24 - Signal Hetrodnying
- Lecture 25 - Practical Signals
- Lecture 26 - Basics Of Instrumentation
- Lecture 27 - Signal Conditioning And Filtering
- Lecture 28 - Errors In Measurements
- Lecture 29 - Dynamic Range And Frequency Response

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Overview Of Transducers For Cbm
- Lecture 31 - Accelerometers
- Lecture 32 - Vibration Monitoring
- Lecture 33 - Rotational Speed Measurements
- Lecture 34 - Basics of Noise
- Lecture 35 - Noise Monitoring
- Lecture 36 - Introduction to Faults in Rotating Machines
- Lecture 37 - Unbalance Detection
- Lecture 38 - Field Balancing
- Lecture 39 - Misalignment
- Lecture 40 - Crack and Looseness
- Lecture 41 - Journal and Anti-Friction Bearings
- Lecture 42 - Gears
- Lecture 43 - Pumps and Cavitation
- Lecture 44 - IC Engines
- Lecture 45 - Machinery Diagnostic Chart
- Lecture 46 - Principles of Motor Current Signature Analysis
- Lecture 47 - Faults in Electrical Machines
- Lecture 48 - Thermography
- Lecture 49 - Wear Debris Analysis
- Lecture 50 - Oil Analysis
- Lecture 51 - Ultrasonics
- Lecture 52 - Eddy Current and Acoustic Emission
- Lecture 53 - Radiography, Dye Penetrant Tests
- Lecture 54 - Tool Condition Monitoring
- Lecture 55 - Experimental Modal Analysis
- Lecture 56 - Introduction to Failure Analysis
- Lecture 57 - Railway Locomotive Noise and Vibration Monitoring
- Lecture 58 - Paper Mill Vibration Monitoring
- Lecture 59 - Overview of CBM facilities at IIT Kharagpur
- Lecture 60 - Future of Condition based Monitoring

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC: Metal Cutting and Machine Tools

Subject Co-ordinator - Prof. Asimava Roy Choudhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Geometry of single point turning tools - 1
- Lecture 3 - Geometry of turning tools - 2
- Lecture 4 - Geometry of single point turning tools - 3
- Lecture 5 - Geometry of cutting tools and numerical problems
- Lecture 6 - Different types of tools and mcq
- Lecture 7 - Mechanism of chip formation
- Lecture 8 - Mechanics of material removal
- Lecture 9 - Measurement of Cutting Forces
- Lecture 10 - Numerical problems and MCQ
- Lecture 11 - Tool wear and Tool life
- Lecture 12 - Wear and life of cutting tools - 2
- Lecture 13 - The lathe
- Lecture 14 - Calculations on mechanisms in machine tools
- Lecture 15 - Numerical problems on lathe
- Lecture 16 - Milling machines
- Lecture 17 - Milling machine - indexing
- Lecture 18 - Gear cutting CNC and non traditional machining
- Lecture 19 - CNC and non-traditional machining methods
- Lecture 20 - Numerical problems for week 4
- Lecture 21 - Live Session

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Gear and Gear Unit Design - Theory and Practice

Subject Co-ordinator - Prof. Rathindranath Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - Motivation and Theme of the Course
- Lecture 2 - Laws of Gearing, Kinematics and Geometry - Part I
- Lecture 3 - Laws of Gearing, Kinematics and Geometry - Part II
- Lecture 4 - Involute Toothed Gear- Properties and Terminology
- Lecture 5 - Tutorial
- Lecture 6 - Involute Straight Tooth Spur Gear
- Lecture 7 - Helical Tooth Spur Gear and Loads on Gear Shaft
- Lecture 8 - Design of Bevel Gear
- Lecture 9 - Crossed Helical Gear - I
- Lecture 10 - Crossed Helical Gear - II and Worm Gear
- Lecture 11 - Gear Unit Design - Selection of Stage Ratios, Pinion and Gear Teeth Numbers
- Lecture 12 - Gear Unit Design - First Stage Pinion and Gear Design- I (Module on Beam Strength Basis)
- Lecture 13 - Gear Unit Design - Failure of Gear Tooth (Probable Dynamic Load and Wear Load Capacity)
- Lecture 14 - Gear Unit Design - 1st. Stage Pinion and Gear Design-II (Probable Dynamic Load and Wear Load Capacity)
- Lecture 15 - Gear Unit Design - 1st. Layout (After Gear Design)
- Lecture 16 - Bearing Arrangement - Gear Box Shafts
- Lecture 17 - Bearing Load Calculation - Intermediate Shaft
- Lecture 18 - Bearing Selection and Introduction to Shaft Design Verification
- Lecture 19 - Design Verification of Gear Box Shafts
- Lecture 20 - Development (Layout) of Intermediate Shaft
- Lecture 21 - Development (Layout) of Input Shaft and Integral Pinion
- Lecture 22 - Development (Layout) of Output Shaft and 2nd. Stage (Output) Gear
- Lecture 23 - Development (Layout) of Output Shaft (Continued...), Loads on Shaft and Bearings
- Lecture 24 - Output Shaft-Bearing Lives
- Lecture 25 - Design Verification of Output Shaft
- Lecture 26 - Design Verification of Input Shaft (including Bearing Life Estimation)
- Lecture 27 - Finalizing Design including the Sizes of the Keys
- Lecture 28 - Development of Plan and Elevation of Gear Reduction Unit - I
- Lecture 29 - Development of Plan and Elevation of Gear Reduction Unit - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Development of Plan and Elevation of Gear Reduction Unit - III
- Lecture 31
- Lecture 32
- Lecture 33 - Involute Spur Gear Tooth Correction
- Lecture 34 - Involute Spur Gear Tooth Correction
- Lecture 35 - Involute Spur Gear Tooth Correction
- Lecture 36 - Involute Spur Gear Tooth Correction
- Lecture 37 - Involute Spur Gear Tooth Correction
- Lecture 38 - Tooth Tip Interference, Avoidance and Contact Ratio in Involute Internal Gearing
- Lecture 39
- Lecture 40
- Lecture 41
- Lecture 42
- Lecture 43
- Lecture 44
- Lecture 45 - Live Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Traditional and Non-Traditional Optimization Tools

Subject Co-ordinator - Prof. Dilip Kumar Pratihari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Principle of Optimization
- Lecture 2 - Traditional Methods of Optimization
- Lecture 3 - Traditional Methods of Optimization (Continued...)
- Lecture 4 - Binary-Coded Genetic Algorithm (BCGA)
- Lecture 5 - Binary-Coded Genetic Algorithm (BCGA) (Continued...)
- Lecture 6 - Binary-Coded Genetic Algorithm (BCGA) (Continued...)
- Lecture 7 - Binary-Coded Genetic Algorithm (BCGA) (Continued...)
- Lecture 8 - Binary-Coded Genetic Algorithm (BCGA) (Continued...)
- Lecture 9 - Schema Theorem of BCGA
- Lecture 10 - Schema Theorem of BCGA (Continued...)
- Lecture 11 - Constraint Handling
- Lecture 12 - Real-Coded GA
- Lecture 13 - Faster Genetic Algorithms
- Lecture 14 - Faster Genetic Algorithms (Continued...)
- Lecture 15 - Faster Genetic Algorithms (Continued...)
- Lecture 16 - Faster Genetic Algorithms (Continued...)
- Lecture 17 - Scheduling GA
- Lecture 18 - Scheduling GA (Continued...)
- Lecture 19 - Scheduling GA (Continued...)
- Lecture 20 - Simulated Annealing
- Lecture 21 - Particle Swarm Optimization
- Lecture 22 - Multi-Objective Optimization
- Lecture 23 - Multi-Objective Optimization (Continued...)
- Lecture 24 - Multi-Objective Optimization (Continued...)
- Lecture 25 - Multi-Objective Optimization (Continued...)
- Lecture 26 - Multi-Objective Optimization (Continued...)
- Lecture 27 - Intelligent Optimization Toolture
- Lecture 28 - A Practical Optimization Problem
- Lecture 29 - A Practical Optimization Problem (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - A Practical Optimization Problem (Continued...)
- Lecture 31 - A Practical Optimization Problem (Continued...)
- Lecture 32 - A Practical Optimization Problem (Continued...)
- Lecture 33 - A Practical Optimization Problem (Continued...)
- Lecture 34 - A Practical Optimization Problem (Continued...)
- Lecture 35 - A Practical Optimization Problem (Continued...)
- Lecture 36 - A Practical Optimization Problem (Continued...)
- Lecture 37 - Genetic Algorithm as Evolution Tool
- Lecture 38 - Genetic Algorithm as Evolution Tool (Continued...)
- Lecture 39 - Genetic Algorithm as Evolution Tool (Continued...)
- Lecture 40 - Genetic Algorithm as Evolution Tool (Continued...)
- Lecture 41 - Genetic Algorithm as Evolution Tool (Continued...)
- Lecture 42 - Genetic Algorithm as Evolution Tool (Continued...)
- Lecture 43 - Summary 1
- Lecture 44 - Summary 2
- Lecture 45 - Summary 3



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC: Mechanism and Robot Kinematics

Subject Co-ordinator - Dr. Anirvan Das Gupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Nomenclature
- Lecture 3 - Kinematic Diagram
- Lecture 4 - Degree of Freedom - I
- Lecture 5 - Degree of Freedom - II
- Lecture 6 - Degree of Freedom - Failure
- Lecture 7 - Grashof Criteria - I
- Lecture 8 - Grashof Criteria - II
- Lecture 9 - Geometry and Representation of Vectors
- Lecture 10 - Displacement Analysis
- Lecture 11 - Displacement Analysis
- Lecture 12 - Displacement Analysis
- Lecture 13 - Displacement Analysis
- Lecture 14 - Displacement Analysis
- Lecture 15 - Displacement Analysis
- Lecture 16 - Displacement Analysis
- Lecture 17 - Displacement Analysis
- Lecture 18 - Displacement Analysis
- Lecture 19 - Displacement Analysis
- Lecture 20 - Velocity Analysis
- Lecture 21 - Velocity Analysis
- Lecture 22 - Velocity Analysis
- Lecture 23 - Velocity Analysis
- Lecture 24 - Velocity Analysis
- Lecture 25 - Velocity Analysis
- Lecture 26 - Velocity Analysis
- Lecture 27 - Velocity Analysis
- Lecture 28 - Velocity Analysis
- Lecture 29 - Serial Manipulator Velocity Analysis - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Serial Manipulator Velocity Analysis - II
- Lecture 31 - Serial Manipulator Velocity Analysis - III
- Lecture 32 - Parallel Manipulator Velocity Analysis
- Lecture 33 - Path Generation Problem
- Lecture 34 - Acceleration Analysis - I
- Lecture 35 - Acceleration Analysis - II
- Lecture 36 - Force Analysis - I
- Lecture 37 - Force Analysis - II
- Lecture 38 - Coordinate transformation - I
- Lecture 39 - Coordinate transformation - II
- Lecture 40 - Coordinate transformation - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Heat Exchangers: Fundamentals and Design Analysis

Subject Co-ordinator - Prof. Prasanta Kr Das, Prof. Somnath Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Applications of Heat Exchangers
- Lecture 3 - Classification of Heat Exchangers
- Lecture 4 - Classification of Heat Exchangers (Continued...)
- Lecture 5 - Design and Simulation of Heat Exchangers
- Lecture 6 - Design and Simulation
- Lecture 7 - Design and Simulation of Heat Exchangers - Numerical Problem
- Lecture 8 - Design and Simulation of Heat Exchangers - Numerical Problem (Continued...)
- Lecture 9 - Design and Simulation of Heat Exchangers - Numerical Problem (Continued...)
- Lecture 10 - Tubular Heat Exchanger Types
- Lecture 11 - Tubular Heat Exchanger Types
- Lecture 12 - Tubular Heat Exchanger
- Lecture 13 - Tubular Heat Exchanger
- Lecture 14 - Tubular Heat Exchanger
- Lecture 15 - Tubular Heat Exchanger
- Lecture 16 - Enhancement of Heat Transfer compact Heat Exchangers
- Lecture 17 - Extended Surface Heat Transfer
- Lecture 18 - Extended Surface Heat Transfer
- Lecture 19 - Extended Surface Heat Exchangers
- Lecture 20 - Analysis of fin plates of finned tube heat exchanger
- Lecture 21 - Finned tube heat exchanger
- Lecture 22 - Finned tube heat exchanger (Continued...)
- Lecture 23 - Finned tube heat exchanger (Continued...)
- Lecture 24 - Plate fin heat exchanger
- Lecture 25 - Plate fin heat exchanger (Continued...)
- Lecture 26 - Plate fin heat exchanger (Continued...)
- Lecture 27 - Plate fin heat exchanger
- Lecture 28 - Plate fin heat exchanger
- Lecture 29 - Plate fin heat exchanger

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Plate fin heat exchanger
- Lecture 31 - Plate fin heat exchanger
- Lecture 32 - Plate fin heat exchanger
- Lecture 33 - Plate fin heat exchanger
- Lecture 34 - Plate fin heat exchanger
- Lecture 35 - Plate fin heat exchanger
- Lecture 36 - Phase change heat exchangers
- Lecture 37 - Phase change heat exchangers (Continued...)
- Lecture 38 - Surface Condenser
- Lecture 39 - Surface Condenser (Continued...)
- Lecture 40 - Surface Condenser (Continued...)
- Lecture 41 - Surface Condenser (Continued...)
- Lecture 42 - In tube condensation
- Lecture 43 - Heat pipes and Heat pipe heat exchangers
- Lecture 44 - Heat pipes and Heat pipe heat exchangers (Continued...)
- Lecture 45 - Heat pipes and Heat exchangers
- Lecture 46 - Heat pipes and Heat exchangers (Continued...)
- Lecture 47 - Micro Heat Exchanger Introduction
- Lecture 48 - Micro scale Heat Transfer
- Lecture 49 - Micro scale Heat Transfer (Continued...)
- Lecture 50 - Micro Channel
- Lecture 51 - Micro Heat Exchanger
- Lecture 52 - Regenerators
- Lecture 53 - Fixed Bed Regenerator Analysis
- Lecture 54 - Design and Simulation of Regenerator (Fixed Bed)
- Lecture 55 - Fixed Bed Regenerator (Numerical)
- Lecture 56 - Fixed Bed Regenerator (Numerical) (Continued...)
- Lecture 57 - Fouling in Heat Exchangers
- Lecture 58 - Fouling in Heat Exchangers (Continued...)
- Lecture 59 - Fouling in Heat Exchangers (Continued...)
- Lecture 60 - Direct Contact heat exchanger
- Lecture 61 - Direct Contact heat exchanger (Continued...)
- Lecture 62 - Heat exchanger network synthesis
- Lecture 63 - Heat exchanger network
- Lecture 64 - Heat exchanger network (Continued...)
- Lecture 65 - Heat Exchanger Testing
- Lecture 66 - Heat Exchanger Testing (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Robotics

Subject Co-ordinator - Prof. Dilip Kumar Pratihari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Robots and Robotics  
Lecture 2 - Introduction to Robots and Robotics (Continued...)  
Lecture 3 - Introduction to Robots and Robotics (Continued...)  
Lecture 4 - Introduction to Robots and Robotics (Continued...)  
Lecture 5 - Introduction to Robots and Robotics (Continued...)  
Lecture 6 - Introduction to Robots and Robotics (Continued...)  
Lecture 7 - Introduction to Robots and Robotics (Continued...)  
Lecture 8 - Introduction to Robots and Robotics (Continued...)  
Lecture 9 - Introduction to Robots and Robotics (Continued...)  
Lecture 10 - Introduction to Robots and Robotics (Continued...)  
Lecture 11 - Robot Kinematics  
Lecture 12 - Robot Kinematics (Continued...)  
Lecture 13 - Robot Kinematics (Continued...)  
Lecture 14 - Robot Kinematics (Continued...)  
Lecture 15 - Robot Kinematics (Continued...)  
Lecture 16 - Robot Kinematics (Continued...)  
Lecture 17 - Robot Kinematics (Continued...)  
Lecture 18 - Robot Kinematics (Continued...)  
Lecture 19 - Robot Kinematics (Continued...)  
Lecture 20 - Robot Kinematics (Continued...)  
Lecture 21 - Trajectory Planning  
Lecture 22 - Trajectory Planning (Continued...)  
Lecture 23 - Singularity Checking  
Lecture 24 - Robot Dynamics  
Lecture 25 - Robot Dynamics (Continued...)  
Lecture 26 - Robot Dynamics (Continued...)  
Lecture 27 - Robot Dynamics (Continued...)  
Lecture 28 - Robot Dynamics (Continued...)  
Lecture 29 - Robot Dynamics (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Control Scheme
- Lecture 31 - Sensors
- Lecture 32 - Sensors (Continued...)
- Lecture 33 - Sensors (Continued...)
- Lecture 34 - Robot Vision
- Lecture 35 - Robot Vision (Continued...)
- Lecture 36 - Robot Vision (Continued...)
- Lecture 37 - Robot Motion Planning
- Lecture 38 - Robot Motion Planning (Continued...)
- Lecture 39 - Robot Motion Planning (Continued...)
- Lecture 40 - Robot Motion Planning (Continued...)
- Lecture 41 - Intelligent Robot
- Lecture 42 - Biped Walking
- Lecture 43 - Biped Walking (Continued...)
- Lecture 44 - Summary
- Lecture 45 - Summary (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced Gas Dynamics

Subject Co-ordinator - Dr. Rinku Mukherjee

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Gas Dynamics & Review of Basic Thermodynamics
- Lecture 2 - Review of Basic Thermodynamics Continued
- Lecture 3 - An introduction to Normal Shocks
- Lecture 4 - The Mach Number and Compressible Flow
- Lecture 5 - The relation of physical properties across a normal shock
- Lecture 6 - Normal Shock in a duct
- Lecture 7 - Example Problems in Normal Shocks
- Lecture 8 - An introduction to Oblique Shocks
- Lecture 9 - The relation of physical properties across an oblique shock
- Lecture 10 - Example Problems in Oblique Shocks
- Lecture 11 - Pressure - Deflection relationship of Shocks
- Lecture 12 - An introduction to Expansion waves
- Lecture 13 - Area - Mach Relationship
- Lecture 14 - Unsteady Shock Waves
- Lecture 15 - The Shock Tube
- Lecture 16 - A review of wave propagation
- Lecture 17 - Wave propagation
- Lecture 18 - Finite Wave Theory
- Lecture 19 - The Shock Tube
- Lecture 20 - The Method of Characteristics
- Lecture 21 - Application of The Method of Characteristics
- Lecture 22 - Application of The Method of Characteristics
- Lecture 23 - Flow over a Wavy wall
- Lecture 24 - Subsonic Flow over a Wavy wall
- Lecture 25 - Supersonic Flow over a Wavy wall
- Lecture 26 - Supersonic Flow past a 3D Cone
- Lecture 27 - Quasi 2D Flow - I
- Lecture 28 - Quasi 2D Flow - II
- Lecture 29 - Similarity Rules and Transformed Coordinate System

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Critical Mach Number and Thin Airfoil Theory
- Lecture 31 - Example Problem using Thin Airfoil Theory
- Lecture 32 - Example Problems - 1
- Lecture 33 - Example Problems - 2
- Lecture 34 - Example Problems - 3
- Lecture 35 - Supersonic Flow past a 3D Cone at an angle of attack
- Lecture 36 - Supersonic Flow past a 3D Cone at an angle of attack
- Lecture 37 - Supersonic Flow past a 3D Cone at an angle of attack
- Lecture 38 - Supersonic Flow past a 3D Cone at an angle of attack
- Lecture 39 - Supersonic Flow past a 3D Cone at an angle of attack
- Lecture 40 - Supersonic Flow past a 3D Bluff Body at an angle of attack



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Design and Optimization of Energy systems

Subject Co-ordinator - Prof. C. Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Optimization
- Lecture 2 - System Design and Analysis
- Lecture 3 - Workable system
- Lecture 4 - System simulation
- Lecture 5 - Information flow diagrams
- Lecture 6 - Successive substitution method
- Lecture 7 - Successive substitution method (Continued.)
- Lecture 8 - Successive substitution method and Newton-Raphson method
- Lecture 9 - Newton-Raphson method (Continued.)
- Lecture 10 - Convergence characteristics of Newton-Raphson method
- Lecture 11 - Newton-Raphson method for multiple variables
- Lecture 12 - Solution of system of linear equations
- Lecture 13 - Introduction to Curve fitting
- Lecture 14 - Example for Lagrange interpolation
- Lecture 15 - Lagrange interpolation (Continued.)
- Lecture 16 - Best fit
- Lecture 17 - Least Square Regression
- Lecture 18 - Least Square Regression (Continued.)
- Lecture 19 - Least Square Regression (Continued.)
- Lecture 20 - Non-linear Regression (Gauss - Newton Algorithm)
- Lecture 21 - Optimization- Basic ideas
- Lecture 22 - Properties of objective function and cardinal ideas in optimization
- Lecture 23 - Unconstrained optimization
- Lecture 24 - Constrained optimization problems
- Lecture 25 - Mathematical proof of the Lagrange multiplier method
- Lecture 26 - Test for Maxima / Minima
- Lecture 27 - Handling in-equality constraints
- Lecture 28 - Kuhn-Tucker conditions (Continued.)
- Lecture 29 - Uni-modal function and search methods

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dichotomous search
- Lecture 31 - Fibonacci search method
- Lecture 32 - Reduction ratio of Fibonacci search method
- Lecture 33 - Introduction to multi-variable optimization
- Lecture 34 - The Conjugate gradient method
- Lecture 35 - The Conjugate gradient method (Continued.)
- Lecture 36 - Linear programming
- Lecture 37 - Dynamic programming
- Lecture 38 - Genetic Algorithms
- Lecture 39 - Genetic Algorithms (Continued.)
- Lecture 40 - Simulated Annealing and Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Engineering Fracture Mechanics

Subject Co-ordinator - Prof. K. Ramesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - EFM Course Outline
- Lecture 2 - Spectacular Failures
- Lecture 3 - Lessons from Spectacular Failures
- Lecture 4 - LEFM and EPFM
- Lecture 5 - Fracture Mechanics is Holistic
- Lecture 6 - Fatigue Crack Growth Model
- Lecture 7 - Crack Growth and Fracture Mechanisms
- Lecture 8 - Elastic Strain Energy
- Lecture 9 - Fracture Strength by Griffith
- Lecture 10 - Energy Release Rate
- Lecture 11 - Utility of Energy Release Rate
- Lecture 12 - Pop-in Phenomenon
- Lecture 13 - Displacement and Stress Formulations
- Lecture 14 - Forms of Stress Functions
- Lecture 15 - Airy's Stress Function for Mode-I
- Lecture 16 - Westergaard Solution of Stress Field for Mode-I
- Lecture 17 - Displacement Field for Mode-I
- Lecture 18 - Relation between KI and GI
- Lecture 19 - Stress Field in Mode-II
- Lecture 20 - Generalised Westergaard Approach
- Lecture 21 - William's Eigen Function Approach
- Lecture 22 - Multi-parameter Stress Field Equations
- Lecture 23 - Validation of Multi-parameter Field Equations
- Lecture 24 - Discussion Session - I
- Lecture 25 - Evaluation of SIF for Various Geometries
- Lecture 26 - SIF for Embedded Cracks
- Lecture 27 - SIF for Surface Cracks
- Lecture 28 - Modeling of Plastic Deformation
- Lecture 29 - Irwin's Model

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dugdale Model
- Lecture 31 - Fracture Toughness Testing
- Lecture 32 - Plane Strain Fracture Toughness Testing
- Lecture 33 - Plane Stress Fracture Toughness Testing
- Lecture 34 - Paris Law and Sigmoidal Curve
- Lecture 35 - Crack Closure
- Lecture 36 - Crack Growth Models
- Lecture 37 - J-Integral
- Lecture 38 - HRR Field and CTOD
- Lecture 39 - FAD and Mixed Mode Fracture
- Lecture 40 - Crack Arrest and Repair Methodologies
- Lecture 41 - Discussion Session - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Experimental Stress Analysis

Subject Co-ordinator - Prof. K. Ramesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview of Experimental Stress Analysis

Lecture 2 - Optical Methods Work as Optical Computers

Lecture 3 - Stress, Strain and Displacement Fields

Lecture 4 - Physical Principle of Strain Gauges, Photoelasticity and Moiré

Lecture 5 - Introduction to Moiré, Brittle Coatings and Holography

Lecture 6 - Hologram Interferometry, Speckle Methods

Lecture 7 - Introduction to Shearography, TSA, DIC and Caustics

Lecture 8 - Fringe Patterns - Richness of Qualitative Information

Lecture 9 - Multi-Scale Analysis in Experimental Mechanics

Lecture 10 - Selection of an Experimental Technique

Lecture 11 - Introduction to Transmission Photoelasticity

Lecture 12 - Ordinary and Extraordinary Rays

Lecture 13 - Light Ellipse, Passage of Light Through a Crystal Plate

Lecture 14 - Retardation Plates, Stress-optic Law

Lecture 15 - Plane Polariscopes

Lecture 16 - Jones Calculus

Lecture 17 - Circular Polariscopes

Lecture 18 - Determination of Photoelastic Parameters at an Arbitrary Point

Lecture 19 - Tardy's Method of Compensation

Lecture 20 - Calibration of Photoelastic Materials

Lecture 21 - Fringe Thinning Methodologies

Lecture 22 - Fringe Ordering in Photoelasticity

Lecture 23 - Miscellaneous Topics in Transmission Photoelasticity

Lecture 24 - Three Dimensional Photoelasticity

Lecture 25 - Overview of Digital Photoelasticity

Lecture 26 - Introduction to Photoelastic Coatings

Lecture 27 - Correction Factors for Photoelastic Coatings

Lecture 28 - Coating Materials, Selection of Coating Thickness, Industrial Application of Photoelastic Coatings

Lecture 29 - Calibration of Photoelastic Coatings, Introduction to Brittle Coatings

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of Brittle Coatings
- Lecture 31 - Introduction to Strain Gauges
- Lecture 32 - Strain Sensitivity of a Strain Gauge, Bridge Sensitivity, Rosettes
- Lecture 33 - Strain Gauge Alloys, Carriers and Adhesives
- Lecture 34 - Performance of Strain Gauge System
- Lecture 35 - Temperature Compensation, Two-wire and Three-wire Circuits
- Lecture 36 - Strain Gauge Selection
- Lecture 37 - Bonding of a Strain Gauge
- Lecture 38 - Soldering, Accounting for Transverse Sensitivity Effects
- Lecture 39 - Correction Factors for Special Applications
- Lecture 40 - Special Gauges
- Lecture 41 - Questions and Answers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Rocket Propulsion

Subject Co-ordinator - Prof. K. Ramamurthi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Motion in Space
- Lecture 3 - Rotational Frame of Reference and Orbital Velocities
- Lecture 4 - Velocity Requirements
- Lecture 5 - Theory of Rocket Propulsion
- Lecture 6 - Rocket Equation and Staging of Rockets
- Lecture 7 - Review of Rocket Principles; Propulsion Efficiency
- Lecture 8 - Examples Illustrating Theory of Rocket Propulsion and Introduction to Nozzles
- Lecture 9 - Theory of Nozzles
- Lecture 10 - Nozzle Shape
- Lecture 11 - Area Ratio of Nozzles; Under-expansion and Over-expansion
- Lecture 12 - Characteristic Velocity and Thrust Coefficient
- Lecture 13 - Divergence Loss in Conical Nozzles and the Bell Nozzle
- Lecture 14 - Unconventional Nozzles and Problems in Nozzles
- Lecture 15 - Criterion for Choice of Chemical Propellants
- Lecture 16 - Choice of Fuel-Rich Propellants
- Lecture 17 - Performance Prediction Analysis
- Lecture 18 - Dissociation of Products of Combustion
- Lecture 19 - Shifting Equilibrium and Frozen Flow in Nozzles
- Lecture 20 - Factors Influencing Choice of Chemical Propellants
- Lecture 21 - Low Energy Liquid Propellants and Hybrid Propellants
- Lecture 22 - Introduction to Solid Propellant Rockets
- Lecture 23 - Burn Rate of Solid Propellants and Equilibrium Pressure in Solid Propellant Rockets
- Lecture 24 - Design Aspects of Solid Propellant Rockets
- Lecture 25 - Burning Surface Area of Solid Propellant Grains
- Lecture 26 - Ignition of Solid Propellant Rockets
- Lecture 27 - Review of Solid Propellant Rockets
- Lecture 28 - Feed Systems for Liquid Propellant Rockets
- Lecture 29 - Feed System Cycles for Pump Fed Liquid Propellant Rockets

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of Gas Generator and Staged Combustion Cycles and Introduction to Injectors
- Lecture 31 - Injectors, Cooling of Chamber and Mixture Ratio Distribution
- Lecture 32 - Efficiencies due to Mixture Ratio Distribution and Incomplete Vaporization
- Lecture 33 - Pumps and Turbines; Propellant Feed System at Zero  $g_0$  Conditions
- Lecture 34 - Review of Liquid Bi-propellant Rockets and Introduction to Mono-propellant Rockets
- Lecture 35 - Introduction to Hybrid Rockets and a Simple Illustration of Combustion Instability in Liquid Prop
- Lecture 36 - Combustion Instability in Solid Propellant and Liquid Propellant Rockets  $\hat{=}$  Bulk and Wave Modes
- Lecture 37 - Wave modes of Oscillation
- Lecture 38 - Mechanisms Causing Instabilities and Strategies for Avoiding Combustion Instability
- Lecture 39 - Electric and Magnetic Fields and the Electrostatic Thruster
- Lecture 40 - Electrical Thrusters
- Lecture 41 - Advances in Rocket Propulsion



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced Finite Elements Analysis

Subject Co-ordinator - Dr. R. Krishnakumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Advanced Finite Elements Analysis  
Lecture 2 - Advanced Finite Elements Analysis  
Lecture 3 - Advanced Finite Elements Analysis  
Lecture 4 - Advanced Finite Elements Analysis  
Lecture 5 - Advanced Finite Elements Analysis  
Lecture 6 - Advanced Finite Elements Analysis  
Lecture 7 - Advanced Finite Elements Analysis  
Lecture 8 - Advanced Finite Elements Analysis  
Lecture 9 - Advanced Finite Elements Analysis  
Lecture 10 - Advanced Finite Elements Analysis  
Lecture 11 - Advanced Finite Elements Analysis  
Lecture 12 - Advanced Finite Elements Analysis  
Lecture 13 - Advanced Finite Elements Analysis  
Lecture 14 - Advanced Finite Elements Analysis  
Lecture 15 - Advanced Finite Elements Analysis  
Lecture 16 - Advanced Finite Elements Analysis  
Lecture 17 - Advanced Finite Elements Analysis  
Lecture 18 - Advanced Finite Elements Analysis  
Lecture 19 - Advanced Finite Elements Analysis  
Lecture 20 - Advanced Finite Elements Analysis  
Lecture 21 - Advanced Finite Elements Analysis  
Lecture 22 - Advanced Finite Elements Analysis  
Lecture 23 - Advanced Finite Elements Analysis  
Lecture 24 - Advanced Finite Elements Analysis  
Lecture 25 - Advanced Finite Elements Analysis  
Lecture 26 - Advanced Finite Elements Analysis  
Lecture 27 - Advanced Finite Elements Analysis  
Lecture 28 - Advanced Finite Elements Analysis  
Lecture 29 - Advanced Finite Elements Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Advanced Finite Elements Analysis

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced Operations Research

Subject Co-ordinator - Prof. G. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Linear Programming
- Lecture 2 - Revised Simplex Algorithm
- Lecture 3 - Simplex Method for Bounded Variables
- Lecture 4 - One Dimensional Cutting Stock Problem
- Lecture 5 - One Dimensional Cutting Stock Problem (Continued.)
- Lecture 6 - Dantzig-Wolfe Decomposition Algorithm
- Lecture 7 - Dantzig-Wolfe Decomposition Algorithm Primal-Dual Algorithm
- Lecture 8 - Primal-Dual Algorithm
- Lecture 9 - Goal Programming-Formulations
- Lecture 10 - Goal Programming Solutions Complexity of Simplex Algorithm
- Lecture 11 - Complexity of Simplex Algorithm (Continued.) Integer Programming
- Lecture 12 - Integer Programming-Formulations
- Lecture 13 - Solving Zero-One Problems
- Lecture 14 - Solving Zero-One Problems (Continued.)
- Lecture 15 - Branch And Bond Algorithm For Integer Programming
- Lecture 16 - Cutting Plane Algorithm
- Lecture 17 - All Integer Primal Algorithm
- Lecture 18 - All Integer Dual Algorithm
- Lecture 19 - Network Models
- Lecture 20 - Shortest Path Problem
- Lecture 21 - Successive Shortest Path Problem
- Lecture 22 - Maximum Flow Problem
- Lecture 23 - Minimum Cost Flow Problem
- Lecture 24 - Traveling Salesman Problem (TSP)
- Lecture 25 - Branch and Bound Algorithms for TSP
- Lecture 26 - Heuristics for TSP
- Lecture 27 - Heuristics for TSP (Continued.)
- Lecture 28 - Chinese Postman Problem
- Lecture 29 - Vehicle Routeing Problem

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Queueing Models
- Lecture 31 - Single Server Queueing Models
- Lecture 32 - Multiple Server Queueing Models
- Lecture 33 - Game Theory
- Lecture 34 - Critical Path Method
- Lecture 35 - Quadratic Programming
- Lecture 36 - Integer Programming (Continued.)
- Lecture 37 - All Integer Dual Algorithm
- Lecture 38 - Mixed Integer Linear Programming
- Lecture 39 - Benders Partitioning Algorithm

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Fundamentals of Operations Research

Subject Co-ordinator - Prof. G. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Linear Programming Formulations

Lecture 2 - Linear Programming Formulations (Continued...)

Lecture 3 - Linear Programming Solutions- Graphical Methods

Lecture 4 - Linear Programming Solutions - Simplex Algorithm

Lecture 5 - Simplex Algorithm-Minimization Problems

Lecture 6 - Simplex Algorithm - Initialization and Iteration

Lecture 7 - Simplex Algorithm - Termination

Lecture 8 - Introduction to Duality

Lecture 9 - Primal Dual Relationships, Duality Theorems

Lecture 10 - Dual Variables and the Simplex Tables

Lecture 11 - Simplex Algorithm in Matrix Form Introduction to Sensitivity Analysis

Lecture 12 - Sensitivity Analysis Transportation Problem (Introduction)

Lecture 13 - Transportation Problem, Methods for Initial Basic Feasible Solutions

Lecture 14 - Transportation Problem-Optimal Solutions

Lecture 15 - Transportation Problem - Other Issues

Lecture 16 - Assignment Problem - Hungarian Algorithm

Lecture 17 - Assignment Problem - Other Issues Introduction to Dynamic Programming

Lecture 18 - Dynamic Programming - Examples Involving Discrete Variables

Lecture 19 - Dynamic Programming - Continuous Variables

Lecture 20 - Dynamic Programming - Examples to Solve Linear & Integer Programming Problems

Lecture 21 - Inventory Models - Deterministic Models

Lecture 22 - Inventory Models - Discount Models, Constrained Inventory Problems, Lagrangean Multipliers, Conco

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Introduction to Finite Element Method

Subject Co-ordinator - Dr. R. Krishnakumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Finite Element Method  
Lecture 2 - Introduction to Finite Element Method  
Lecture 3 - Introduction to Finite Element Method  
Lecture 4 - Introduction to Finite Element Method  
Lecture 5 - Introduction to Finite Element Method  
Lecture 6 - Introduction to Finite Element Method  
Lecture 7 - Introduction to Finite Element Method  
Lecture 8 - Introduction to Finite Element Method  
Lecture 9 - Introduction to Finite Element Method  
Lecture 10 - Introduction to Finite Element Method  
Lecture 11 - Introduction to Finite Element Method  
Lecture 12 - Introduction to Finite Element Method  
Lecture 13 - Introduction to Finite Element Method  
Lecture 14 - Introduction to Finite Element Method  
Lecture 15 - Introduction to Finite Element Method  
Lecture 16 - Introduction to Finite Element Method  
Lecture 17 - Introduction to Finite Element Method  
Lecture 18 - Introduction to Finite Element Method  
Lecture 19 - Introduction to Finite Element Method  
Lecture 20 - Introduction to Finite Element Method  
Lecture 21 - Introduction to Finite Element Method  
Lecture 22 - Introduction to Finite Element Method  
Lecture 23 - Introduction to Finite Element Method  
Lecture 24 - Introduction to Finite Element Method  
Lecture 25 - Introduction to Finite Element Method  
Lecture 26 - Introduction to Finite Element Method  
Lecture 27 - Introduction to Finite Element Method  
Lecture 28 - Introduction to Finite Element Method  
Lecture 29 - Introduction to Finite Element Method

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- Lecture 30 - Introduction to Finite Element Method
- Lecture 31 - Introduction to Finite Element Method
- Lecture 32 - Introduction to Finite Element Method
- Lecture 33 - Introduction to Finite Element Method

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Mechanical Measurements and Metrology

Subject Co-ordinator - Prof. Shunmugam M. S, Prof. S.P. Venkateshan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Study of Mechanical Measurement
- Lecture 2 - Errors in Measurement
- Lecture 3 - Errors in Measurement (Continued...)
- Lecture 4 - Propagation of Errors
- Lecture 5 - Regression Analysis
- Lecture 6 - Regression Analysis (Continued...)
- Lecture 7 - Design of Experiments
- Lecture 8 - Design of Experiments (Continued...)
- Lecture 9 - Temperature Measurement
- Lecture 10 - Overview of Thermometry
- Lecture 11 - Thermoelectric Thermometry
- Lecture 12 - Thermoelectric Thermometry (Continued...)
- Lecture 13 - Measurement of Temperature Under Various Conditions
- Lecture 14 - Errors in Temperature Measurement
- Lecture 15 - Measurement of Transient Temperature and Resistance Thermometry
- Lecture 16 - Resistance Thermometry (Continued...)
- Lecture 17 - Resistance Thermometry (Continued...) and pyrometry
- Lecture 18 - pyrometry (Continued...)
- Lecture 19 - pyrometry (Continued...)
- Lecture 20 - Pressure Measurement (Continued...)
- Lecture 21 - Pressure Measurement (Continued...)
- Lecture 22 - Pressure Measurement (Continued...)
- Lecture 23 - Pressure Measurement (Continued...)
- Lecture 24 - Transient Response of Pressure Transducers
- Lecture 25 - Transient Response of Pressure Transducers
- Lecture 26 - Measurement of High Vacuum
- Lecture 27 - Measurement of Fluid Velocity
- Lecture 28 - Hot Wire Anemometry and Laser Doppler Velocimetry
- Lecture 29 - Laser Doppler Velocimetry and Ultrasonic Methods

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Measurement of Heat Flux
- Lecture 31 - Measurement of Heat Flux (Continued...)
- Lecture 32 - Transient Method of Heat Flux Measurement
- Lecture 33 - Measurement of Volume and Mass Flow Rate of Fluid
- Lecture 34 - Flow Measuring Devices
- Lecture 35 - Measurement of Stagnation and Bulk Mean Temperature
- Lecture 36 - Measurement of Thermo-Physical Properties
- Lecture 37 - Measurement of Thermal Conductivity
- Lecture 38 - Measurement of Heat Capacity and Heating Value
- Lecture 39 - Measurement of Viscosity
- Lecture 40 - Measurement of Viscosity (Continued...)
- Lecture 41 - Integrating Sphere and Measurement of Emissivity
- Lecture 42 - Measurements of Gas Composition
- Lecture 43 - Measurements of Gas Composition (Continued...)
- Lecture 44 - Measurements of Gas Composition and Smoke
- Lecture 45 - Measurement of Force
- Lecture 46 - Force Measurement
- Lecture 47 - Vibration and Acceleration Measurement
- Lecture 48 - Laser Doppler Accelerometer, Speed, Torque
- Lecture 49 - General Issues in Mechanical Measurement
- Lecture 50 - Case Studies

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Principles of Mechanical Measurements

Subject Co-ordinator - Prof. R. Raman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Principles Of Mechanical Measurements  
Lecture 2 - Principles Of Mechanical Measurements  
Lecture 3 - Principles Of Mechanical Measurements  
Lecture 4 - Principles Of Mechanical Measurements  
Lecture 5 - Principles Of Mechanical Measurements  
Lecture 6 - Principles Of Mechanical Measurements  
Lecture 7 - Principles Of Mechanical Measurements  
Lecture 8 - Principles Of Mechanical Measurements  
Lecture 9 - Principles Of Mechanical Measurements  
Lecture 10 - Principles of Mechanical Measurements  
Lecture 11 - Principles Of Mechanical Measurements  
Lecture 12 - Principles Of Mechanical Measurements  
Lecture 13 - Principles Of Mechanical Measurements  
Lecture 14 - Principles Of Mechanical Measurements  
Lecture 15 - Principles Of Mechanical Measurements  
Lecture 16 - Principles Of Mechanical Measurements  
Lecture 17 - Principles Of Mechanical Measurements  
Lecture 18 - Principles Of Mechanical Measurements  
Lecture 19 - Principles Of Mechanical Measurements  
Lecture 20 - Principles Of Mechanical Measurements  
Lecture 21 - Principles Of Mechanical Measurements  
Lecture 22 - Principles Of Mechanical Measurements  
Lecture 23 - Principles Of Mechanical Measurements  
Lecture 24 - Principles Of Mechanical Measurements  
Lecture 25 - Principles Of Mechanical Measurements  
Lecture 26 - Principles Of Mechanical Measurements

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Spray Theory and Applications

Subject Co-ordinator - Prof. Mahesh Panchagnula, Dr. Paul E. Sojka

Co-ordinating Institute - IIT - Madras | Purdue University

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to sprays and their applications

Lecture 2 - Spatial versus Temporal Sampling

Lecture 3 - Spatial Vs Temporal Sampling example problem

Lecture 4 - Steady vs unsteady spray

Lecture 5 - Statistical measures on spray

Lecture 6 - Discussion on pdf and moments

Lecture 7 - Size velocity correlation

Lecture 8 - Discussion on Interfacial tension

Lecture 9 - Introduction to Atomizers and their design - 1

Lecture 10 - Introduction to Atomizers and their design - 2

Lecture 11 - Simple measurement techniques

Lecture 12 - Selection of atomizers

Lecture 13 - Spray measurement characteristics

Lecture 14 - Spray measurements techniques

Lecture 15 - Non-intrusive spray measurements techniques

Lecture 16 - Non-intrusive spray measurements techniques

Lecture 17 - Linear stability analysis â Introduction

Lecture 18 - Linear stability analysis- Kelvin-Helmholtz instability - 1

Lecture 19 - Linear stability analysis- Kelvin-Helmholtz instability - 2

Lecture 20 - Linear stability analysis- Kelvin-Helmholtz instability - 3

Lecture 21 - Linear stability analysis procedure

Lecture 22 - Linear stability analysis - Cylindrical jet instability - 1

Lecture 23 - Linear stability analysis - Cylindrical jet instability - 2

Lecture 24 - Linear stability analysis - Planar Liquid Sheet instability - 1

Lecture 25 - Linear stability analysis - Planar Liquid Sheet instability - 2

Lecture 26 - Design of pressure swirl atomizer - 1

Lecture 27 - Design of pressure swirl atomizer - 2

Lecture 28 - Design of pressure swirl atomizer - 3

Lecture 29 - Design of pressure swirl atomizer - 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Secondary atomization-Dimensionless parameters
- Lecture 31 - Secondary atomization-Modes of breakup - 1
- Lecture 32 - Secondary atomization-Modes of breakup - 2
- Lecture 33 - Multiphase modelling
- Lecture 34 - Multiphase modelling
- Lecture 35 - Multiphase flow modelling basics
- Lecture 36 - Multiphase modelling â Selection of model - 1
- Lecture 37 - Multiphase modelling â Selection of model - 2
- Lecture 38 - Multiphase modelling - Governing equations
- Lecture 39 - Droplet evaporation
- Lecture 40 - Droplet combustion
- Lecture 41 - Spray combustion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Conduction And Radiation

Subject Co-ordinator - Prof. C. Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Importance of Thermal Radiation

Lecture 2 - Blackbody definition

Lecture 3 - Solid angle, spectral radiation intensity

Lecture 4 - Radiation pressure and radiation energy density

Lecture 5 - Relationship between  $\lambda \cdot I_\lambda$  and  $\lambda \cdot T_\lambda$  and Candidate blackbody distribution functions

Lecture 6 - Candidate blackbody distribution functions (Continued...)

Lecture 7 - Planck's blackbody radiation distribution function

Lecture 8 - Planck's distribution and Wien's displacement law

Lecture 9 - Universal blackbody function

Lecture 10 - Emissivity

Lecture 11 - Emissivity (Continued...)

Lecture 12 - Emissivity (Continued...)

Lecture 13 - Kirchoff law, Absorptivity

Lecture 14 - Kirchoff law, Absorptivity (Continued...)

Lecture 15 - Problems on emissivity, absorptivity

Lecture 16 - Reflectivity

Lecture 17 - Transmissivity

Lecture 18 - Problems on reflectivity and transmissivity

Lecture 19 - Radiation heat transfer between surfaces

Lecture 20 - View factor

Lecture 21 - View factor (Continued...)

Lecture 22 - View factor (Continued...)

Lecture 23 - Enclosure analysis

Lecture 24 - Enclosure analysis (Continued...)

Lecture 25 - Enclosure analysis - Gray surface

Lecture 26 - Enclosure analysis - Non gray surfaces

Lecture 27 - Radiation in participating media

Lecture 28 - Solution to the RTE

Lecture 29 - Concept of mean beam length

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Enclosure analysis in the presence of absorbing / emitting gas
- Lecture 31 - Emissivities and absorptivities of Gas mixtures
- Lecture 32 - Conduction - Introduction
- Lecture 33 - Conduction - Energy equation
- Lecture 34 - Conduction - 1D, steady state
- Lecture 35 - Conduction - 1D, heat generation
- Lecture 36 - Fin heat transfer - I
- Lecture 37 - Fin heat transfer - II
- Lecture 38 - Conduction - Cylindrical and Spherical geometries
- Lecture 39 - Transient conduction
- Lecture 40 - Transient conduction (Continued...)
- Lecture 41 - Two dimensional steady state conduction
- Lecture 42 - Analytical solution for Laplace equation
- Lecture 43 - Numerical methods in conduction
- Lecture 44 - Numerical methods in conduction (Continued...)
- Lecture 45 - Conduction with change of phase
- Lecture 46 - Conduction with change of phase (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Gas Dynamics and Propulsion

Subject Co-ordinator - Prof. V. Babu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction / Fundamental Ideas  
Lecture 3 - Fundamental Ideas  
Lecture 4 - Fundamental Ideas  
Lecture 5 - Fundamental Ideas / Normal Shock Waves  
Lecture 6 - Normal Shock Waves  
Lecture 7 - Normal Shock Waves / Rayleigh Flow  
Lecture 8 - Rayleigh Flow  
Lecture 9 - Rayleigh Flow  
Lecture 10 - Rayleigh Flow / Fanno Flow  
Lecture 11 - Fanno Flow  
Lecture 12 - Fanno Flow  
Lecture 13 - Fanno Flow / Quasi One Dimensional Flows  
Lecture 14 - Quasi One Dimensional Flows  
Lecture 15 - Quasi One Dimensional Flows  
Lecture 16 - Quasi One Dimensional Flows  
Lecture 17 - Quasi One Dimensional Flows  
Lecture 18 - Quasi One Dimensional Flows  
Lecture 19 - Quasi One Dimensional Flows  
Lecture 20 - Oblique Shock Waves  
Lecture 21 - Oblique Shock Waves  
Lecture 22 - Oblique Shock Waves  
Lecture 23 - Oblique Shock Waves / Prandtl Meyer Waves  
Lecture 24 - Prandtl Meyer Waves  
Lecture 25 - Prandtl Meyer Waves  
Lecture 26 - Propulsion - an Introduction  
Lecture 27 - Components of the Gas Turbine Engine  
Lecture 28 - Components of the Gas Turbine Engine  
Lecture 29 - Components of the Gas Turbine Engine

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Components of the Gas Turbine Engine
- Lecture 31 - Components of the Gas Turbine Engine / Thermodynamic Analysis of the Engine
- Lecture 32 - Thermodynamic Analysis of the Engine
- Lecture 33 - Thermodynamic Analysis of the Engine
- Lecture 34 - Calculations for Thrust and Fuel Consumption
- Lecture 35 - Calculations for Thrust and Fuel Consumption
- Lecture 36 - Calculations for Thrust and Fuel Consumption / Emerging Trends
- Lecture 37 - Emerging Trends / Ramjets
- Lecture 38 - Ramjets
- Lecture 39 - Ramjets / Scramjets
- Lecture 40 - Scramjets



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Microfluidics

Subject Co-ordinator - Dr. Ashis Kumar Sen

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Scaling  
Lecture 2 - Scaling  
Lecture 3 - Micro-scale fluid mechanics  
Lecture 4 - Micro-scale fluid mechanics (Continued...)  
Lecture 5 - Micro-scale fluid mechanics (Continued...)  
Lecture 6 - Micro-scale fluid mechanics (Continued...)  
Lecture 7 - Micro-scale fluid mechanics (Continued...)  
Lecture 8 - Micro-scale fluid mechanics (Continued...)  
Lecture 9 - Micro-scale fluid mechanics (Continued...)  
Lecture 10 - Micro-scale fluid mechanics (Continued...)  
Lecture 11 - Capillary Flows  
Lecture 12 - Capillary Flows (Continued...)  
Lecture 13 - Capillary Flows and Electrokinetics  
Lecture 14 - Electrokinetics  
Lecture 15 - Electrokinetics (Continued...)  
Lecture 16 - Electrokinetics (Continued...)  
Lecture 17 - Electrokinetics (Continued...)  
Lecture 18 - Electrokinetics (Continued...)  
Lecture 19 - Electrokinetics (Continued...)  
Lecture 20 - Electrokinetics and Magnetophoresis  
Lecture 21 - Microfabrication Techniques  
Lecture 22 - Microfabrication Techniques (Continued...)  
Lecture 23 - Microfabrication Techniques (Continued...)  
Lecture 24 - Microfabrication Techniques (Continued...)  
Lecture 25 - Microfabrication Techniques (Continued...)  
Lecture 26 - Microfabrication Techniques (Continued...)  
Lecture 27 - Microfabrication Techniques (Continued...)  
Lecture 28 - Microfabrication Techniques (Continued...)  
Lecture 29 - Micropump

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Micropump (Continued...)
- Lecture 31 - Microvalve
- Lecture 32 - Microvalve (Continued...)
- Lecture 33 - Microvalve (Continued...)
- Lecture 34 - Micro Flow Sensor and Micro mixers
- Lecture 35 - Micro mixers
- Lecture 36 - Micro mixers (Continued...)
- Lecture 37 - Micro droplets
- Lecture 38 - Micro reactors (Continued...)
- Lecture 39 - Micro needles and Microparticle separation
- Lecture 40 - Few applications of microfluidics
- Lecture 41 - Lab Demo

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Convective Heat Transfer

Subject Co-ordinator - Dr. Arvind Pattamatta, Prof. Ajit K. Kolar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to convective heat transfer - Part 1
- Lecture 2 - Introduction to convective heat transfer - Part 2
- Lecture 3 - Continuity Equation
- Lecture 4 - Momentum and Energy Equations
- Lecture 5 - Energy Equation
- Lecture 6 - Reynolds Transport Theorem
- Lecture 7 - Entrophy Generation and streamfunction-vorticity formulation
- Lecture 8 - Couette flow - Part 1
- Lecture 9 - Couette flow - Part 2
- Lecture 10 - Couette flow - Part 3
- Lecture 11 - Boundary layer approximation
- Lecture 12 - Laminar External flow past flat plate (Blasius Similarity Solution)
- Lecture 13 - Numerical solution to the Blasius equation and similarity solution to heat transfer
- Lecture 14 - Pohlhausen similarity solution and flows including pressure gradient (Falkner-Skan)
- Lecture 15 - Falkner skan solutions for heat transfer
- Lecture 16 - Similarity solution for flow and heat transfer with transpiration at walls
- Lecture 17 - Thermal boundary layer in high speed flows
- Lecture 18 - Approximate(Integral) methods for laminar external flow and heat transfer
- Lecture 19 - Integral method for laminar external thermal boundary layer over isothermal surface
- Lecture 20 - Integral method for flows with pressure gradient (von Karman-Pohlhausen method)
- Lecture 21 - Integral method with pressure gradient
- Lecture 22 - Heat transfer across a circular cylinder
- Lecture 23 - Duhamel's method for varying surface temperature
- Lecture 24 - Laminar External heat transfer with non uniform surface temperature
- Lecture 25 - Laminar internal forced convection - fundamentals
- Lecture 26 - Hydrodynamically and thermally fully developed internal laminar flows
- Lecture 27 - Fully developed laminar internal flow and heat transfer
- Lecture 28 - Shooting method for fully developed heat transfer and thermal entry length problem
- Lecture 29 - Thermal entry length problem with plug velocity profile

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Extended Graetz problem for parabolic velocity profile
- Lecture 31 - Extended Graetz problem
- Lecture 32 - Extended Graetz problem with wall flux boundary condition
- Lecture 33 - Approximate method for laminar internal flows
- Lecture 34 - Integral method for thermal entry length problem
- Lecture 35 - Introduction to Natural Convection Heat Transfer
- Lecture 36 - Similarity Solution in Natural Convection for Vertical isothermal Plate - Part 1
- Lecture 37 - Similarity Solution in Natural Convection for Vertical isothermal Plate - Part 2
- Lecture 38 - Similarity Solution in Natural Convection for Vertical isoflux Plate
- Lecture 39 - Approximate Method in Natural Convection Heat Transfer
- Lecture 40 - Natural Convection in Other Configurations
- Lecture 41 - Turbulent Convective Heat Transfer
- Lecture 42 - Turbulent Convective Heat Transfer
- Lecture 43 - Analogies in Turbulent Convective Heat Transfer - Part 1
- Lecture 44 - Analogies in Turbulent Convective Heat Transfer - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Introduction to Explosions and Explosion Safety

Subject Co-ordinator - Prof. K. Ramamurthi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Loud Bang and Disruption
- Lecture 2 - Blast Wave in an Explosion
- Lecture 3 - Typical Examples of Explosions and Classification
- Lecture 4 - Shock Hugoniot and Rayleigh Line
- Lecture 5 - Properties behind a Constant Velocity Shock
- Lecture 6 - Blast waves
- Lecture 7 - Blast waves
- Lecture 8 - Blast Waves
- Lecture 9 - Blast Waves
- Lecture 10 - Blast Waves
- Lecture 11 - Blast Waves
- Lecture 12 - Blast Waves
- Lecture 13 - Energy Release in a Chemical Reaction
- Lecture 14 - Energy Release
- Lecture 15 - Energy Release
- Lecture 16 - Rate of Energy Release
- Lecture 17 - Thermal Theory of Explosion
- Lecture 18 - Thermal Theory
- Lecture 19 - Role of Chain Carriers in an Explosion
- Lecture 20 - Combustion - I
- Lecture 21 - Combustion - II
- Lecture 22 - Case Histories of Explosions involving Volatile Liquids
- Lecture 23 - Detonation
- Lecture 24 - Structure of Detonations
- Lecture 25 - Realizable States in a Detonation
- Lecture 26 - One Dimensional Model of Detonation
- Lecture 27 - Case Histories of Explosions involving Detonation or Quasi-Detonation
- Lecture 28 - Explosions in Confined and Unconfined Geometries
- Lecture 29 - Dust Explosions - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dust Explosions - II
- Lecture 31 - Physical Explosions
- Lecture 32 - Rupture of Cryogenic Storage Vessels and Pressure Vessels
- Lecture 33 - Condensed Phased Explosives Based on Hydrocarbons
- Lecture 34 - Condensed Phase Explosives and their Properties
- Lecture 35 - TNT Equivalence and Yield of an Explosion
- Lecture 36 - Atmospheric Dispersion
- Lecture 37 - Modeling Atmospheric Dispersion
- Lecture 38 - Explosions Involving Atmospheric Dispersion
- Lecture 39 - Quantification of Damages in an Explosion
- Lecture 40 - Risk Analysis for an Explosion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Metrology

Subject Co-ordinator - Dr. K. Sadashivappa

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Metrology

Lecture 2 - Metrology terminologies

Lecture 3 - Measurement errors

Lecture 4 - Linear measuring instruments Â 1 (Angle plate, steel rule, spring calipers)

Lecture 5 - Linear measuring instruments Â 2 (Combination set, Vernier calipers)

Lecture 6 - Linear measuring instruments Â 3 (Height gauge, Micrometers Â 1)

Lecture 7 - Linear measuring instruments Â 4 (Micrometers Â 2, Bore gauge)

Lecture 8 - Linear measuring instruments Â 5 (Dial indicators, thickness gauges, depth gauges)

Lecture 9 - Manufacturing tolerances and fits

Lecture 10 - Terminologies of limits fits and tolerances

Lecture 11 - Numerical problems on fit and tolerances

Lecture 12 - Selection of fits, Geometrical tolerances

Lecture 13 - Positional tolerances

Lecture 14 - Limit gauging - 1

Lecture 15 - Limit gauging - 2

Lecture 16 - Design of limit gauges

Lecture 17 - Measurement of straightness, flatness and squareness

Lecture 18 - Perpendicularity measurement

Lecture 19 - Basics of surface roughness

Lecture 20 - Surface finish parameters

Lecture 21 - Stylus type surface finish measuring instruments

Lecture 22 - Non-contact type surface finish measuring instruments

Lecture 23 - Screw thread production and terminology

Lecture 24 - Measurement of screw thread elements

Lecture 25 - Introduction to gears

Lecture 26 - Measurement of gear elements

Lecture 27 - Angle measurement - 1

Lecture 28 - Angle measurement - 2

Lecture 29 - Radius measurement, Contact angle measurement

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Basics of interferometry
- Lecture 31 - Interferometers
- Lecture 32 - Introduction to comparators, Mechanical comparators
- Lecture 33 - Electrical and electronic comparators, Optical comparators
- Lecture 34 - Pneumatic comparators
- Lecture 35 - Geometrical tests on lathe
- Lecture 36 - Geometrical tests on pillar type drilling machine
- Lecture 37 - Universal measuring machine (UMM) and Coordinate measuring machine (CMM)
- Lecture 38 - CMM probes and CMM software
- Lecture 39 - Feature measurement using CMM, Laser vision
- Lecture 40 - In-process gauging and control
- Lecture 41 - Stage position metrology
- Lecture 42 - Micro and Nano stages, Nano technology instrumentation
- Lecture 43 - Optical system design
- Lecture 44 - Complex opto- mechanical assemblies, Metrology testing and certification services



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Engineering Mechanics Statics and Dynamics

Subject Co-ordinator - Prof. Mahesh Panchagnula

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Newton's laws
- Lecture 3 - Equilibrium
- Lecture 4 - Example 1 - Statics
- Lecture 5 - Example 2 - Rigid Body Systems
- Lecture 6 - Example 3 - Rigid Body Systems
- Lecture 7 - Structural Systems with rigid bodies
- Lecture 8 - Types of 1-D Structural Elements
- Lecture 9 - Axial members
- Lecture 10 - Analysis of the truss system
- Lecture 11 - Stability of Structural systems
- Lecture 12 - Beams - Example 1
- Lecture 13 - Beams - BMD and SFD
- Lecture 14 - Beams - Loading, Shear and Bending Moment Relations
- Lecture 15 - Static Friction
- Lecture 16 - Friction - Solving Problems
- Lecture 17 - Particle Kinematics - 1
- Lecture 18 - Particle Kinematics - 2 (Example)
- Lecture 19 - Particle Kinematics - Curvilinear Coordinates
- Lecture 20 - Rigid Body Kinematics
- Lecture 21 - Rotational Motion (Example 1)
- Lecture 22 - Rotational Motion (Example 2)
- Lecture 23 - Dynamics (Introduction)
- Lecture 24 - Dynamics - Example 1
- Lecture 25 - Dynamics - Example 2
- Lecture 26 - Dynamics - Example 3
- Lecture 27 - Dynamics - Example 4
- Lecture 28 - Center of Percussion - Example
- Lecture 29 - Impulse / Momentum - Example 1

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- Lecture 30 - Impulse / Momentum - Example 2
- Lecture 31 - Impulse / Momentum - Example 3
- Lecture 32 - Impulse / Momentum - Example 4
- Lecture 33 - Work Energy Methods - Example 1
- Lecture 34 - Work Energy Methods - Example 2
- Lecture 35 - Work Energy Methods - Example 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Foundation of Computational Fluid Dynamics

Subject Co-ordinator - Dr.S.Vengadesan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Week 1 - Module-1

Week 1 - Module-2

Week 1 - Module-3

Week 1 - Module-4

Week 1 - Module-5

Week 2 - Module-1

Week 2 - Module-2

Week 2 - Module-3

Week 2 - Module-4

Week 2 - Module-5

Week 3 - Module-1

Week 3 - Module-2

Week 3 - Module-3

Week 3 - Module-4

Week 3 - Module-5

Week 4 - Module-1

Week 4 - Module-2

Week 4 - Module-3

Week 4 - Module-4

Week 4 - Module-5

Week 5 - Module-1

Week 5 - Module-2

Week 5 - Module-3

Week 5 - Module-4

Week 5 - Module-5

Week 5 - Module-6

Week 6 - Module-1

Week 6 - Module-2 - Part 1

Week 6 - Module-2 - Part 2

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Week 6 - Module-3  
Week 6 - Module-4  
Week 6 - Module-5  
Week 7 - Module-1  
Week 7 - Module-2  
Week 7 - Module-3  
Week 7 - Module-4  
Week 7 - Module-5  
Week 8 - Module-1  
Week 8 - Module-2  
Week 8 - Module-3  
Week 8 - Module-4  
Week 8 - Module-5  
Week 8 - Module-6  
Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Boundary Layers

Subject Co-ordinator - Dr. Rinku Mukherjee

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of fundamentals of fluid mechanics - I
- Lecture 2 - Review of fundamentals of fluid mechanics - II
- Lecture 3 - Concept of a Boundary Layer (BL) - I
- Lecture 4 - Concept of a Boundary Layer (BL) - II
- Lecture 5 - Concepts of BL thickness (?)
- Lecture 6 - Concepts of BL displacement thickness (?\*) and BL momentum thickness (?)
- Lecture 7 - Control Volume approach to derive expressions for ?\* over a flat plate
- Lecture 8 - Control Volume approach to derive expressions for ? over a flat plate
- Lecture 9 - Concept of wall friction
- Lecture 10 - Concept of friction drag
- Lecture 11 - Skin Friction Coefficient - I
- Lecture 12 - Skin Friction Coefficient - II
- Lecture 13 - Derivation of Prandtl's Laminar BL Equations - I
- Lecture 14 - Derivation of Prandtl's Laminar BL Equations - II
- Lecture 15 - Derivation of Prandtl's Laminar BL Equations - III
- Lecture 16 - Derivation of Prandtl's Laminar BL Equations - IV
- Lecture 17 - Similarity Solutions to the BL Equations Applied to a Flat Plate - I
- Lecture 18 - Similarity Solutions to the BL Equations Applied to a Flat Plate - II
- Lecture 19 - Similarity Solutions to the BL Equations Applied to a Flat Plate - III
- Lecture 20 - Runge-Kutta Method to Numerically Solve the BL Equations Applied to a Flat Plate
- Lecture 21 - Description of the Numerical Code to Solve the BL Equations Applied to a Flat Plate
- Lecture 22 - Similarity Solutions to the BL Equations (other than flat plate) - I
- Lecture 23 - Similarity Solutions to the BL Equations (other than flat plate) - II
- Lecture 24 - Similarity Solutions to the BL Equations (other than flat plate) - III
- Lecture 25 - Similarity Solutions to the BL Equations (other than flat plate) - IV
- Lecture 26 - Description of the Numerical Code to Solve the BL Equations (other than flat plate)
- Lecture 27 - The Energy Equation - I
- Lecture 28 - The Energy Equation - II
- Lecture 29 - Similarity Solutions to Thermal BL - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Similarity Solutions to Thermal BL - II
- Lecture 31 - Similarity Solutions to Thermal BL - III
- Lecture 32 - BL Separation with Pressure-Gradient - I
- Lecture 33 - BL Separation with Pressure Gradient - II
- Lecture 34 - Effect of Prandtl Number in Thermal BL - I
- Lecture 35 - Effect of Prandtl Number in Thermal BL - II
- Lecture 36 - Effect of Prandtl Number in Thermal BL - III
- Lecture 37 - Effect of Dissipation in Thermal BL - I
- Lecture 38 - Effect of Dissipation in Thermal BL - II
- Lecture 39 - Effect of Dissipation in Thermal BL - III
- Lecture 40 - Similarity Solutions to Thermal BL - An Overview

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Gas Dynamics

Subject Co-ordinator - Prof.A. Sameen

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Basics of Thermodynamics
- Lecture 3 - Tutorial 1
- Lecture 4 - Control Volume Approach
- Lecture 5 - Conservation Equations
- Lecture 6 - Tutorial 2
- Lecture 7 - Energy Equation
- Lecture 8 - Concept of stagnation
- Lecture 9 - Discussion on stagnation
- Lecture 10 - Velocity of sound
- Lecture 11 - Discussion on velocity of sound and mach number
- Lecture 12 - Wave propagation
- Lecture 13 - Mach wave
- Lecture 14 - Mach number relations
- Lecture 15 - Variable Area Adiabatic flow
- Lecture 16 - Variable Area Adiabatic flow (Continued...)
- Lecture 17 - \* reference quantities and their relations
- Lecture 18 - Importance of stagnation temperature in relation to v
- Lecture 19 - Discussion on variable area adiabatic flow and \* reference quantities
- Lecture 20 - Gas tables
- Lecture 21 - Converging nozzle
- Lecture 22 - Condition of choked flow and associated properties
- Lecture 23 - Area ratio and pressure ratio in converging nozzles
- Lecture 24 - Discussion on converging nozzles
- Lecture 25 - Converging - Diverging (C-D) nozzles
- Lecture 26 - More on C-D nozzles
- Lecture 27 - Discussion on C-D nozzles - 1
- Lecture 28 - Discussion on C-D nozzles - 2
- Lecture 29 - Examples and applications of flow through C-D nozzles

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to normal shocks
- Lecture 31 - Normal shock relations - 1
- Lecture 32 - Normal shock relations - 2
- Lecture 33 - Rankine-Hugoniot equation
- Lecture 34 - Discussion on Normal Shocks - 1
- Lecture 35 - Discussion on Normal Shocks - 2
- Lecture 36 - Normal shocks in C-D nozzles
- Lecture 37 - Normal shocks in C-D nozzles (Continued...)
- Lecture 38 - Moving Normal Shocks
- Lecture 39 - Discussion on moving normal shocks
- Lecture 40 - Oblique shocks
- Lecture 41 - Oblique shock relations
- Lecture 42 - Discussion on oblique shocks
- Lecture 43 - Reflection of oblique shocks
- Lecture 44 - Discussion on reflection of oblique shocks
- Lecture 45 - Prandtl-Meyer flow
- Lecture 46 - Prandtl-Meyer flow (Continued...)
- Lecture 47 - Discussion on Prandtl-Meyer expansion
- Lecture 48 - Shock Polar diagram and Prandtl-Meyer relation for Oblique shocks



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Experimental Stress Analysis:An Overview

Subject Co-ordinator - Prof. K. Ramesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Stress Analysis - Analytical and Numerical Approaches

Lecture 2 - Introduction to Stress Analysis - Experimental Approaches

Lecture 3 - Optical Methods Work as Optical Computers

Lecture 4 - Basic information provided by various experimental methods

Lecture 5 - Visual Appreciation of Field Information - Part 1

Lecture 6 - Visual Appreciation of Field Information - Part 2

Lecture 7 - Visual Appreciation of Field Information - Part 3

Lecture 8 - Visual Appreciation of Field Information - Part 4

Lecture 9 - Visual Appreciation of Field Information - Part 5

Lecture 10 - Completeness of a Numerical Solution

Lecture 11 - Principle of Strain Gauges

Lecture 12 - Overview of Strain Gauge Measurements

Lecture 13 - Elegance of Photoelasticity

Lecture 14 - Introduction to Photoelasticity

Lecture 15 - Different Polariscopes

Lecture 16 - Principles of Moiré

Lecture 17 - Introduction to Moiré

Lecture 18 - Introduction to Brittle Coatings

Lecture 19 - Introduction to Holography

Lecture 20 - Introduction to Hologram Interferometry

Lecture 21 - Introduction to Double exposure hologram interferometry

Lecture 22 - Introduction to Speckle Methods

Lecture 23 - Introduction to Speckle Interferometry Techniques

Lecture 24 - Introduction to TSA and DIC

Lecture 25 - Introduction to Caustics

Lecture 26 - Introduction to Coherent Gradient Sensor

Lecture 27 - Naming of Experimental Methods

Lecture 28 - Fringe Patterns - Richness of Qualitative Information

Lecture 29 - Key technologies that have influenced Experimental Mechanics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multiscale analysis and trends in experimental mechanics
- Lecture 31 - Selection of an experimental technique - Part 1
- Lecture 32 - Selection of an experimental technique - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fluid Dynamics and Turbomachines

Subject Co-ordinator - Prof. Dhiman Chatterjee, Prof. Shamit Bakshi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Fluid Flow  
Lecture 2 - Flow field, Stresses on fluid element, Newtonian fluid  
Lecture 3 - Non Newtonian fluid, Classification of flow, Analysis of flow  
Lecture 4 - Tutorial  
Lecture 5 - Lecture 1 - Integral analysis, Control volume, Generalised conservation equation  
Lecture 6 - Lecture 2 - Mass and linear momentum conservation in CV  
Lecture 7 - Lecture 3 - Angular momentum conservation, Non-inertial frame of reference  
Lecture 8 - Lecture 4 - Tutorial  
Lecture 9 - Lecture 1 - Differential Analysis  
Lecture 10 - Lecture 2 - Navier-Stokes equation for 2D incompressible flow  
Lecture 11 - Lecture 3 - Vorticity, Stream function, Bernoulli's equation  
Lecture 12 - Lecture 4 - Tutorial  
Lecture 13 - Lecture 1 - External flows, Laminar and Turbulent Boundary Layer  
Lecture 14 - Lecture 2 - Differential analysis of boundary layer, Blassius equation  
Lecture 15 - Lecture 3 - Boundary Layer flow with pressure gradient, Flow separation  
Lecture 16 - Lecture 4 - Internal flow, Pipe friction  
Lecture 17 - Lecture 1 - Basic Thermodynamics  
Lecture 18 - Lecture 2 - Turbomachines  
Lecture 19 - Lecture 3 - Dimensional Analysis  
Lecture 20 - Lecture 4 - Tutorial  
Lecture 21 - Lecture 1 - Representation of Turbomachines and Definition of velocity  
Lecture 22 - Lecture 2 - Euler's energy equation  
Lecture 23 - Lecture 3 - Real fluid flow and efficiency of turbomachine  
Lecture 24 - Lecture 4 - Tutorial  
Lecture 25 - Lecture 1 - Pumps  
Lecture 26 - Lecture 2 - Pumping Systems  
Lecture 27 - Lecture 3 - Hydraulic Turbines  
Lecture 28 - Lecture 4 - Hydraulic Turbines  
Lecture 29 - Lecture 5 - Cavitation in Hydroturbomachines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Lecture 6 - Tutorial  
Lecture 31 - Lecture 1 - Introduction to compressible flow  
Lecture 32 - Lecture 2 - Steam and Gas Turbine  
Lecture 33 - Lecture 3 - Steam and Gas Turbine  
Lecture 34 - Lecture 4 - Tutorial

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Micro and Nano Scale Energy Transport

Subject Co-ordinator - Dr. Arvind Pattamatta

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview to Micro/Nanoscale energy transport - Part 1
- Lecture 2 - Overview to Micro/Nanoscale energy transport - Part 2
- Lecture 3 - Some applications of Micro/Nanoscale energy transport
- Lecture 4 - Continuum heat transfer and its limitation
- Lecture 5 - Energy carriers at Micro/Nanoscale and their attributes
- Lecture 6 - Microscopic contributes to Internal energy of a systems
- Lecture 7 - Fundamentals of Quantum mechanics - Part 1
- Lecture 8 - Fundamentals of Quantum mechanics - Part 2
- Lecture 9 - Fundamentals of Quantum mechanics - Part 3
- Lecture 10 - Fundamentals of Quantum mechanics - Part 4
- Lecture 11 - Fundamentals of Quantum mechanics - Part 5
- Lecture 12 - Fundamentals of solid state physics - Part 1
- Lecture 13 - Fundamentals of solid state physics - Part 2
- Lecture 14 - Fundamentals of solid state physics - Part 3
- Lecture 15 - Fundamentals of solid state physics - Part 4
- Lecture 16 - Fundamentals of statistical thermodynamics - Part 1
- Lecture 17 - Fundamentals of statistical thermodynamics - Part 2
- Lecture 18 - Fundamentals of statistical thermodynamics - Part 3
- Lecture 19 - Fundamentals of statistical thermodynamics - Part 4
- Lecture 20 - Kinetic theory of energy carriers - Part 1
- Lecture 21 - Kinetic theory of energy carriers - Part 2
- Lecture 22 - Non-equilibrium energy transport at Nanoscales
- Lecture 23 - Boltzmann Transport Equation under the relaxation time approximation
- Lecture 24 - Derivation of Continuum laws from Boltzmann Transport Equation - Part 1
- Lecture 25 - Derivation of Continuum laws from Boltzmann Transport Equation - Part 2
- Lecture 26 - Derivation of Continuum laws from Boltzmann Transport Equation - Part 3
- Lecture 27 - Nanoscale Energy transport in a Thin Film - Part 1
- Lecture 28 - Nanoscale Energy transport in a Thin Film - Part 2
- Lecture 29 - Nanoscale Energy transport in a Thin Film - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gas flow and Heat transport in Microchannels - Part 1
- Lecture 31 - Gas flow and Heat transport in Microchannels - Part 2
- Lecture 32 - Single phase liquid flow and Heat transport in Microchannels - Part 1
- Lecture 33 - Single phase liquid flow and Heat transport in Microchannels - Part 2
- Lecture 34 - Fundamentals of Electro kinetics in Microchannels Part1
- Lecture 35 - Fundamentals of Electro kinetics in Microchannels Part2
- Lecture 36 - Fundamentals of Electro kinetics in Microchannels Part3
- Lecture 37 - Two phase Heat transfer in Microchannels - Part 1
- Lecture 38 - Two phase Heat transfer in Microchannels - Part 2
- Lecture 39 - Nano fluid Heat transfer - Part 1
- Lecture 40 - Nano fluid Heat transfer - Part 2
- Lecture 41 - Measurement techniques in Micro and Nanoscale Heat transfer - Part 1
- Lecture 42 - Measurement techniques in Micro and Nanoscale Heat transfer - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Electron Diffraction and Imaging

Subject Co-ordinator - Prof. Sundararaman M

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - 1D-2D-3D lattice  
Lecture 2 - Stereographic projection - 1  
Lecture 3 - Stereographic Projection - 2  
Lecture 4 - Symmetry in 1-D crystals  
Lecture 5 - Symmetry in 2-D crystals  
Lecture 6 - Symmetry in 3-D crystals  
Lecture 7 - Understanding IUCr tables  
Lecture 8 - Symmetry in 3-D Crystals  
Lecture 9 - Reciprocal lattice  
Lecture 10 - Directions Planes and zone axes  
Lecture 11 - Interplanar distances and angles  
Lecture 12 - Diffraction - 1  
Lecture 13 - Diffraction - 2  
Lecture 14 - Diffraction - Structure and Shape Factor  
Lecture 15 - Transformation of Indices  
Lecture 16 - Microscope - 1  
Lecture 17 - Microscope - 2  
Lecture 18 - Kikuchi Diffraction  
Lecture 19 - Double Diffraction and CBED  
Lecture 20 - CBED and Precession Electron Diffraction  
Lecture 21 - Indexing Diffraction Pattern  
Lecture 22 - Correlation of Diffraction Spots to Microstructure  
Lecture 23 - 3-Index to 4-Index System  
Lecture 24 - Kinematical and Dynamical Theory of Diffraction and Imaging  
Lecture 25 - Contrast from Planar Defects  
Lecture 26 - Contrast from Strain Fields  
Lecture 27 - Atomic Scattering Factor  
Lecture 28 - Coherence  
Lecture 29 - Lens Aberrations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Phase Contrast Microscopy - 1
- Lecture 31 - Phase Contrast Microscopy - 2
- Lecture 32 - Phase Contrast Microscopy - 3
- Lecture 33 - STEM
- Lecture 34 - ELES and EDS
- Lecture 35 - Recent trends
- Lecture 36 - Energy dispersive Spectroscopy
- Lecture 37 - Revision - 1
- Lecture 38 - Revision - 2
- Lecture 39 - Revision of Recent trends in Microscopy
- Lecture 40 - Crystallography Revision



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Acoustic and Noise Control

Subject Co-ordinator - Prof. Abijith Sarkar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1 - Introduction - 1  
Lecture 2 - Module 1 - Introduction - 2  
Lecture 3 - Module 2 - Governing Equation - 1  
Lecture 4 - Module 2 - Governing Equation - 2  
Lecture 5 - Module 3 - Plane Wave - 1  
Lecture 6 - Module 3 - Plane Wave - 2  
Lecture 7 - Module 4 - Reflection Of Plane Waves - 1  
Lecture 8 - Module 4 - Reflection Of Plane Waves - 2  
Lecture 9 - Module 5 - Frequence Analysis - 1  
Lecture 10 - Module 5 - Frequence Analysis - 2  
Lecture 11 - Module 6 - Harmonic Plane Waves  
Lecture 12 - Module 7 - Travelling And Standing Waves  
Lecture 13 - Module 8 - Acoustic Mode Shapes, Reflection  
Lecture 14 - Module 9 - Plane Waves  
Lecture 15 - Module 10 - Flexural Waves, evanescent Waves  
Lecture 16 - Module 11 - Near Field Acoustic Waves  
Lecture 17 - Module 12 - cuton Waves in duct  
Lecture 18 - Module 13 - Power Calculation  
Lecture 19 - Module 14 - Decibel Scale  
Lecture 20 - Module 15 - Db Arithmetic  
Lecture 21 - Module 16 - Sound Power Level  
Lecture 22 - Module 17 - Human factors in Acoustic Engineering  
Lecture 23 - Module 18 - Microphone  
Lecture 24 - Module 19 - Acoustic Measurements  
Lecture 25 - Module 20 - Muffler Analysis  
Lecture 26 - Module 21 - Transfer Matrix Method  
Lecture 27 - Module 22 - Electro Mechanical Analogies - Part 1  
Lecture 28 - Module 23 - Electro Mechanical Analogies Simple Example  
Lecture 29 - Module 24 - Electro Mechanical Analogies Example

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Module 25 - Helmholtz Resonator  
Lecture 31 - Module 26 - Source Impedance  
Lecture 32 - Module 27 - Insertion Loss  
Lecture 33 - Module 28 - Analysis Of Industrial Mufflers  
Lecture 34 - Module 29 - Spherical Waves  
Lecture 35 - Module 30 - Monopole and Dipole  
Lecture 36 - Module 31 - Inhomogeneous Wave Equation  
Lecture 37 - Module 32 - Green's Function  
Lecture 38 - Module 33 - Kirchoff Helmholtz Integral Equation  
Lecture 39 - Tutorial 1  
Lecture 40 - Tutorial 2  
Lecture 41 - Tutorial 3  
Lecture 42 - Tutorial 4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Steel Quality - Role of Secondary Refining and Continuous C

Subject Co-ordinator - Prof. Santanu Kr. Ray

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Concept of Steel Quality

Lecture 2 - Control of Residuals and Impact on Quality

Lecture 3 - Non-Metallic Inclusions

Lecture 4 - Evaluation of Residuals and Inclusions

Lecture 5 - Cleanliness Requirements for Different applications

Lecture 6 - Limitation of Primary Steelmaking and Importance of secondary Refining

Lecture 7 - Deoxidation

Lecture 8 - Prevention of Slag carryover

Lecture 9 - Desulphurisation

Lecture 10 - Degassing

Lecture 11 - Secondary Refining Processes

Lecture 12 - Injection of Calcium

Lecture 13 - Different Routes and Temperature Control

Lecture 14 - Decarburisation

Lecture 15 - Cleanliness Measures in Ladle and Tundish

Lecture 16 - Cleanliness Measures in Mould

Lecture 17 - Nature and Distribution of Entrapments in Casting

Lecture 18 - Genesis of Entrapment

Lecture 19 - Effect of Vertical vis-a-vis Curved Mould

Lecture 20 - Quality of Cast Product

Lecture 21 - Role of Concast Process, Caster Design and Steel Grade

Lecture 22 - Primary Cooling in Caster Mould

Lecture 23 - Heat Transfer in Mould

Lecture 24 - Role of Mould Oscillation

Lecture 25 - Cast Structure and Dendrite Size

Lecture 26 - Role of Chemistry - Part I

Lecture 27 - Role of Chemistry - Part II

Lecture 28 - Role of Segregation - Part I

Lecture 29 - Role of Segregation - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Deleterious Effect of Phosphorus
- Lecture 31 - Strength of Solidifying Strand
- Lecture 32 - Brittle Zone Near Solidus
- Lecture 33 - Strength and Toughness of Solid Shell
- Lecture 34 - Role of Chemistry on Solidification Behaviour
- Lecture 35 - Sticking vis-a-vis Depression Behaviour
- Lecture 36 - Role of Chemistry on Bulging or Depression Tendency - Part I
- Lecture 37 - Role of Chemistry on Bulging or Depression Tendency - Part II
- Lecture 38 - Effect of Cast Grain Size
- Lecture 39 - Brittle Temperature Regions
- Lecture 40 - Typical Cracks and Defects - Part I
- Lecture 41 - Typical Cracks and Defects - Part II
- Lecture 42 - Remedial Measures to Control Defects - Part I
- Lecture 43 - Remedial Measures to Control Defects - Part II
- Lecture 44 - Remedial Measures to Control Defects - Part III
- Lecture 45 - Grade - Specific Casting Parameters - Part I
- Lecture 46 - Grade - Specific Casting Parameters - Part II
- Lecture 47 - Identification of Genesis of Quality Problems Through Metallographic Investigation - Part I
- Lecture 48 - Identification of Genesis of Quality Problems Through Metallographic Investigation - Part II
- Lecture 49 - Identification of Genesis of Quality Problems Through Metallographic Investigation - Part III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:X-ray Crystallography and Diffraction

Subject Co-ordinator - Prof. Ranjit Kumar Ray

Co-ordinating Institute - IEST - Shibpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Geometry of Crystals

Lecture 2 - Geometry of Crystals (Continued...)

Lecture 3 - Tutorial-1

Lecture 4 - Reciprocal Lattice

Lecture 5 - Stereographic Projection

Lecture 6 - Tutorial-2

Lecture 7 - Point Groups and Space Groups

Lecture 8 - Point Groups and Space Groups (Continued...)

Lecture 9 - Tutorial-3

Lecture 10 - Point Groups and Space Groups (Continued...)

Lecture 11 - Basics of X-Rays

Lecture 12 - Production and Detection of X-Rays

Lecture 13 - Production and Detection of X-Rays (Continued...)

Lecture 14 - Principles of X-Ray Diffraction

Lecture 15 - X-Ray Diffraction Methods

Lecture 16 - Debye Sherrer Camera

Lecture 17 - Diffractometer Measurements

Lecture 18 - Tutorial-4

Lecture 19 - Intensity of Diffracted Beams

Lecture 20 - Intensity of Diffracted Beams (Continued...)

Lecture 21 - Determination of Crystal Structures

Lecture 22 - Precise Lattice Parameter Determination

Lecture 23 - XRD - Lab Demonstration

Lecture 24 - Discussion - Based on Forum Queries - 1

Lecture 25 - Phase Diagram Determination

Lecture 26 - Ordered Disordered Transformation

Lecture 27 - Ordered Disordered Transformation (Continued...)

Lecture 28 - Qualitative Phase Analysis

Lecture 29 - Quantitative Phase Analysis - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Precise Lattice Parameter Determination - 1
- Lecture 31 - Chemical Analysis by X-Ray Fluorescence
- Lecture 32 - Chemical Analysis by X-Ray Absorption
- Lecture 33 - Effect of Crystallite Size on Diffracted X-Ray Intensity
- Lecture 34 - Texture Determination by XRD
- Lecture 35 - Particle Size Determination by XRD
- Lecture 36 - Effect of Crystallite Size on Diffracted X-Ray Intensity
- Lecture 37 - Determination of Single Crystal Orientation by X-Rays
- Lecture 38 - Stress Analysis by X-Rays
- Lecture 39 - Factors Contributing to Peak Broadening
- Lecture 40 - Residual Stress Measurement by X-Rays

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Transport Phenomena in Materials

Subject Co-ordinator - Dr. G. Phanikumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Subscript Notation - Part 1
- Lecture 2 - Subscript Notation - Part 2
- Lecture 3 - Coordinate Rotation
- Lecture 4 - Introduction to Tensors
- Lecture 5 - Symmetry of Properties
- Lecture 6 - Material Derivative
- Lecture 7 - Planar Flows
- Lecture 8 - Reynolds Transport Theorem
- Lecture 9 - Derivation of Navier-Stokes equation
- Lecture 10 - Navier Stokes equations - Part 2
- Lecture 11 - Flow problem statements
- Lecture 12 - Simple cases in fluid flow
- Lecture 13 - Simple cases in fluid flow
- Lecture 14 - Pipe flow and porous medium
- Lecture 15 - Simple cases in fluid flow
- Lecture 16 - Friction factors and correlations
- Lecture 17 - Energy Transport
- Lecture 18 - Conduction cases - steady state
- Lecture 19 - Conduction cases - transient state
- Lecture 20 - Convective heat transfer

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Experimental Stress Analysis - An Overview

Subject Co-ordinator - Prof. K. Ramesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview of Experimental Stress Analysis

Lecture 2 - Optical Methods Work as Optical Computers

Lecture 3 - Stress, Strain and Displacement Fields

Lecture 4 - Completeness of a numerical solution

Lecture 5 - Fringe Patterns - Richness of Qualitative Information

Lecture 6 - Multi-Scale Analysis in Experimental Mechanics

Lecture 7 - Selection of an Experimental Technique

Lecture 8 - Introduction to Transmission Photoelasticity

Lecture 9 - Ordinary and Extraordinary Rays

Lecture 10 - Light Ellipse, Passage of Light Through a Crystal Plate

Lecture 11 - Retardation Plates, Stress-optic Law

Lecture 12 - Plane Polariscopes

Lecture 13 - Jones Calculus

Lecture 14 - Circular Polariscopes

Lecture 15 - Determination of Photoelastic Parameters at an Arbitrary Point

Lecture 16 - Tardy's Method of Compensation

Lecture 17 - Calibration of Photoelastic Materials

Lecture 18 - Fringe Thinning Methodologies

Lecture 19 - Fringe Ordering in Photoelasticity

Lecture 20 - Miscellaneous Topics in Transmission Photoelasticity

Lecture 21 - Three Dimensional Photoelasticity

Lecture 22 - Overview of Digital Photoelasticity

Lecture 23 - Introduction to Photoelastic Coatings

Lecture 24 - Correction Factors for Photoelastic Coatings

Lecture 25 - Coating Materials, Selection of Coating Thickness, Industrial Application of Photoelastic Coatings

Lecture 26 - Calibration of Photoelastic Coatings, Introduction to Brittle Coatings

Lecture 27 - Analysis of Brittle Coatings

Lecture 28 - Introduction to Strain Gauges

Lecture 29 - Strain Sensitivity of a Strain Gauge, Bridge Sensitivity, Rosettes

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- Lecture 30 - Strain Gauge Alloys, Carriers and Adhesives
- Lecture 31 - Performance of Strain Gauge System
- Lecture 32 - Temperature Compensation, Two-wire and Three-wire Circuits
- Lecture 33 - Strain Gauge Selection
- Lecture 34 - Bonding of a Strain Gauge
- Lecture 35 - Soldering, Accounting for Transverse Sensitivity Effects
- Lecture 36 - Correction Factors for Special Applications
- Lecture 37 - Special Gauges

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Mechanics of Human Movement

Subject Co-ordinator - Prof. Sujatha Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Terminologies  
Lecture 2 - Skeletal System  
Lecture 3 - Axial and Appendicular Skeleton  
Lecture 4 - Bones in the Human Body  
Lecture 5 - Types of Joints  
Lecture 6 - Movements about Joints  
Lecture 7 - Levers in the Human Body  
Lecture 8 - Skeletal Muscles  
Lecture 9 - Skeletal Muscles  
Lecture 10 - Skeletal Muscles  
Lecture 11 - Mechanics and Modeling of Muscles  
Lecture 12 - Muscle Action - Part I  
Lecture 13 - Muscle Action - Part II  
Lecture 14 - Principles of Statics  
Lecture 15 - Static Analysis of Elbow - Part I  
Lecture 16 - Static Analysis of Elbow - Part II  
Lecture 17 - Static Analysis of Shoulder - Part I  
Lecture 18 - Static Analysis of Shoulder - Part II  
Lecture 19 - Static Analysis of Spine - Part I  
Lecture 20 - Static Analysis of Spine - Part II  
Lecture 21 - Static Analysis of Spine - Part III  
Lecture 22 - Static Analysis of Hip - Part I  
Lecture 23 - Static Analysis of Hip - Part II  
Lecture 24 - Static Analysis of the Knee  
Lecture 25 - Static Analysis of the Knee and Ankle  
Lecture 26 - Kinetics  
Lecture 27 - Kinetics  
Lecture 28 - Kinetics  
Lecture 29 - Kinetics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Kinetics
- Lecture 31 - Kinetics
- Lecture 32 - Kinetics
- Lecture 33 - Kinetics of Arm Swinging during Walking
- Lecture 34 - Inverse Dynamics Analysis
- Lecture 35 - Biomechanics of Balance - Part I
- Lecture 36 - Biomechanics of Balance - Part II
- Lecture 37 - Biomechanics of Balance - Part III
- Lecture 38 - Human Gait
- Lecture 39 - Human Gait Terminologies
- Lecture 40 - Characteristics of Normal Gait - Part I
- Lecture 41 - Characteristics of Normal Gait - Part II
- Lecture 42 - Characteristics of Normal Gait - Part III
- Lecture 43 - Pathological Gait Part - I
- Lecture 44 - Pathological Gait Part - II
- Lecture 45 - Pathological Gait Part - III
- Lecture 46 - Introduction to Assistive Devices for Mobility
- Lecture 47 - Design Considerations
- Lecture 48 - Design Considerations
- Lecture 49 - Design Considerations
- Lecture 50 - Journey of Standing Wheelchair Development

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Design for Quality, Manufacturing and Assembly

Subject Co-ordinator - Prof. Palaniappaan Ramu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to DfX

Lecture 2 - Introduction to Quality

Lecture 3 - Introduction to Robustness

Lecture 4 - Introduction to Six Sigma Concept

Lecture 5 - Recap and clarifications of basic concepts

Lecture 6 - Review of Six Sigma and Quality Loss Function (QLF)

Lecture 7 - Types of QLF and SN Ratio

Lecture 8 - Linking Quality and Robustness

Lecture 9 - Design for Six Sigma - Stages, Design of Experiments

Lecture 10 - Introduction To Design Of Experiments

Lecture 11 - Need for DoE and basic DoE methods

Lecture 12 - Factorial Design

Lecture 13 - Orthogonal Array- L4 and L8 example

Lecture 14 - Setting up an Orthogonal Array

Lecture 15 - Confounding OA and Resolution Table

Lecture 16 - Confounding Logic and Randomization of Experiments

Lecture 17 - Paper Helicopter Case Study - Part I

Lecture 18 - Paper Helicopter Case Study - Part II

Lecture 19 - Introduction To Injection Molding Process, Materials, Terminologies Related To Plastic Parts and

Lecture 20 - Estimation of Mold Cost for Injection Molding (Dixon and Poli's Method)

Lecture 21 - Estimation of Mold Cost for Injection Molding (Dixon and Poli's Method) (Continued...)

Lecture 22 - Mold Cost Estimation - Tutorial

Lecture 23 - Design for Additive Manufacturing

Lecture 24 - Demo

Lecture 25 - Introduction to Sustainable Development and Sustainability Indicators - Part 1

Lecture 26 - Introduction to Sustainable Development and Sustainability Indicators - Part 2

Lecture 27 - Introduction to design process

Lecture 28 - Accounting for manufacturability and assembly in design - An overview

Lecture 29 - DfMA in product design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - General design guidelines for manual assembly
- Lecture 31 - Systematic DFA methodology
- Lecture 32 - Alpha symmetry, Beta symmetry
- Lecture 33 - Quantification of part size and thickness
- Lecture 34 - Systematic DFA Case study - controller assembly
- Lecture 35 - DFA examples and discussion
- Lecture 36 - Xerox Producibility Index (XPI)
- Lecture 37 - High Speed and Robotic Assembly
- Lecture 38 - Sheet Metal Working
- Lecture 39 - Overview of DoE Workflow
- Lecture 40 - DFA Software
- Lecture 41 - DFM Software and Case Studies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Surrogates and Approximations in Engineering Design

Subject Co-ordinator - Prof. Palaniappaan Ramu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview and Motivation of Course
- Lecture 2 - Basic Optimization Problem Formulation
- Lecture 3 - Problem Formulation Example
- Lecture 4 - Calculus related to Optimization
- Lecture 5 - The big picture - Overview
- Lecture 6 - Introduction to DOE - 1
- Lecture 7 - Introduction to DOE - 2
- Lecture 8 - Types of DOE - 1
- Lecture 9 - Types of DOE - 2 and some examples
- Lecture 10 - Introduction to surrogate modeling
- Lecture 11 - Types of surrogate - Polynomial models
- Lecture 12 - Radial basis function - 1
- Lecture 13 - Radial basis function - 2
- Lecture 14 - Kriging - 1
- Lecture 15 - Kriging - 2
- Lecture 16 - Metamodels for Safe and Efficient Automotive Structures
- Lecture 17 - Exploration and Exploitation in Surrogates
- Lecture 18 - Errors Based Exploration
- Lecture 19 - Ensemble of Surrogates

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced Manufacturing Processes

Subject Co-ordinator - Dr. A.K. Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Manufacturing and Manufacturing Systems
- Lecture 2 - Manufacturing Trends and Challenges
- Lecture 3 - Manufacturing Aspects, Selection and Classification
- Lecture 4 - Description and Taxonomy of the Mfg. Processes
- Lecture 5 - Metal Casting basics, Gating and Riser design
- Lecture 6 - Evaporative Pattern Casting Process (EPC)
- Lecture 7 - Continuous, Permanent mold, Centrifugal and Pressure Die Casting
- Lecture 8 - Hybrid EPC Processes and Vacuum EPC Process
- Lecture 9 - Set-up of VEPC and Investment Casting Processes
- Lecture 10 - Ceramic Shell Investment Casting Process
- Lecture 11 - Shell Molding Process
- Lecture 12 - Abrasive Flow Machining
- Lecture 13 - Mechanism of Material Removal in AFM and Variant processes in AFM
- Lecture 14 - Abrasive Jet Machining (AJM)
- Lecture 15 - Water Jet and Abrasive Water Jet Machining
- Lecture 16 - Ultrasonic Machining Process (USM)
- Lecture 17 - Mechanism, Processes Variants and applications of USM
- Lecture 18 - Micro USM and advances in USM
- Lecture 19 - Electric Discharge Machining (EDM) Process
- Lecture 20 - Die-Sinker EDM and Wire Cut Electric Discharge Machining (WEDM)
- Lecture 21 - Variant Processes in EDM
- Lecture 22 - Electro Chemical Discharge Machining (ECDM)
- Lecture 23 - Laser Beam Machining (LBM)
- Lecture 24 - Equipment and Process Parameters in LBM
- Lecture 25 - Electrochemical Machining (ECM)
- Lecture 26 - ECM Kinematics and Tool Design
- Lecture 27 - The Subsystems in ECM, advantages and applications
- Lecture 28 - Variant Processes in ECM
- Lecture 29 - Electron Beam, Plasma Beam and Ion Beam Machining

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Submerged Arc Welding (SAW)
- Lecture 31 - Resistance Welding Process
- Lecture 32 - Solid State Welding processes
- Lecture 33 - Friction Welding process
- Lecture 34 - Electron Beam and Plasma Welding Processes
- Lecture 35 - Laser Beam welding and Diffusion welding processes
- Lecture 36 - High Energy Rate Forming Processes
- Lecture 37 - Rapid Prototyping Technology (RPT)
- Lecture 38 - Rapid Manufacturing, applications and advancements
- Lecture 39 - Microwave Processing of Materials
- Lecture 40 - Applications and new trends in Microwave Material Processing



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Computational Fluid Dynamics (Dr. K.M. Singh)

Subject Co-ordinator - Dr. K.M. Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Introduction
- Lecture 2 - CFD
- Lecture 3 - Conservation Laws and Mathematical Preliminaries
- Lecture 4 - Mass Conservation
- Lecture 5 - Momentum Equation
- Lecture 6 - Momentum Equation
- Lecture 7 - Navier-Stokes Equation and its Simplified Forms
- Lecture 8 - Energy and Scalar Transport Equations
- Lecture 9 - Scalar Transport, Mathematical Classification and Boundary Conditions
- Lecture 10 - Finite Difference Method
- Lecture 11 - Finite Difference Approximation of First Order Derivatives
- Lecture 12 - Finite Difference Approximation of Second Order Derivatives - 1
- Lecture 13 - Finite Difference Approximation of Second Order Derivatives - 2
- Lecture 14 - Approximation of Mixed Derivatives and Multi-Dimensional F.D. Formulae
- Lecture 15 - Implementation of Boundary Conditions and Finite Difference Algebraic System
- Lecture 16 - Applications of FDM to Scalar Transport Problems - 1
- Lecture 17 - Applications of FDM to Scalar Transport Problems - 2
- Lecture 18 - Application of FDM to Advection-Diffusion and Computer Implementation Aspects
- Lecture 19 - Computer Implementation of FDM for Steady State Heat Diffusion Problems - 1
- Lecture 20 - Computer Implementation of FDM for Steady State Heat Diffusion Problems - 2
- Lecture 21 - Computer Implementation of FDM for Steady State Heat Diffusion Problems - 3
- Lecture 22 - Solution of Discrete Algebraic Systems
- Lecture 23 - Direct and Basic Iterative Methods for Linear Systems
- Lecture 24 - Accelerated Iterative Methods for Linear Systems
- Lecture 25 - Two Level and Multi-Level Methods for First Order IVPs - 1
- Lecture 26 - Two Level and Multi-Level Methods for First Order IVPs - 2
- Lecture 27 - Application to Unsteady Transport Problems
- Lecture 28 - Introduction to Finite Volume Method
- Lecture 29 - Finite Volume Interpolation Schemes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Application of FVM to Scalar Transport
- Lecture 31 - Introduction to Finite Element Method
- Lecture 32 - Finite Element Shape Functions and Numerical Integration - 1
- Lecture 33 - Finite Element Shape Functions and Numerical Integration - 2
- Lecture 34 - Application of FEM to Scalar Transport
- Lecture 35 - Special Features of Navier-Stokes Equations
- Lecture 36 - Time Integration Techniques for Navier-Stokes Equations
- Lecture 37 - Implicit Pressure Correction Methods
- Lecture 38 - SIMPLEC, SIMPLER and Fractional Step Methods
- Lecture 39 - Turbulent Flows
- Lecture 40 - Reynolds Averaging and RANS Simulation Models
- Lecture 41 - RANS Turbulence Models and Large Eddy Simulation
- Lecture 42 - Introduction to Grid Generation
- Lecture 43 - Aspects of Practical CFD Analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Metal Casting

Subject Co-ordinator - Dr. D. B. Karunakar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Overview of different casting processes - 1  
Lecture 3 - Overview of different casting processes - 2  
Lecture 4 - Overview of different casting processes - 3  
Lecture 5 - Terminology and Tools of Sand Moulding  
Lecture 6 - Moulding Sands and Design - 1  
Lecture 7 - Moulding Sands and Design - 2  
Lecture 8 - Moulding Sands Properties  
Lecture 9 - Moulding Sand Properties Testing  
Lecture 10 - Cores and Core Sands  
Lecture 11 - Patterns and Allowances  
Lecture 12 - Steps Involved in Making a Sand Casting  
Lecture 13 - Design of Riser System - 1  
Lecture 14 - Design of Riser System - 2  
Lecture 15 - Design of Riser System - 3  
Lecture 16 - Design of Riser System - 4  
Lecture 17 - Design of Riser System - 5  
Lecture 18 - Design of Gating System - 1  
Lecture 19 - Design of Gating System - 2  
Lecture 20 - Sand Casting Defects - 1  
Lecture 21 - Sand Casting Defects - 2  
Lecture 22 - Melting Furnaces and Practice  
Lecture 23 - Treatment of Molten Metal  
Lecture 24 - Fluidity of Molten Metal  
Lecture 25 - Solidification  
Lecture 26 - Cast Irons and Steels  
Lecture 27 - Aluminum and Magnesium Cast Alloys  
Lecture 28 - Copper, Zinc and Titanium Cast Alloys  
Lecture 29 - Die Casting Process - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Die Casting Process - II
- Lecture 31 - Investment Casting Process - I
- Lecture 32 - Investment Casting Process - II
- Lecture 33 - Continuous Casting Process
- Lecture 34 - Centrifugal Casting Process
- Lecture 35 - Evaporative Pattern Casting and Plaster Moulding
- Lecture 36 - Vacuum Sealed Moulding and Squeeze Casting
- Lecture 37 - Shakeout, Fettling and Finishing
- Lecture 38 - Inspection, Testing and Quality Control
- Lecture 39 - Design Consideration and Economics
- Lecture 40 - Environment, Health and Safety Aspects

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Processing of non metals

Subject Co-ordinator - Dr. Inderdeep Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Engineering Materials and Processing Techniques

Lecture 2 - Properties of Non-Metals

Lecture 3 - Glass Structure and Properties

Lecture 4 - Glass Processing - I

Lecture 5 - Glass Processing - II

Lecture 6 - Ceramics - I

Lecture 7 - Ceramics - II

Lecture 8 - Ceramic Powder Preparation

Lecture 9 - Ceramic Powder Preparation â I

Lecture 10 - Processing of Ceramic Parts ? Pressing

Lecture 11 - Processing of Ceramic Parts â II

Lecture 12 - Ceramics

Lecture 13 - Thermoplastics and Thermosets

Lecture 14 - Processing of Plastics

Lecture 15 - Extrusion of Plastics

Lecture 16 - Transfer Molding and Compression Molding

Lecture 17 - Injection Molding

Lecture 18 - Thermoforming

Lecture 19 - Rotational Molding and Blow Molding

Lecture 20 - Composite Materials

Lecture 21 - Composite Materials

Lecture 22 - Processing of Polymer Matrix Composites

Lecture 23 - Hand Lay-up and Spray Lay-up

Lecture 24 - Pultrusion

Lecture 25 - Compression Molding

Lecture 26 - Filament Winding

Lecture 27 - Injection Molding-1

Lecture 28 - Pre-pregging and Sheet Molding Compounds

Lecture 29 - Resin Transfer Molding and Autoclave Molding

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ceramic Matrix Composites
- Lecture 31 - Ceramic Matrix Composites
- Lecture 32 - Powder Processing
- Lecture 33 - Chemical Vapour Infiltration
- Lecture 34 - Ceramic Matrix Composites
- Lecture 35 - Ceramic Matrix Composites
- Lecture 36 - Drilling of Polymer Matrix Composites
- Lecture 37 - Hole Making Techniques for Polymer Matrix Composites
- Lecture 38 - Joining of Polymer Matrix Composites
- Lecture 39 - Microwave Joining of Polymer Matrix Composites
- Lecture 40 - Research Tools for Secondary Processing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Vibration control

Subject Co-ordinator - Dr. S. P. Harsha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics of Vibrations for Simple Mechanical Systems
- Lecture 2 - Introduction to Damping in Free and Force Vibrations
- Lecture 3 - Free and Forced Vibrations of Two Degree of Systems
- Lecture 4 - Multi Degree of Freedom Systems
- Lecture 5 - Reduction at source - 1
- Lecture 6 - Reduction at source - 2
- Lecture 7 - Reduction at source - 3
- Lecture 8 - Feedback Control System - 1
- Lecture 9 - Shunt Damping
- Lecture 10 - Vibration Isolation - 1
- Lecture 11 - Vibration Isolation - 2
- Lecture 12 - Vibration Isolation - 3
- Lecture 13 - Source Classification
- Lecture 14 - Self Excitation Vibration
- Lecture 15 - Flow Induction Vibration
- Lecture 16 - Field Balancing of Rigid / Flexible Rotors
- Lecture 17 - Damping
- Lecture 18 - Damping
- Lecture 19 - Numerical Problems
- Lecture 20 - Design Sensitivity - I
- Lecture 21 - Design Specification
- Lecture 22 - Design for Enhanced Material Damping
- Lecture 23 - Basics of Passive Vibration Control
- Lecture 24 - Design of Absorber
- Lecture 25 - Shock Absorber
- Lecture 26 - Isolators with Stiffness and Damping
- Lecture 27 - Basics of Active Vibration Control
- Lecture 28 - Piezoelectric Material - I
- Lecture 29 - Piezoelectric Material - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Piezoelectric Accelerometers
- Lecture 31 - Electro-rheological (ER) Fluids
- Lecture 32 - Magneto-rheological (MR) Fluids
- Lecture 33 - Magneto and Electrostrictive Materials
- Lecture 34 - Shape Memory Alloy
- Lecture 35 - Electro-Magnetics
- Lecture 36 - Numerical Problems
- Lecture 37 - Basics of Vibration Measurement System
- Lecture 38 - Data Acquisition
- Lecture 39 - Fourier Transformation
- Lecture 40 - Filters



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Welding Engineering

Subject Co-ordinator - Dr. D.K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Welding Engineering  
Lecture 2 - Classification of Welding Processes - I  
Lecture 3 - Classification of Welding Processes - II  
Lecture 4 - Sources of Heat and Protection of Weld pool  
Lecture 5 - Protection of Weld Pool  
Lecture 6 - Introduction  
Lecture 7 - Fundamentals of Arc Initiation  
Lecture 8 - Arc Maintenance & Arc Characteristics  
Lecture 9 - Arc Forces  
Lecture 10 - Arc Efficiency  
Lecture 11 - Melting Rate in Different Welding Processes  
Lecture 12 - Types of power sources and their characteristics - I  
Lecture 13 - Types of power sources and their characteristics - II  
Lecture 14 - SMAW - I  
Lecture 15 - SMAW - II  
Lecture 16 - GTAW - I  
Lecture 17 - GTAW - II  
Lecture 18 - PAW & SAW  
Lecture 19 - SAW  
Lecture 20 - GMAW  
Lecture 21 - Brazing, Soldering & Braze Welding  
Lecture 22 - Braze welding and Electroslag welding  
Lecture 23 - Weld Thermal Cycle  
Lecture 24 - Effect of WTC and Cooling rate in welding  
Lecture 25 - Cooling rate  
Lecture 26 - Peak temperature & Solidification rate  
Lecture 27 - Residual stress - I  
Lecture 28 - Residual stress - II  
Lecture 29 - Introduction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Type of joints and welds
- Lecture 31 - Edge preparation
- Lecture 32 - Design for static and fatigue loading
- Lecture 33 - Fatigue fracture of weld joints - I
- Lecture 34 - Fatigue fracture of weld joints - II
- Lecture 35 - Introduction-
- Lecture 36 - DT & NDT
- Lecture 37 - Understanding Weldability
- Lecture 38 - Reactions in weldment
- Lecture 39 - Weldability of Al alloys
- Lecture 40 - Failure analysis and prevention

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Industrial Engineering

Subject Co-ordinator - Prof. P.K. Jain, Dr. Pradeep Kumar, Dr. Inderdeep Singh, Dr. D.K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Production Planning and Control
- Lecture 2 - Product Design and Development
- Lecture 3 - Statistical Process Control - Part I
- Lecture 4 - Statistical Process Control - Part II
- Lecture 5 - Statistical Process Control - Part III
- Lecture 6 - Productivity
- Lecture 7 - Factors Affecting the Productivity
- Lecture 8 - Improving the Productivity Introduction to Work Study
- Lecture 9 - Work Study Human Component and Method Study
- Lecture 10 - Recording Techniques for Method Study - Part I
- Lecture 11 - Recording Techniques for Method Study - Part II
- Lecture 12 - Recording Techniques Critical Examination
- Lecture 13 - Principles of Motion Economy
- Lecture 14 - Work Measurement Time Study - Part I
- Lecture 15 - Work Measurement Time Study - Part II
- Lecture 16 - Performance Rating Allowances
- Lecture 17 - Work Measurement
- Lecture 18 - PMT System Standard Data Method
- Lecture 19 - Ergonomics
- Lecture 20 - Metabolism and Organization at Work
- Lecture 21 - Working Conditions Lights Vibrations
- Lecture 22 - Materials Management - Part I
- Lecture 23 - Materials Management - Part II
- Lecture 24 - Materials Requirement Planning
- Lecture 25 - Sales Forecasting - Part I
- Lecture 26 - Sales Forecasting - Part II
- Lecture 27 - Capacity Planning - Part I
- Lecture 28 - Capacity Planning - Part II
- Lecture 29 - Network Analysis - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Network Analysis - Part II
- Lecture 31 - Facility Design Part - Part I
- Lecture 32 - Facility Design Part - Part II
- Lecture 33 - Facility Design Part - Part III
- Lecture 34 - Facility Design Part - Part IV
- Lecture 35 - Product Design Development
- Lecture 36 - Materials Handling
- Lecture 37 - Quality Concepts
- Lecture 38 - Value Engineering
- Lecture 39 - Reliability
- Lecture 40 - Industrial Safety

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Manufacturing Processes I

Subject Co-ordinator - Dr. D.B. Karunakar, Dr. Inderdeep Singh. Dr. D.K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Powder Metallurgy - Part I
- Lecture 2 - Powder Metallurgy - Part II
- Lecture 3 - Powder Metallurgy - Part III
- Lecture 4 - Metal Forming - Fundamentals
- Lecture 5 - Forging
- Lecture 6 - Swaging and Wire Drawing
- Lecture 7 - Sheet Metal Operations - Part I
- Lecture 8 - Sheet Metal Operations - Part II
- Lecture 9 - Sheet Metal Operations - Part III
- Lecture 10 - Sheet Metal Working - Presses
- Lecture 11 - Sheet Metal Working - Equipment
- Lecture 12 - High Energy Rate Forming Processes
- Lecture 13 - Machining Fundamentals
- Lecture 14 - Machining - Part I
- Lecture 15 - Machining - Part II
- Lecture 16 - Machining - Part III
- Lecture 17 - Metal casting - Part I
- Lecture 18 - Metal casting - Part II
- Lecture 19 - Metal Casting - Part III
- Lecture 20 - Metal Casting - Part IV
- Lecture 21 - Metal Casting - Part V
- Lecture 22 - Metal Casting - Part VI
- Lecture 23 - Metal Casting - Part VII
- Lecture 24 - Metal Casting - Part VIII
- Lecture 25 - Metal Casting - Part IX
- Lecture 26 - Metal Casting - Part X
- Lecture 27 - Introduction
- Lecture 28 - Welding Process Classification
- Lecture 29 - Brazing Soldering Braze Welding

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Arc Welding Power Source - Part I
- Lecture 31 - Arc Welding Power Source - Part II
- Lecture 32 - Shielded Metal Arc Welding - Part I
- Lecture 33 - Shielded Metal Arc Welding - Part II
- Lecture 34 - Submerged Arc Welding
- Lecture 35 - Gas Metal Arc Welding - Part I
- Lecture 36 - Gas Metal Arc Welding - Part II
- Lecture 37 - Tungsten Inert Gas Welding - Part I
- Lecture 38 - Tungsten Inert Gas Welding - Part II
- Lecture 39 - Resistance Welding Process
- Lecture 40 - Reaction in Weld Region Welding Defects

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Strength of Materials

Subject Co-ordinator - Dr. S.P. Harsha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Solid Mechanics  
Lecture 2 - Strength of Materials  
Lecture 3 - Strength of Materials  
Lecture 4 - Solid Mechanics  
Lecture 5 - Strength of Materials  
Lecture 6 - Strength of Materials  
Lecture 7 - Strength of Materials  
Lecture 8 - Strength of Materials  
Lecture 9 - Strength of Materials  
Lecture 10 - Strength of Materials  
Lecture 11 - Strength of Materials  
Lecture 12 - Strength of Materials  
Lecture 13 - Strength of Materials  
Lecture 14 - Strength of Materials  
Lecture 15 - Strength of Materials  
Lecture 16 - Strength of Materials  
Lecture 17 - Strength of Materials  
Lecture 18 - Strength of Materials  
Lecture 19 - Strength of Materials  
Lecture 20 - Strength of Materials  
Lecture 21 - Strength of Materials  
Lecture 22 - Strength of Materials  
Lecture 23 - Strength of Materials  
Lecture 24 - Strength of Materials  
Lecture 25 - Strength of Materials  
Lecture 26 - Strength of Materials  
Lecture 27 - Strength of Materials  
Lecture 28 - Strength of Materials  
Lecture 29 - Strength of Materials

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Strength of Materials  
Lecture 31 - Strength of Materials  
Lecture 32 - Strength of Materials  
Lecture 33 - Strength of Materials  
Lecture 34 - Strength of Materials  
Lecture 35 - Strength of Materials  
Lecture 36 - Strength of Materials  
Lecture 37 - Strength of Materials  
Lecture 38 - Strength of Materials  
Lecture 39 - Strength of Materials  
Lecture 40 - Strength of Materials



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Two Phase Flow and Heat Transfer

Subject Co-ordinator - Dr. Arup Kumar Das

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Flow Regimes
- Lecture 3 - Homogeneous Model
- Lecture 4 - Drift Flux Model
- Lecture 5 - (Missing Lecture)
- Lecture 6 - Dispersed Flow
- Lecture 7 - Slug Flow
- Lecture 8 - Annular Flow
- Lecture 9 - Droplet Annular and Stratified Flow
- Lecture 10 - Measurement of Void Fraction
- Lecture 11 - Signal Analysis
- Lecture 12 - Two Fluid and Population Balance Model
- Lecture 13 - Interface Tracking
- Lecture 14 - Lattice Boltzmann Method
- Lecture 15 - Smoothed Particle Hydrodynamics
- Lecture 16 - Molecular Perspective of Two Phase Flow
- Lecture 17 - Boiling Heat Transfer
- Lecture 18 - Condensation
- Lecture 19 - Solid-Liquid Flow
- Lecture 20 - Gas-Solid Flow

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Refrigeration and Air-Conditioning

Subject Co-ordinator - Prof. Ravi Kumar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Recapitulation of Thermodynamics  
Lecture 2 - Introduction to Refrigeration  
Lecture 3 - Air Refrigeration Cycle  
Lecture 4 - Aircraft Refrigeration Cycles - 1  
Lecture 5 - Aircraft Refrigeration Cycles - 2  
Lecture 6 - Aircraft Refrigeration Cycles - 3  
Lecture 7 - Vapour Compression Cycle - 1  
Lecture 8 - Vapour Compression Cycle - 2  
Lecture 9 - P-h Charts  
Lecture 10 - Actual Vapour Compression Cycle - 1  
Lecture 11 - Actual Vapour Compression Cycle - 2  
Lecture 12 - Compound Compression with Intercooling - 1  
Lecture 13 - Compound Compression with Intercooling - 2  
Lecture 14 - Multiple Evaporator and Cascade System  
Lecture 15 - Problem Solving - 1  
Lecture 16 - Refrigerants - 1  
Lecture 17 - Refrigerants - 2  
Lecture 18 - Vpouir Absorption Systems - 1  
Lecture 19 - Vpouir Absorption Systems - 2  
Lecture 20 - Vpouir Absorption Systems - 3  
Lecture 21 - Introduction to Air-conditioning  
Lecture 22 - Properties of Moist Air  
Lecture 23 - Psychrometric Chart  
Lecture 24 - Psychrometric Processes - 1  
Lecture 25 - Psychrometric Processes - 2  
Lecture 26 - Psychrometric Processes - 3  
Lecture 27 - Infiltration  
Lecture 28 - Design Conditions  
Lecture 29 - Cooling Load - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cooling Load - 2
- Lecture 31 - Cooling Load - 3
- Lecture 32 - Air Distribution System - 1
- Lecture 33 - Air Distribution System - 2
- Lecture 34 - Problem Solving - 2
- Lecture 35 - Air-Conditioning Systems
- Lecture 36 - Human Physiology
- Lecture 37 - Thermal Comfort
- Lecture 38 - Indoor Environmental Health - 1
- Lecture 39 - Indoor Environmental Health - 2
- Lecture 40 - Problem Solving - 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Engineering Economic Analysis

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Engineering Economy, Physical and Economic Environment, Phases in Engg. process
- Lecture 2 - Some economic concepts, Value and utility, Interest and Interest rate, Time value of money
- Lecture 3 - Interest formulas
- Lecture 4 - Interest formulas for discrete compounding and discrete payments
- Lecture 5 - Interest formulas for discrete compounding and discrete payments
- Lecture 6 - Problem solving on discrete compounding, discrete payment
- Lecture 7 - Interest formulas for Uniform gradient series
- Lecture 8 - Interest formulas for geometric gradient series
- Lecture 9 - Compounding frequency of Interest
- Lecture 10 - Problem solving on frequency compounding of interest and gradient series factors
- Lecture 11 - Economic equivalence
- Lecture 12 - Equivalence calculations involving cash flows
- Lecture 13 - Methods of comparison of alternatives
- Lecture 14 - comparison of alternatives
- Lecture 15 - Problem solving on equivalence and comparison of alternatives
- Lecture 16 - Replacement analysis
- Lecture 17 - Proper treatment of sunk cost in replacement
- Lecture 18 - Replacement because of improved efficiency, inadequacy, demand etc.
- Lecture 19 - Problem solving on replacement analysis
- Lecture 20 - Economic life of the asset
- Lecture 21 - Depreciation
- Lecture 22 - Basic depreciation methods
- Lecture 23 - Depreciation
- Lecture 24 - Modified accelerated cost recovery system (MACRS) method of depreciation, Depletion
- Lecture 25 - Depreciation
- Lecture 26 - Problem solving based on Depreciation and Depletion
- Lecture 27 - Elements of cost
- Lecture 28 - Breakeven analysis, Effect of fixed and variable cost on BEP.
- Lecture 29 - Economic order quantity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problem solving based on Breakeven analysis and EOQ
- Lecture 31 - Cost estimation
- Lecture 32 - cost estimating relationships
- Lecture 33 - Introduction to decision under risk Criteria for decision under risk
- Lecture 34 - Expected value decision making under risk
- Lecture 35 - Expected variance decision making under risk
- Lecture 36 - Problem solving based on decision under risk
- Lecture 37 - Income taxes
- Lecture 38 - Effect of method of depreciation on income taxes
- Lecture 39 - After tax economic analysis
- Lecture 40 - Problem solving based on Income tax analysis

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Convective Heat Transfer

Subject Co-ordinator - Dr. Arup Kumar Das

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Balance of Total Energy
- Lecture 3 - Different Forms of Thermal Energy Equation
- Lecture 4 - Thermal Boundary Layer
- Lecture 5 - Forced Convection
- Lecture 6 - Forced Convection
- Lecture 7 - Forced Convection over a Flat Plate
- Lecture 8 - Natural Convection
- Lecture 9 - Natural Convection
- Lecture 10 - Tutorial
- Lecture 11 - Forced Convection in Ducts
- Lecture 12 - Thermally Developed Slug Flow in a Duct
- Lecture 13 - Thermally and Hydrodynamically Developed Flow
- Lecture 14 - Thermally and Hydrodynamically Developed Flow
- Lecture 15 - Thermal Entrance Region
- Lecture 16 - Thermal Entrance Region
- Lecture 17 - Rayleigh Benard Convection
- Lecture 18 - Heat Transfer with Phase Change
- Lecture 19 - Mass Transfer
- Lecture 20 - Tutorial

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Mechanical Vibration

Subject Co-ordinator - Prof. Anil Kumar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lesson 1 - Introduction  
Lecture 2 - Lesson 2 - Addition of two harmonic motions and beat phenomenon  
Lecture 3 - Lesson 3 - Fourier series and harmonic analysis  
Lecture 4 - Lesson 4 - Vibration analysis procedure  
Lecture 5 - Lesson 5 - Numerical problems  
Lecture 6 - Lesson 1 - Undamped free vibration  
Lecture 7 - Lesson 2 - Energy method  
Lecture 8 - Lesson 3 - Damped free vibration  
Lecture 9 - Lesson 4 - Viscous damped systems and logarithmic decrement  
Lecture 10 - Lesson 5 - Coulomb damping  
Lecture 11 - Lesson 1 - Harmonic excitations  
Lecture 12 - Lesson 2 - Magnification factor and frequency response curve  
Lecture 13 - Lesson 3 - Rotating unbalance  
Lecture 14 - Lesson 4 - Excitation of the support  
Lecture 15 - Lesson 5 - Energy input and dissipation by viscous damping  
Lecture 16 - Lesson 1 - Coulomb damping and equivalent viscous damping  
Lecture 17 - Lesson 2 - Structural damping and equivalent viscous damping  
Lecture 18 - Lesson 3 - Vibration isolation and force transmissibility  
Lecture 19 - Lesson 4 - Motion transmissibility  
Lecture 20 - Lesson 5 - Numerical problems  
Lecture 21 - Lesson 1 - Transducers and vibration pickup  
Lecture 22 - Lesson 2 - Vibrometer  
Lecture 23 - Lesson 3 - Accelerometer  
Lecture 24 - Lesson 4 - Velocity pickup or Velometer  
Lecture 25 - Lesson 5 - Phase distortion and frequency measurement  
Lecture 26 - Lesson 1 - Undamped free vibration  
Lecture 27 - Lesson 2 - Principal modes of vibration  
Lecture 28 - Lesson 3 - Combined rectilinear and angular modes  
Lecture 29 - Lesson 4 - Damped free vibration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lesson 5 - Undamped forced vibration with harmonic excitation
- Lecture 31 - Lesson 1 - Undamped dynamic vibration absorber
- Lecture 32 - Lesson 2 - Tuned absorber
- Lecture 33 - Lesson 3 - Numerical problems
- Lecture 34 - Lesson 4 - Damped dynamic vibration absorber
- Lecture 35 - Lesson 5 - Optimally tuned vibration absorber
- Lecture 36 - Lesson 1 - Undamped free vibration
- Lecture 37 - Lesson 2 - Eigen values and eigen vectors
- Lecture 38 - Lesson 3 - Flexibility influence coefficients
- Lecture 39 - Lesson 4 - Stiffness influence coefficients
- Lecture 40 - Lesson 5 - Static and dynamic coupling



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Joining Technologies of Commercial Importance

Subject Co-ordinator - Prof. Dheerendra Kumar Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Fundamental mechanisms of Joining
- Lecture 3 - Classification of Joining Processes
- Lecture 4 - Heat Generation in Welding
- Lecture 5 - Protection of Weld Metal
- Lecture 6 - Principle of Fusion Welding Processes
- Lecture 7 - Fundamentals of Welding
- Lecture 8 - Physics of Welding Arc
- Lecture 9 - Shielded Metal Arc Welding
- Lecture 10 - Gas Tungsten Arc Welding
- Lecture 11 - Newer variants of Gas tungsten arc welding
- Lecture 12 - Gas metal arc welding
- Lecture 13 - Submerged arc welding
- Lecture 14 - Electro-slag and Electro-gas welding
- Lecture 15 - Laser beam welding
- Lecture 16 - Brazing
- Lecture 17 - Soldering and braze welding
- Lecture 18 - Fundamentals of resistance welding
- Lecture 19 - Resistance welding processes
- Lecture 20 - Flash butt welding
- Lecture 21 - Adhesive joining
- Lecture 22 - Weld bonding
- Lecture 23 - Solid state joining technologies
- Lecture 24 - Ultrasonic welding
- Lecture 25 - Diffusion welding
- Lecture 26 - Explosive welding
- Lecture 27 - Magnetic pulse welding
- Lecture 28 - Weld thermal cycle
- Lecture 29 - Heat affected zone and weld thermal cycle

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heat affected zone and weld thermal cycle
- Lecture 31 - Solidification of weld metal
- Lecture 32 - Fundamentals of weldability of metals
- Lecture 33 - Weldability of carbon and alloys steels
- Lecture 34 - Weldability of stainless steels
- Lecture 35 - Metallurgical transformations in weld and heat affected zone of steels
- Lecture 36 - Weldability of aluminium alloys
- Lecture 37 - Solidification cracking and their control
- Lecture 38 - Residual Stresses in Weld Joints
- Lecture 39 - Cracking of Welded Joints I
- Lecture 40 - Cracking of Welded Joints II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Modelling and Simulation of Dynamic Systems

Subject Co-ordinator - Prof. Pushparaj Mani Pathak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Modelling
- Lecture 2 - Examples of models
- Lecture 3 - Modeling of Dynamic Systems
- Lecture 4 - Introduction to Simulation
- Lecture 5 - MATLAB as a Simulation tool
- Lecture 6 - Bond graphs modelling
- Lecture 7 - Bond graph model and causality
- Lecture 8 - Generation of System Equations
- Lecture 9 - Methods of Drawing bond graph models - Mechanical Systems
- Lecture 10 - Methods of Drawing bond graph models - Electrical Systems
- Lecture 11 - Basic System Models - Mechanical Systems
- Lecture 12 - Basic System Models - Electrical Systems
- Lecture 13 - Basic System Models - Hydraulic Systems
- Lecture 14 - Basic System Models - Pneumatic Systems
- Lecture 15 - Basic System Models - Thermal Systems
- Lecture 16 - System Models
- Lecture 17 - System Model of Combined Rotary and Translatory Systems
- Lecture 18 - System Model of Electro Mechanical Systems
- Lecture 19 - System Model of Hydro Mechanical Systems
- Lecture 20 - System Models of Robots
- Lecture 21 - Dynamic response of the 1st order system
- Lecture 22 - Dynamic response of 2nd order system
- Lecture 23 - Performance measures for 2nd order system
- Lecture 24 - System Transfer functions
- Lecture 25 - Transfer Function of 1st and 2nd Order System
- Lecture 26 - Block Diagram Algebra
- Lecture 27 - Signal Flow Graphs
- Lecture 28 - State Variable Formulation
- Lecture 29 - Frequency Response

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bode Plot
- Lecture 31 - Simulation using SIMULINK
- Lecture 32 - Simulation of simple and compound pendulums
- Lecture 33 - Simulation of planar mechanisms
- Lecture 34 - Simulation of wheeled mobile robots
- Lecture 35 - Validation and Verification of Simulation Models
- Lecture 36 - Parameter estimation methods
- Lecture 37 - Parameter estimation examples
- Lecture 38 - System identifications
- Lecture 39 - Introduction to Optimization
- Lecture 40 - Optimization with modeling of engineering problems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Principles of Casting Technology

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Casting Technology
- Lecture 2 - Mechanism of solidification
- Lecture 3 - Solidification of Pure Metals and Alloys
- Lecture 4 - Freeze Wave Mechanism and Solidification Time
- Lecture 5 - Problem Solving on Solidification
- Lecture 6 - Technology of pattern making
- Lecture 7 - Allowances in pattern making
- Lecture 8 - Moulding sands and its ingredients
- Lecture 9 - Testing of molding sands
- Lecture 10 - Sand preparation for casting
- Lecture 11 - Technology of mould making
- Lecture 12 - Technology of core making
- Lecture 13 - Special sand moulding process
- Lecture 14 - Organic binders
- Lecture 15 - Special moulding process
- Lecture 16 - Introduction of gating design
- Lecture 17 - Types of gate
- Lecture 18 - Pouring time calculation
- Lecture 19 - Aspiration effects in gating system
- Lecture 20 - Problem solving on gating design
- Lecture 21 - Solidification analysis
- Lecture 22 - Riser methods
- Lecture 23 - Shape factor
- Lecture 24 - Feeding and Chills effect
- Lecture 25 - Problem related to riser design
- Lecture 26 - Special casting process - 1
- Lecture 27 - Special casting process - 2
- Lecture 28 - Special casting process - 3
- Lecture 29 - Technology of melting

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Melting practices
- Lecture 31 - Melting and Casting of cast metal
- Lecture 32 - Melting practice for gray iron
- Lecture 33 - Melting practice for Malleable iron and S.G iron
- Lecture 34 - Casting of steel and alloy steel
- Lecture 35 - Casting practices for non-ferrous metals and alloys
- Lecture 36 - Fettling of castings
- Lecture 37 - Heat treatment of castings
- Lecture 38 - Heat treatment practices for cast iron and non-ferrous metals and alloys
- Lecture 39 - Casting defects
- Lecture 40 - Diagnostics of casting defects

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Steam and Gas Power Systems

Subject Co-ordinator - Prof. Ravi Kumar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Review of Thermodynamics

Lecture 2 - Rankine Cycle

Lecture 3 - Performance of Rankine Cycle

Lecture 4 - Binary vapour cycle and co-generation

Lecture 5 - Problem Solving (Rankine Cycle)

Lecture 6 - Steam Generators

Lecture 7 - Fire Tube Boilers

Lecture 8 - Water Tube Boilers

Lecture 9 - Boiler Mountings and Accessories

Lecture 10 - High Pressure Boilers (Part-1)

Lecture 11 - High Pressure Boilers (Part-2)

Lecture 12 - Draught

Lecture 13 - Performance of Boiler

Lecture 14 - Combustion of Fuel

Lecture 15 - Combustion of Fuel (Problem Solving)

Lecture 16 - Boiler Trial

Lecture 17 - Nozzles and Diffusers - Momentum and Continuity Equations

Lecture 18 - Nozzles and Diffusers - Efficiency and Critical Pressure

Lecture 19 - Nozzles and Diffusers - General Relationships and Supersaturated Flow

Lecture 20 - Problem Solving (Nozzles and diffusers)

Lecture 21 - Steam Turbine

Lecture 22 - Compounding of Steam Turbine

Lecture 23 - Impulse Steam Turbine

Lecture 24 - Impulse Steam Turbine Performance

Lecture 25 - Problem solving (Impulse Steam Turbine)

Lecture 26 - Impulse Reaction Steam Turbine

Lecture 27 - Impulse Reaction Steam Turbine Performance

Lecture 28 - Energy Losses in Steam Turbine

Lecture 29 - Condensers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problem Solving (Steam Turbine)
- Lecture 31 - Gas turbine cycle
- Lecture 32 - Gas Turbine cycle Performance Evaluations
- Lecture 33 - Gas Turbine cycle - Modifications
- Lecture 34 - Problem Solving (Gas Turbine Cycle)
- Lecture 35 - Centrifugal Compressors
- Lecture 36 - Centrifugal Compressors Characteristics
- Lecture 37 - Axial Flow Compressor
- Lecture 38 - Axial Flow Compressor Characteristics
- Lecture 39 - Jet Propulsion
- Lecture 40 - Problem Solving



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Product Design and Development

Subject Co-ordinator - Prof. Indradeep Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to product design and development

Lecture 2 - Product life-cycle

Lecture 3 - Product policy of an organization and selection of profitable products

Lecture 4 - Product design

Lecture 5 - Product design steps and product analysis

Lecture 6 - Value engineering concepts

Lecture 7 - Problem Identification and VEJP

Lecture 8 - Function analysis

Lecture 9 - Functional analysis system technique

Lecture 10 - Case study on value engineering

Lecture 11 - Quality function deployment

Lecture 12 - Computer aided design

Lecture 13 - Rubust design

Lecture 14 - Design for X

Lecture 15 - Ergonomics in product design

Lecture 16 - DFMA guidelines

Lecture 17 - Product design for manual assembly

Lecture 18 - Design guidelines for different processes

Lecture 19 - Rapid prototyping

Lecture 20 - Rapid prototyping processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Manufacturing Processes

Subject Co-ordinator - Dr. D. K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Understanding Manufacturing  
Lecture 2 - Fundamental Approaches of Manufacturing  
Lecture 3 - Manufacturing Process Specific Advantages and Limitations  
Lecture 4 - Material and Manufacturing Processes  
Lecture 5 - Classification of Manufacturing Processes  
Lecture 6 - Selection of Manufacturing Processes  
Lecture 7 - Applications of Manufacturing Processes  
Lecture 8 - Effect of Manufacturing Processes on Mechanical Properties  
Lecture 9 - Break Even Analysis in Manufacturing Processes  
Lecture 10 - Casting  
Lecture 11 - Steps of Casting Processes  
Lecture 12 - Casting  
Lecture 13 - The Pattern Allowances - I  
Lecture 14 - The Pattern Allowances - II  
Lecture 15 - Casting  
Lecture 16 - Sand Moulding - II  
Lecture 17 - Casting  
Lecture 18 - Casting  
Lecture 19 - Casting  
Lecture 20 - Casting  
Lecture 21 - Casting  
Lecture 22 - Casting  
Lecture 23 - Casting  
Lecture 24 - Casting  
Lecture 25 - Metal Working Processes  
Lecture 26 - Metal Working Processes  
Lecture 27 - Metal Working Processes  
Lecture 28 - Metal Working Processes  
Lecture 29 - Metal Working Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Metal Working Processes
- Lecture 31 - Sheet Metal Operations
- Lecture 32 - Metal Working Processes
- Lecture 33 - Metal Working Processes
- Lecture 34 - Metal Working Processes
- Lecture 35 - Material Removal Processes
- Lecture 36 - Material Removal Processes
- Lecture 37 - Material Removal Processes
- Lecture 38 - Material Removal Processes
- Lecture 39 - Material Removal Processes
- Lecture 40 - Material Removal Processes
- Lecture 41 - Material Removal Processes
- Lecture 42 - Material removal processes
- Lecture 43 - Material removal processes
- Lecture 44 - Material removal Processes
- Lecture 45 - Material removal Processes
- Lecture 46 - Material removal processes
- Lecture 47 - Joining of metals
- Lecture 48 - Joining of metals
- Lecture 49 - Joining of metals
- Lecture 50 - Brazing, soldering and weldability
- Lecture 51 - Weldability and welding defects
- Lecture 52 - Heat treatment
- Lecture 53 - Heat treatment
- Lecture 54 - Heat treatment
- Lecture 55 - Heat treatment
- Lecture 56 - Heat treatment
- Lecture 57 - Improving surface properties
- Lecture 58 - Improving surface properties
- Lecture 59 - Improving surface properties
- Lecture 60 - Improving surface properties

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Modelling and Simulation of Discrete Event System

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Simulation
- Lecture 2 - Concept of System, Model and Simulation
- Lecture 3 - Time advance mechanism, Components of a simulation model
- Lecture 4 - Program organization and logic, Steps in a simulation study
- Lecture 5 - Simulation examples
- Lecture 6 - Statistical Models in Simulation
- Lecture 7 - Input probability distribution functions for discrete systems
- Lecture 8 - Continuous distribution functions
- Lecture 9 - Continuous distribution functions and empirical distribution functions
- Lecture 10 - Problem solving on statistical models in simulation
- Lecture 11 - Characteristics of a queueing system
- Lecture 12 - Performance measures of queueing system
- Lecture 13 - Analysis of a single server queueing system
- Lecture 14 - Simulation of a single server queueing system
- Lecture 15 - Computer representation of simulation of single server queueing system
- Lecture 16 - Generation of Random Numbers
- Lecture 17 - Issues and Challenges in Congruential Generators
- Lecture 18 - Testing of random numbers
- Lecture 19 - Generation of Random Variates
- Lecture 20 - Problem Solving on Random Number and Random Variate Generation
- Lecture 21 - Input modeling
- Lecture 22 - Input modeling
- Lecture 23 - Input modeling
- Lecture 24 - Input modeling
- Lecture 25 - Problem Solving on input modeling
- Lecture 26 - Output analysis of a single system
- Lecture 27 - Obtaining a specified precision
- Lecture 28 - Comparison of alternative system configurations
- Lecture 29 - Confidence Intervals for comparing more than two systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problem Solving on output analysis of single and alternative systems
- Lecture 31 - Introduction to simulation of manufacturing and material handling system
- Lecture 32 - Issues in material handling system
- Lecture 33 - Modeling of system randomness
- Lecture 34 - Verification of simulation models
- Lecture 35 - Model validity and credibility
- Lecture 36 - Problem solving and case studies on simulation of manufacturing system
- Lecture 37 - Introduction to Monte Carlo Simulation
- Lecture 38 - Inventory Control Simulation using Monte Carlo Technique
- Lecture 39 - In this lecture, Monte Carlo technique was used to solve inventory system problems
- Lecture 40 - Problem solving on Monte Carlo Simulation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Processing of Polymers and Polymer Composites

Subject Co-ordinator - Dr. Inderdeep Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to course
- Lecture 2 - Engineering materials and processing techniques
- Lecture 3 - Thermoplastics and thermosets
- Lecture 4 - Processing of polymers
- Lecture 5 - Thermoforming processes
- Lecture 6 - Extrusion - I
- Lecture 7 - Extrusion - II
- Lecture 8 - Compression molding
- Lecture 9 - Injection molding - I
- Lecture 10 - injection molding - II
- Lecture 11 - Transfer molding
- Lecture 12 - Rotational molding
- Lecture 13 - Blow molding
- Lecture 14 - Composite materials
- Lecture 15 - Classification of composite materials
- Lecture 16 - Processing of polymer composites
- Lecture 17 - Hand lay-up
- Lecture 18 - Spray lay-up
- Lecture 19 - Compression molding
- Lecture 20 - Injection molding
- Lecture 21 - Reaction injection molding
- Lecture 22 - Autoclave molding
- Lecture 23 - Resin transfer molding
- Lecture 24 - Filament winding
- Lecture 25 - Pultrusion process
- Lecture 26 - Sheet molding
- Lecture 27 - Pre-pregging and challenges in primary processing of composites
- Lecture 28 - Secondary processing of polymer composites
- Lecture 29 - Joining of polymer composites

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Adhesive joining
- Lecture 31 - Mechanical joining
- Lecture 32 - Microwave joining
- Lecture 33 - Induction and resistance welding
- Lecture 34 - Drilling of polymer matrix composites - I
- Lecture 35 - Drilling of polymer matrix composites - II
- Lecture 36 - Methods to prevent drilling induced damage
- Lecture 37 - Non-conventional drilling
- Lecture 38 - Process simulation of secondary processing
- Lecture 39 - Intelligent drilling of polymer matrix composites
- Lecture 40 - Web based tools for polymer matrix composites

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Operations Management

Subject Co-ordinator - Dr. Inderdeep Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Operations Management
- Lecture 2 - Operations Management
- Lecture 3 - Operations Management
- Lecture 4 - Types of Production Systems
- Lecture 5 - Operations Strategy
- Lecture 6 - Product Life-Cycle
- Lecture 7 - Value Engineering Concepts
- Lecture 8 - Design for X (DFX)
- Lecture 9 - Ergonomics in Product Design
- Lecture 10 - Rapid Prototyping
- Lecture 11 - Sales Forecasting
- Lecture 12 - Forecasting System
- Lecture 13 - Qualitative Methods of Forecasting
- Lecture 14 - Quantitative Methods - I
- Lecture 15 - Quantitative Methods - II
- Lecture 16 - Facility Planning
- Lecture 17 - Factors Affecting Plant Location
- Lecture 18 - Plant Location
- Lecture 19 - Location Evaluation Methods - I
- Lecture 20 - Location Evaluation Methods - II
- Lecture 21 - Facility Layout and Planning - I
- Lecture 22 - Facility Layout and Planning - II
- Lecture 23 - Factors Influencing Plant Layout
- Lecture 24 - Material Flow Patterns
- Lecture 25 - Tools and Techniques used For Plant Layout Planning
- Lecture 26 - Production Planning and Control
- Lecture 27 - Process Planning
- Lecture 28 - Aggregate Production Planning
- Lecture 29 - Capacity Planning

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Capacity Planning
- Lecture 31 - Project Scheduling
- Lecture 32 - Network Diagrams
- Lecture 33 - Critical Path Method
- Lecture 34 - Critical Path Method
- Lecture 35 - Critical Path Method
- Lecture 36 - Program Evaluation and Review Technique (PERT)
- Lecture 37 - PERT Problems - I
- Lecture 38 - PERT Problems - II
- Lecture 39 - Time Cost Trade Off (Crashing)
- Lecture 40 - Project Network
- Lecture 41 - Production Control
- Lecture 42 - Sequencing
- Lecture 43 - Sequencing Problems - I
- Lecture 44 - Sequencing Problems - II
- Lecture 45 - Master Production Scheduling (MPS)
- Lecture 46 - Concept of Quality
- Lecture 47 - Total Quality Management (TQM)
- Lecture 48 - Total Productive Maintenance
- Lecture 49 - Statistical Quality Control (SQC)
- Lecture 50 - Six Sigma
- Lecture 51 - Materials Management
- Lecture 52 - Inventory Control
- Lecture 53 - Economic Order Quantity (EOQ) Models
- Lecture 54 - Economic Order Quantity (EOQ)
- Lecture 55 - Production Quantity Model
- Lecture 56 - Just In time (JIT)
- Lecture 57 - Kanban System
- Lecture 58 - Materials Requirement Planning (MRP) - I
- Lecture 59 - Materials Requirement Planning (MRP) - II
- Lecture 60 - Enterprise Resource Planning (ERP)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Theory of Production Processes

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Theory and Practics of Casting
- Lecture 2 - Theory of Solidification
- Lecture 3 - Solidification of pure metals and alloys
- Lecture 4 - Factors affecting solidification process
- Lecture 5 - Fluidity of liquid metals
- Lecture 6 - Technology of patternmaking
- Lecture 7 - Patternmaking
- Lecture 8 - Molding sand ingredients and sand testing methods
- Lecture 9 - Sand molding methods
- Lecture 10 - Coremaking
- Lecture 11 - Gating system design
- Lecture 12 - Gating system design
- Lecture 13 - Introduction to riser design
- Lecture 14 - Riser design methods
- Lecture 15 - Problem solving on gating design and riser design methods
- Lecture 16 - Theory of melting
- Lecture 17 - Melting and production of Iron castings
- Lecture 18 - Production of steel and non-ferrous castings
- Lecture 19 - Casting design considerations
- Lecture 20 - Casting defects
- Lecture 21 - Concept of stress and strain, Elastic and plastic behavior
- Lecture 22 - State of stress in two and three dimensions, Mohr's circle
- Lecture 23 - Description of strain at a point
- Lecture 24 - Mean and deviator stresses, Elastic stress strain relationships
- Lecture 25 - Theory of plasticity
- Lecture 26 - Yield criteria for ductile materials
- Lecture 27 - Flow rules, Plastic stress strain relationships
- Lecture 28 - Classification of metal working processes
- Lecture 29 - Mechanics of metal working

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Temperature in metalworking
- Lecture 31 - Rolling process
- Lecture 32 - Analysis of rolling operation
- Lecture 33 - Introduction to forging Process
- Lecture 34 - Analysis of forging process
- Lecture 35 - Problem solving on rolling and forging processes
- Lecture 36 - Extrusion process
- Lecture 37 - Drawing of rods, tubes and wires
- Lecture 38 - Analysis of drawing operation
- Lecture 39 - Sheet metal operations
- Lecture 40 - Metal Forming Defects
- Lecture 41 - Classification of joining processes
- Lecture 42 - Heat flow in welding
- Lecture 43 - Metallurgy of fusion welds
- Lecture 44 - Heat affected zone in welding
- Lecture 45 - Heat treatment processes in welding
- Lecture 46 - Principle of shield arc welding processes
- Lecture 47 - Principle of gas shield arc welding processes
- Lecture 48 - Principle of Resistance welding
- Lecture 49 - Principle of Solid State Welding Processes
- Lecture 50 - Brazing, soldering and adhesive bonding
- Lecture 51 - Residual stresses in welding
- Lecture 52 - Methods of controlling residual stresses in welding
- Lecture 53 - Welding Distortion
- Lecture 54 - Control of welding distortion
- Lecture 55 - Preheat and postweld heat treatment of weldments
- Lecture 56 - Weldability of metals
- Lecture 57 - Weldability of steels
- Lecture 58 - Weldability of cast iron
- Lecture 59 - Weldability of non-ferrous materials
- Lecture 60 - Welding defects

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Automatic Control

Subject Co-ordinator - Dr. Anil Kumar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition and Types
- Lecture 2 - Performance Specifications
- Lecture 3 - Design Process
- Lecture 4 - Block Diagrams
- Lecture 5 - Laplace Transform and Transfer Function
- Lecture 6 - Translational Mechanical System
- Lecture 7 - Rotational Mechanical System
- Lecture 8 - Electrical System
- Lecture 9 - Linearization of Nonlinear Systems
- Lecture 10 - Numerical Problems
- Lecture 11 - Poles and Zeros
- Lecture 12 - First Order System
- Lecture 13 - Second Order System
- Lecture 14 - Underdamped Second Order System - I
- Lecture 15 - Underdamped Second Order System - II
- Lecture 16 - Definition of Stability
- Lecture 17 - Routh-Hurwitz Criterion
- Lecture 18 - Routh-Hurwitz Criterion- Special Cases
- Lecture 19 - Steady State Errors
- Lecture 20 - Static Error Constants
- Lecture 21 - Define Root Locus
- Lecture 22 - Sketching of Root Locus - I
- Lecture 23 - Sketching of Root Locus - II
- Lecture 24 - Sketching of Root Locus - III
- Lecture 25 - Numerical Examples and Second Order Approximation
- Lecture 26 - PI Controller Design
- Lecture 27 - PD Controller Design
- Lecture 28 - PID Controller Design
- Lecture 29 - Lag Compensation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lead and Lag-Lead Compensation
- Lecture 31 - State Space Representation
- Lecture 32 - Converting a Transfer Function to State Space
- Lecture 33 - Converting From State Space to Transfer Function
- Lecture 34 - Controller Design
- Lecture 35 - Controller Design and Controllability
- Lecture 36 - Transfer Function, Poles, Zeros, Response
- Lecture 37 - Steady State Error, Root Locus
- Lecture 38 - Design Via Root Locus, Compensation - I
- Lecture 39 - Design Via Root Locus, Compensation - II
- Lecture 40 - State Space Method

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Failure Analysis and Prevention

Subject Co-ordinator - Dr. D. K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - Need and scope of failure analysis and prevention
- Lecture 2 - Introduction - Engineering disasters and understanding failures
- Lecture 3 - Fundamental sources of failures - Deficient design - I
- Lecture 4 - Fundamental sources of failures - Deficient design - II
- Lecture 5 - Fundamental sources of failures - Deficient design - III and upgrading of a part
- Lecture 6 - Fundamental sources of failures - Imperfections in base metals
- Lecture 7 - Fundamental sources of failures - Improper Manufacturing - I
- Lecture 8 - Fundamental sources of failures - Improper Manufacturing - II
- Lecture 9 - Fundamental sources of failures - Improper Manufacturing - III
- Lecture 10 - Fundamental sources of failures - Improper Manufacturing - IV and improper service conditions
- Lecture 11 - Fundamental sources of failures - Poor assembly, service and maintenance
- Lecture 12 - Industrial engineering tool for failure analysis - Pareto diagram
- Lecture 13 - Industrial engineering tool for failure analysis - Fishbone diagram and FMEA
- Lecture 14 - Industrial engineering tool for failure analysis - FMEA
- Lecture 15 - Industrial engineering tool for failure analysis - Fault tree analysis
- Lecture 16 - Industrial engineering tool for failure analysis - Reliability - I
- Lecture 17 - Industrial engineering tool for failure analysis - Reliability - II
- Lecture 18 - General procedure of failure analysis - Steps
- Lecture 19 - General procedure of failure analysis - Background information collection
- Lecture 20 - General procedure of failure analysis - Preliminary examination
- Lecture 21 - General procedure of failure analysis - NDT for failure analysis
- Lecture 22 - General procedure of failure analysis - Destructive testing
- Lecture 23 - General procedure of failure analysis - DT, selection, preservation, cleaning and sectioning of
- Lecture 24 - General procedure of failure analysis - Macroscopy of fracture surfaces - I
- Lecture 25 - General procedure of failure analysis - Macroscopy of fracture surfaces - II
- Lecture 26 - General procedure of failure analysis - Macroscopy of fracture surfaces - III
- Lecture 27 - General procedure of failure analysis - Macroscopy of fracture surfaces - IV
- Lecture 28 - General procedure of failure analysis - Microscopy of fracture surfaces
- Lecture 29 - General procedure of failure analysis - Metallography of failed components

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - General procedure of failure analysis - Determination of type of fracture - I
- Lecture 31 - General procedure of failure analysis - Determination of type of fracture - II
- Lecture 32 - General procedure of failure analysis - Determination of type of fracture - III and chemical ana
- Lecture 33 - General procedure of failure analysis - Application of fracture mechanics - I
- Lecture 34 - General procedure of failure analysis - Application of fracture mechanics - II
- Lecture 35 - General procedure of failure analysis - Simulated test service conditions and analysis of eviden
- Lecture 36 - General procedure of failure analysis - Question for analysis
- Lecture 37 - General procedure of failure analysis - Reporting failure analysis and failure analysis of weld
- Lecture 38 - General procedure of failure analysis - Failure analysis of weld joint
- Lecture 39 - General procedure of failure analysis - Examples of failure analysis
- Lecture 40 - General procedure of failure analysis - Embrittlement of steels

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Mechanical Measurement System

Subject Co-ordinator - Prof. Ravi Kumar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic concepts of measurement
- Lecture 2 - Functional elements of instruments
- Lecture 3 - Classification of measuring instruments
- Lecture 4 - Methods of correction for interfering and modifying inputs
- Lecture 5 - Static characteristics of measuring instruments - 1
- Lecture 6 - Static characteristics of measuring instruments - 2
- Lecture 7 - Loading effect and Impedance matching
- Lecture 8 - Statistical analysis
- Lecture 9 - Chi-square test
- Lecture 10 - Least square method
- Lecture 11 - Uncertainty analysis
- Lecture 12 - Problem solving - 1
- Lecture 13 - Generalized model of a measuring system
- Lecture 14 - Zero and first order system
- Lecture 15 - First order system - step response
- Lecture 16 - First order system - ramp response
- Lecture 17 - First order system - impulse response
- Lecture 18 - First order system - frequency response
- Lecture 19 - Second order system - step response - 1
- Lecture 20 - Second order system - step response - 2
- Lecture 21 - Second order system - ramp response
- Lecture 22 - Second order system - impulse and frequency response
- Lecture 23 - Higher order systems
- Lecture 24 - Compensation
- Lecture 25 - Transducers - 1
- Lecture 26 - Transducers - 2
- Lecture 27 - Flow measurement - 1
- Lecture 28 - Flow measurement - 2
- Lecture 29 - Temperature measurement - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Temperature measurement - 2
- Lecture 31 - Strain gauges
- Lecture 32 - Piezoelectric transducers
- Lecture 33 - Pressure measurement
- Lecture 34 - Force and torque measurement
- Lecture 35 - Displacement and acceleration measurement
- Lecture 36 - Sound measurement
- Lecture 37 - Thermophysical properties measurement
- Lecture 38 - Flow visualization
- Lecture 39 - Air pollution sampling and measurement
- Lecture 40 - Problem solving - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Surface Engineering: Mechanisms, Processes

Subject Co-ordinator - Dr. D. K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and need of surface engineering
- Lecture 2 - Surface/sub-surface regions and properties of importance for surface engineering
- Lecture 3 - Surface properties and their modification
- Lecture 4 - Classification of surface modification techniques - I
- Lecture 5 - Classification of surface modification techniques - II
- Lecture 6 - Comparison of surface modification techniques and scope of surface engineering
- Lecture 7 - Scope of surface engineering - I
- Lecture 8 - Surface properties for wear and friction resistance - I
- Lecture 9 - Surface properties for wear and friction resistance - II
- Lecture 10 - Surface properties for wear and friction resistance - III
- Lecture 11 - Issues and application of surface modification
- Lecture 12 - Surface damage
- Lecture 13 - Surface damage
- Lecture 14 - Surface damage
- Lecture 15 - Surface damage
- Lecture 16 - Surface damage
- Lecture 17 - Surface damage
- Lecture 18 - Surface damage
- Lecture 19 - Surface damage
- Lecture 20 - Surface damage
- Lecture 21 - Properties and mode of wear
- Lecture 22 - Metal systems
- Lecture 23 - Thermal barrier coatings
- Lecture 24 - Functionally graded materials and other materials
- Lecture 25 - Surface modification techniques
- Lecture 26 - Surface modification techniques
- Lecture 27 - Surface modification techniques
- Lecture 28 - Surface modification techniques
- Lecture 29 - Surface modification techniques

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- Lecture 30 - Surface modification techniques
- Lecture 31 - Surface modification techniques
- Lecture 32 - Surface modification techniques
- Lecture 33 - Surface modification techniques
- Lecture 34 - Surface modification techniques
- Lecture 35 - Surface modification techniques
- Lecture 36 - Surface modification techniques
- Lecture 37 - Surface modification techniques
- Lecture 38 - Surface modification techniques
- Lecture 39 - Surface modification techniques
- Lecture 40 - Surface modification techniques
- Lecture 41 - Surface modification techniques
- Lecture 42 - Surface modification techniques
- Lecture 43 - Surface modification techniques
- Lecture 44 - Surface modification techniques
- Lecture 45 - Surface modification techniques
- Lecture 46 - Surface modification techniques
- Lecture 47 - Surface modification techniques
- Lecture 48 - Surface modification techniques
- Lecture 49 - Surface modification techniques
- Lecture 50 - Surface modification techniques
- Lecture 51 - Surface modification techniques
- Lecture 52 - Surface modification techniques
- Lecture 53 - Surface modification techniques
- Lecture 54 - Surface modification techniques
- Lecture 55 - Characterization of modified surfaces
- Lecture 56 - Characterization of modified surfaces
- Lecture 57 - Characterization of modified surfaces
- Lecture 58 - Characterization of modified surfaces
- Lecture 59 - Characterization of modified surfaces
- Lecture 60 - Characterization of modified surfaces

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Work System Design

Subject Co-ordinator - Dr. Inderdeep Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Work System Design  
Lecture 2 - Introduction and Concept of Productivity  
Lecture 3 - Measurement of Productivity  
Lecture 4 - Productivity Measures  
Lecture 5 - Productivity Measurement Models  
Lecture 6 - Factors Influencing Productivity  
Lecture 7 - Causes of Low Productivity  
Lecture 8 - Productivity Improvement Technique  
Lecture 9 - Numerical Problems on Productivity  
Lecture 10 - Case Study on Productivity  
Lecture 11 - Work Study  
Lecture 12 - Steps Involved in Work Study  
Lecture 13 - Concept of Work Content  
Lecture 14 - Techniques of Work Study  
Lecture 15 - Human Aspects of Work Study  
Lecture 16 - Method Study  
Lecture 17 - Method Study  
Lecture 18 - Method Study  
Lecture 19 - Operation Process Charts  
Lecture 20 - Operation Process Charts  
Lecture 21 - Flow Process Charts  
Lecture 22 - Flow Process Charts  
Lecture 23 - Two-Handed-Process Charts  
Lecture 24 - Multiple Activity Charts  
Lecture 25 - Flow Diagrams  
Lecture 26 - String Diagrams  
Lecture 27 - Principles of Motion Economy  
Lecture 28 - Micro-Motion Study  
Lecture 29 - Therbligs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - SIMO Charts
- Lecture 31 - Memo-Motion Study
- Lecture 32 - Cycle Graph and Chronocycle Graph
- Lecture 33 - Critical Examination Techniques
- Lecture 34 - Development and Selection of New Method
- Lecture 35 - Installation and Maintenance of Improved Methods
- Lecture 36 - Work Measurement
- Lecture 37 - Techniques of Work Measurement
- Lecture 38 - Steps Involved in Time Study
- Lecture 39 - Steps and Equipment of Time Study
- Lecture 40 - Performance Rating
- Lecture 41 - Performance Rating
- Lecture 42 - Allowances in Time Study
- Lecture 43 - Computation of Standard Time - I
- Lecture 44 - Computation of Standard Time - II
- Lecture 45 - Work Measurement
- Lecture 46 - Work Sampling
- Lecture 47 - Procedure of Work Sampling
- Lecture 48 - Work Sampling
- Lecture 49 - Introduction to Synthetic Data and PMTS
- Lecture 50 - Introduction to MTM and MOST
- Lecture 51 - Ergonomics
- Lecture 52 - Industrial Ergonomics
- Lecture 53 - Ergonomics
- Lecture 54 - Man-Machine System - 1
- Lecture 55 - Man-Machine System - 2
- Lecture 56 - Case Study
- Lecture 57 - Case Study
- Lecture 58 - Case Study
- Lecture 59 - Case Study
- Lecture 60 - Case Study

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Principles of Metal Forming Technology

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Metal Forming Technology
- Lecture 2 - Classification of Metal Working Processes
- Lecture 3 - Behavior of Materials
- Lecture 4 - Failure of Materials
- Lecture 5 - Concept of stress and strain
- Lecture 6 - Description of stress
- Lecture 7 - State of stress in three dimension
- Lecture 8 - Description of strain
- Lecture 9 - Hydrostatic and deviator components of stress and strain
- Lecture 10 - Elastic stress strain relationships
- Lecture 11 - Introduction to theory of plasticity and flow curve
- Lecture 12 - True stress and true strain
- Lecture 13 - Yield criteria for ductile materials
- Lecture 14 - Yield locus, Octahedral shear stress and strain
- Lecture 15 - Plastic stress strain relationships
- Lecture 16 - Measures of yielding and ductility in tensile testing
- Lecture 17 - Instability in tension
- Lecture 18 - Strain rate effects on flow properties
- Lecture 19 - Temperature effects on flow properties
- Lecture 20 - Influence of various parameters on flow properties
- Lecture 21 - Classification of metal working processes
- Lecture 22 - Mechanics of metalworking and analysis methods
- Lecture 23 - Determination of flow stresses in metal working
- Lecture 24 - Hot working and cold working
- Lecture 25 - Metallurgical considerations in metal forming
- Lecture 26 - Introduction and classification of forging processes
- Lecture 27 - Equipments used in forging
- Lecture 28 - Forging in plane strain
- Lecture 29 - Introduction and classification of rolling processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of rolling load calculations
- Lecture 31 - Defects in rolled and forged products
- Lecture 32 - Introduction and classification of extrusion processes
- Lecture 33 - Analysis of extrusion processes
- Lecture 34 - Extrusion of tubes and pipes, extrusion defect
- Lecture 35 - Introduction to rod and wire drawing
- Lecture 36 - Analysis of wire drawing and tube drawing processes
- Lecture 37 - Sheet metal operations - I
- Lecture 38 - Sheet metal operations - II
- Lecture 39 - Powder metallurgy forming - I
- Lecture 40 - Powder metallurgy forming - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Micro and Smart Systems

Subject Co-ordinator - Dr. K.J. Vinoy, Prof. S. Gopalakrishnan, Prof. K.N. Bhat, Prof. G.K. Anathasuresh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Glimpses of Microsystems
- Lecture 2 - Smart Materials and Systems
- Lecture 3 - Microsensors
- Lecture 4 - Microactuators
- Lecture 5 - Microsystems
- Lecture 6 - Smart systems Application and Structural Health Monitoring
- Lecture 7 - Microfabrication Technologies
- Lecture 8 - Thin-film Materials and their Deposition
- Lecture 9 - Approaches for Pattern Transfer
- Lecture 10 - Surface Micromachining of Microstructures
- Lecture 11 - Bulk Micromachining of Microsystems
- Lecture 12 - Extended Approaches for Working Microsystems
- Lecture 13 - Non-conventional Approaches for Microsystems
- Lecture 14 - Packaging of Microsystems
- Lecture 15 - Deformation Strains and Stresses
- Lecture 16 - Microdevice Suspensions
- Lecture 17 - Residual Stress and Stress Gradients
- Lecture 18 - Torsion and Twist
- Lecture 19 - Vibrations of Microsystems Devices
- Lecture 20 - Vibrations of Microsystems Devices
- Lecture 21 - Micromachined Gyroscopes
- Lecture 22 - Modelling of Coupled Electrostatic Microsystems
- Lecture 23 - Coupled Electrothermal-elastic Modelling
- Lecture 24 - Modelling of Microsystems
- Lecture 25 - Finite Element Method and Microsystems
- Lecture 26 - Theoretical Basis for the Finite Element Method
- Lecture 27 - Energy Theorems and Weak Form of the Governing Equation
- Lecture 28 - Finite Element Equation Development and Shape Functions
- Lecture 29 - Isoparametric FE Formulation and some Examples

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Finite Element for Structures with Piezoelectric Materials
- Lecture 31 - Semiconductor Device Physics
- Lecture 32 - BJT and MOSFET Characteristics and Op-Amps
- Lecture 33 - Op-Amp Circuits and Signal conditioning for Microsystems Devices
- Lecture 34 - Control and Microsystems
- Lecture 35 - Vibration Control of a Beam
- Lecture 36 - Signal Conditioning Circuits and Integration of Microsystems and Microelectronics
- Lecture 37 - Pressure Sensor Design Concepts, Processing, and Packaging
- Lecture 38 - Pressure Sensor Design Concepts, Processing, and Packaging
- Lecture 39 - Pressure Sensor Design Concepts, Processing, and Packaging
- Lecture 40 - Capacitive Micro-accelerometer

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Variational Methods in Mechanics

Subject Co-ordinator - Prof. G.K. Anathasuresh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Classification of optimization problems and the place of Calculus of Variations in it - Part I
- Lecture 2 - Classification of optimization problems and the place of Calculus of Variations in it - Part II
- Lecture 3 - Genesis of Calculus of Variations - Part I
- Lecture 4 - Genesis of Calculus of Variations - Part II
- Lecture 5 - Formulation of Calculus of Variations problems in geometry and mechanics and design - Part I
- Lecture 6 - Formulation of Calculus of Variations problems in geometry and mechanics and design - Part II
- Lecture 7 - Unconstrained minimization in one and many variables - Part I
- Lecture 8 - Unconstrained minimization in one and many variables - Part II
- Lecture 9 - Constrained minimization KKT conditions - Part I
- Lecture 10 - Constrained minimization KKT conditions - Part II
- Lecture 11 - Sufficient conditions for constrained minimization - Part I
- Lecture 12 - Sufficient conditions for constrained minimization - Part II
- Lecture 13 - Mathematical preliminaries function, functional, metrics and metric space, norm and vector space
- Lecture 14 - Mathematical preliminaries function, functional, metrics and metric space, norm and vector space
- Lecture 15 - Function spaces and Gateaux variation
- Lecture 16 - First variation of a functional Frechet differential and variational derivative
- Lecture 17 - Fundamental lemma of calculus of variations and Euler Lagrange equations - Part I
- Lecture 18 - Fundamental lemma of calculus of variations and Euler Lagrange equations - Part II
- Lecture 19 - Extension of Euler-Lagrange equations to multiple derivatives
- Lecture 20 - Extension of Euler-Lagrange equations to multiple functions in a functional
- Lecture 21 - Global Constraints in calculus of variations - Part I
- Lecture 22 - Global Constraints in calculus of variations - Part II
- Lecture 23 - Local (finite subsidiary) constraints in calculus of variations - Part I
- Lecture 24 - Local (finite subsidiary) constraints in calculus of variations - Part II
- Lecture 25 - Size optimization of a bar for maximum stiffness for given volume - Part I
- Lecture 26 - Size optimization of a bar for maximum stiffness for given volume - Part II
- Lecture 27 - Size optimization of a bar for maximum stiffness for given volume - Part III
- Lecture 28 - Calculus of variations in functionals involving two and three independent variables - Part I
- Lecture 29 - Calculus of variations in functionals involving two and three independent variables - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - General variation of a functional, transversality conditions. Broken extremals, Wierstrass-Erdma
- Lecture 31 - General variation of a functional, transversality conditions. Broken extremals, Wierstrass-Erdma
- Lecture 32 - Variational (energy) methods in statics; principles of minimum potential energy and virtual work
- Lecture 33 - General framework of optimal structural designs - Part I
- Lecture 34 - General framework of optimal structural designs - Part II
- Lecture 35 - Optimal structural design of bars and beams using the optimality criteria method
- Lecture 36 - Invariants of Euler-Lagrange equations and canonical forms
- Lecture 37 - Noether's theorem
- Lecture 38 - Minimum characterization of Sturm-Liouville problems
- Lecture 39 - Rayleigh quotient for natural frequencies and mode shapes of elastic systems
- Lecture 40 - Stability analysis and buckling using calculus of variations
- Lecture 41 - Strongest (most stable) column
- Lecture 42 - Dynamic compliance optimization
- Lecture 43 - Electro-thermal-elastic structural optimization
- Lecture 44 - Formulating the extremization problem starting from the differential equation, self-adjointness

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Compliant Mechanisms: Principles and Design

Subject Co-ordinator - Prof. G. K. Ananthasuresh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview

Lecture 2 - Spirit of compliant design

Lecture 3 - A glimpse of applications

Lecture 4 - Mobility and degrees of freedom in compliant mechanisms

Lecture 5 - Maxwell's rule and Grubler's formula

Lecture 6 - Using compatibility and force equilibrium matrices to identify degrees of freedom and states of stress

Lecture 7 - Empirical formula for flexure joints

Lecture 8 - Types of elastic pairs (flexures)

Lecture 9 - Linear finite element analysis of compliant mechanisms with beam elements

Lecture 10 - A compliant mechanism kit

Lecture 11 - Linear and nonlinear finite element analyses using continuum elements

Lecture 12 - Subtleties in finite element analysis: geometric nonlinearity and contact

Lecture 13 - Deformation of a cantilever under a tip-load, using elliptic integrals

Lecture 14 - Elliptic integrals and their use in elastica analysis

Lecture 15 - Frisch-Fay's approach to large deformation of beam

Lecture 16 - Burns-Crossley's kinematic model

Lecture 17 - Howell-Midha's elastic model

Lecture 18 - Putting together the pseudo rigid-body model

Lecture 19 - Modeling a partially compliant mechanism

Lecture 20 - Kinematic coefficients of a four-bar linkage with and without springs

Lecture 21 - Solving equations of PRB modeling and comparing with finite element analysis

Lecture 22 - Loop-closure equations for PRB models of compliant mechanisms

Lecture 23 - Burmester theory for compliant mechanisms

Lecture 24 - PRB-based Synthesis Examples

Lecture 25 - Structural optimization approach

Lecture 26 - Early works on design for compliance

Lecture 27 - Design for deflection of trusses

Lecture 28 - Design for deflection of beams and frames

Lecture 29 - Design of elastic continua for desired deflection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Continuum element-based topology optimization of compliant mechanisms
- Lecture 31 - YinSyn; synthesis of nonlinear responses with compliant mechanisms
- Lecture 32 - Five different formulations for compliant mechanism design and some benchmark problems
- Lecture 33 - Distributed compliance
- Lecture 34 - How to achieve distributed compliance
- Lecture 35 - Shape optimization
- Lecture 36 - Cam-flexure clamp-case-study
- Lecture 37 - SL model for compliant mechanisms
- Lecture 38 - Feasibility maps for compliant mechanisms
- Lecture 39 - Selection of compliant mechanisms for given user-specifications
- Lecture 40 - Two case-studies using feasibility maps technique
- Lecture 41 - SML model for compliant mechanisms for dynamic response
- Lecture 42 - Re-design of compliant mechanisms; Matlab and Java codes
- Lecture 43 - Non-dimensional analysis of beams
- Lecture 44 - Deformation index and slenderness ratio of compliant mechanisms
- Lecture 45 - Kinetoelastostatic maps
- Lecture 46 - Designing with kinetoelastic maps
- Lecture 47 - Non-dimensionalization of stress, frequency, and other measures
- Lecture 48 - Designing compliant suspensions using kinetoelastic maps
- Lecture 49 - Instant centre method for designing compliant mechanisms
- Lecture 50 - Stiffness and compliance ellipsoids
- Lecture 51 - Building block method of designing compliant mechanisms
- Lecture 52 - Comparative analysis of different methods for designing compliant mechanisms
- Lecture 53 - Aspects of Mechanical advantage of compliant mechanisms
- Lecture 54 - Mechanical advantage of rigid-body and compliant mechanisms
- Lecture 55 - Bistability in elastic systems
- Lecture 56 - Analysis of bistable arches
- Lecture 57 - Compliant mechanisms with bistable arches
- Lecture 58 - Static balancing and zero-free-length springs
- Lecture 59 - Static balance of a compliant mechanism using a linkage
- Lecture 60 - Static balancing method for compliant mechanisms
- Lecture 61 - A catalogue of compliant mechanisms
- Lecture 62 - Compliant suspension mechanism in microsystems (MEMS)
- Lecture 63 - Micromechanical signal processors using compliant mechanisms
- Lecture 64 - A few special concepts of compliant mechanisms
- Lecture 65 - Materials and prototyping of compliant mechanisms
- Lecture 66 - Summary of the course
- Lecture 67 - Micromachined accelerometers with Displacement-amplifying Compliant Mechanisms (DaCMs)
- Lecture 68 - Miniature compliant mechanisms as cell-manipulation tools

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Micro-newton force sensor
- Lecture 70 - Compliant tissue cutting mechanism
- Lecture 71 - A compliant pipe-crawling robots
- Lecture 72 - A compliant easy-chair for the elderly

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Heat Transfer and Combustion in Multiphase Systems

Subject Co-ordinator - Prof. Saptarshi Basu

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Multiphase
- Lecture 2 - Thermodynamics of Multiphase systems
- Lecture 3 - Thermodynamics of Interface - I
- Lecture 4 - Thermodynamics of Interface - II
- Lecture 5 - Interfacial phenomena key concepts - I
- Lecture 6 - Interfacial phenomena key concepts - II
- Lecture 7 - Interfacial heat and mass transfer - I - Interfacial mass, momentum and energy balance, Surface t
- Lecture 8 - Interfacial heat and mass transfer - II - Interfacial dynamics, Instabilities of the interface
- Lecture 9 - Interfacial heat and mass transfer - III - Evaporation from thin films
- Lecture 10 - Governing equations and interfacial conditions
- Lecture 11 - Governing equations
- Lecture 12 - Governing equations
- Lecture 13 - Governing equations
- Lecture 14 - Interface shapes
- Lecture 15 - Transport processes at interface with key concepts - I
- Lecture 16 - Transport processes at interface with key concepts - II
- Lecture 17 - Interfacial transport
- Lecture 18 - Interfacial transport including dynamic behavior
- Lecture 19 - Interface behavior
- Lecture 20 - Heat transfer and evaporation in droplets
- Lecture 21 - Droplet vaporization models - I
- Lecture 22 - Droplet vaporization models - II
- Lecture 23 - Droplet vaporization dynamics - I
- Lecture 24 - Droplet vaporization dynamics - II
- Lecture 25 - Droplet liquid phase transport
- Lecture 26 - Comprehensive droplet vaporization model and correlations - I
- Lecture 27 - Comprehensive droplet vaporization model and correlations - II
- Lecture 28 - Comparison of droplet vaporization models
- Lecture 29 - Species transport in droplet

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heat transfer and transport processes in sessile droplets
- Lecture 31 - Introduction to atomization
- Lecture 32 - Atomization principles and governing parameters
- Lecture 33 - Spray / droplet breakup models  $\hat{A}$  I (TAB model)
- Lecture 34 - Spray / droplet breakup models  $\hat{A}$  II (WAVE model)
- Lecture 35 - Droplet combustion - I
- Lecture 36 - Droplet combustion - II
- Lecture 37 - Regimes in spray combustion
- Lecture 38 - Boiling - I
- Lecture 39 - Boiling - II (Bubble dynamics)
- Lecture 40 - Boiling - II (Bubble dynamics and critical heat flux)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Convective Heat Transfer (2018)

Subject Co-ordinator - Prof. Saptarshi Basu

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to convective heat transfer  
Lecture 2 - Governing equations I - Momentum Conservation  
Lecture 3 - Governing equations II - Energy Conservation  
Lecture 4 - Introduction to external forced convection  
Lecture 5 - Scaling Analysis - Momentum  
Lecture 6 - Scaling Analysis - Energy I  
Lecture 7 - Scaling Analysis - Energy II  
Lecture 8 - Similarity solution - Momentum  
Lecture 9 - Similarity solution - Energy  
Lecture 10 - Integral solutions - Momentum  
Lecture 11 - Integral solutions - Energy  
Lecture 12 - Suction and Blowing  
Lecture 13 - Falkner-Skan solution  
Lecture 14 - Arbitrary Wall temperature  
Lecture 15 - Internal forced convection - Developing flow  
Lecture 16 - Hydrodynamic fully developed flow  
Lecture 17 - Mean temperature in fully developed flow  
Lecture 18 - Uniform heat flux  
Lecture 19 - Uniform wall temperature  
Lecture 20 - Tube surrounded by isothermal flow  
Lecture 21 - Heat transfer to fully developed flow - I  
Lecture 22 - Heat transfer to fully developed flow - II  
Lecture 23 - Laminar slug flow  
Lecture 24 - Power law fluids  
Lecture 25 - Forced convection - Tutorial I  
Lecture 26 - Forced convection - Tutorial II  
Lecture 27 - Forced convection - Tutorial III  
Lecture 28 - Introduction to external natural convection  
Lecture 29 - Scaling analysis - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Scaling analysis - II
- Lecture 31 - Integral solution
- Lecture 32 - Similarity solution
- Lecture 33 - Uniform wall heat flux
- Lecture 34 - Thermal stratification
- Lecture 35 - Mixed convection
- Lecture 36 - Internal natural convection - Scaling analysis
- Lecture 37 - Heat transfer regimes
- Lecture 38 - Regime III
- Lecture 39 - Regime IV - Shallow enclosure limit - I
- Lecture 40 - Regime IV - Shallow enclosure limit - II
- Lecture 41 - Partially divided enclosures
- Lecture 42 - Inclined enclosures
- Lecture 43 - Natural convection - Tutorial I
- Lecture 44 - Natural convection - Tutorial II
- Lecture 45 - Introduction to Turbulence
- Lecture 46 - Reynold's Averaged Navier Stokes equation - I
- Lecture 47 - Reynold's Averaged Navier Stokes equation - II
- Lecture 48 - Turbulent boundary layer - Viscous sub layer
- Lecture 49 - Turbulent boundary layer - Fully turbulent sub layer
- Lecture 50 - Heat transfer in turbulent boundary layer
- Lecture 51 - Turbulent internal flow - I
- Lecture 52 - Turbulent internal flow - II
- Lecture 53 - Turbulent internal flow - III
- Lecture 54 - K -  $\epsilon$  model
- Lecture 55 - Turbulence - Tutorial
- Lecture 56 - Experimental techniques - Thermochromic liquid crystals
- Lecture 57 - Experimental techniques - IR thermography
- Lecture 58 - Droplet evaporation - Sessile I
- Lecture 59 - Droplet evaporation - Sessile II
- Lecture 60 - Droplet evaporation - Contact free

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Phase Field Modelling: The Materials Science, Math

Subject Co-ordinator - Dr. M.P. Gururajan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1  
Lecture 2 - Module 1  
Lecture 3 - Module 1  
Lecture 4 - Module 1  
Lecture 5 - Module 1  
Lecture 6 - Module 2  
Lecture 7 - Module 1  
Lecture 8 - Module 1  
Lecture 9 - Module 1  
Lecture 10 - Module 1  
Lecture 11 - Module 1  
Lecture 12 - Module 2  
Lecture 13 - Module 2  
Lecture 14 - Module 2  
Lecture 15 - Module 2  
Lecture 16 - Module 2  
Lecture 17 - Module 3  
Lecture 18 - Module 3  
Lecture 19 - Module 3  
Lecture 20 - Module 3  
Lecture 21 - Module 3  
Lecture 22 - Module 3  
Lecture 23 - Module 2  
Lecture 24 - Module 4  
Lecture 25 - Module 4  
Lecture 26 - Module 4  
Lecture 27 - Module 4  
Lecture 28 - Module 4  
Lecture 29 - Module 5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Module 5  
Lecture 31 - Module 5  
Lecture 32 - Module 6  
Lecture 33 - Module 6  
Lecture 34 - Module 6  
Lecture 35 - Module 6  
Lecture 36 - Module 7  
Lecture 37 - Module 7  
Lecture 38 - Module 8  
Lecture 39 - Module 8  
Lecture 40 - Module 8  
Lecture 41 - Module 8  
Lecture 42 - Module 9  
Lecture 43 - Module 9  
Lecture 44 - Module 9  
Lecture 45 - Module 9  
Lecture 46 - Module 10  
Lecture 47 - Module 10  
Lecture 48 - Module 10  
Lecture 49 - Module 10  
Lecture 50 - Module 10  
Lecture 51 - Module 11  
Lecture 52 - Module 11  
Lecture 53 - Module 11  
Lecture 54 - Module 11  
Lecture 55 - Module 12  
Lecture 56 - Module 12  
Lecture 57 - Module 12  
Lecture 58 - Module 12  
Lecture 59 - Module 12  
Lecture 60 - Module 13  
Lecture 61 - Module 13  
Lecture 62 - Module 13  
Lecture 63 - Module 13  
Lecture 64 - Module 13  
Lecture 65 - Module 14  
Lecture 66 - Module 14  
Lecture 67 - Module 14  
Lecture 68 - Module 14

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Module 15  
Lecture 70 - Module 15  
Lecture 71 - Module 16  
Lecture 72 - Module 16  
Lecture 73 - Module 16  
Lecture 74 - Module 16  
Lecture 75 - Module 17  
Lecture 76 - Module 17  
Lecture 77 - Module 18  
Lecture 78 - Module 18  
Lecture 79 - Module 18  
Lecture 80 - Module 18  
Lecture 81 - Module 19  
Lecture 82 - Module 19  
Lecture 83 - Module 20  
Lecture 84 - Module 20  
Lecture 85 - Module 21  
Lecture 86 - Module 21  
Lecture 87 - Module 22

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Introduction to Materials Science and Engineering

Subject Co-ordinator - Prof. Rajesh Prasad

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Crystal geometry
- Lecture 3 - Unit cell
- Lecture 4 - Classification of lattices
- Lecture 5 - Gaps in Bravais lattice list
- Lecture 6 - Symmetry - I
- Lecture 7 - Symmetry - II
- Lecture 8 - Classification of lattices on the basis of symmetry
- Lecture 9 - A symmetry based approach to Bravais lattices
- Lecture 10 - Miller indices of directions
- Lecture 11 - Miller indices for planes
- Lecture 12 - Miller indices for plane and its normal in Cubic Crystal
- Lecture 13 - Weiss Zone law and its applications
- Lecture 14 - Inter-planar spacing
- Lecture 15 - Bragg's Law
- Lecture 16 - Close-packing of hard spheres
- Lecture 17 - Hexagonal Close-Packed (HCP) structure
- Lecture 18 - Lattice and motif of HCP crystals
- Lecture 19 - c/a ratio of an ideal HCP crystal
- Lecture 20 - ABCABC stacking of close-packed spheres
- Lecture 21 - Voids in close-packed structures
- Lecture 22 - Solid solutions - I
- Lecture 23 - Solid solutions - II
- Lecture 24 - Hume-Rothery rules
- Lecture 25 - Ordered and disordered solid solutions
- Lecture 26 - Graphene
- Lecture 27 - Structure of graphite
- Lecture 28 - Structure of diamond
- Lecture 29 - Carbon nanotubes (CNT)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Buckminsterfullerene (C60)
- Lecture 31 - Ionic solids
- Lecture 32 - NaCl
- Lecture 33 - CsCl
- Lecture 34 - ZnS
- Lecture 35 - BCC vs CsCl
- Lecture 36 - Amorphous Solids
- Lecture 37 - Polymers
- Lecture 38 - Vinyl Polymers
- Lecture 39 - Thermoplasts and Thermosets
- Lecture 40 - Tacticity
- Lecture 41 - Copolymers
- Lecture 42 - Crystallinity in Polymers
- Lecture 43 - Defects in Crystals
- Lecture 44 - Vacancies
- Lecture 45 - Edge dislocation
- Lecture 46 - Edge dislocation
- Lecture 47 - Characteristic vectors of a dislocation
- Lecture 48 - Edge, screw and mixed dislocations
- Lecture 49 - Screw dislocations
- Lecture 50 - Burgers circuit
- Lecture 51 - Elastic energy of a dislocation line
- Lecture 52 - Burgers vector
- Lecture 53 - Burgers vector of a dislocation is constant along the line
- Lecture 54 - Geometrical properties of a dislocations
- Lecture 55 - Dislocation cannot end abruptly in a crystal
- Lecture 56 - Dislocation cannot end abruptly in a crystal
- Lecture 57 - Dislocation cannot end abruptly in a crystal
- Lecture 58 - Dislocation motion
- Lecture 59 - 2D defects
- Lecture 60 - Free surface or external surface of the crystal
- Lecture 61 - Stacking faults
- Lecture 62 - Twin boundary
- Lecture 63 - Grain boundary
- Lecture 64 - Small angle symmetric tilt boundary
- Lecture 65 - Ball bearing model
- Lecture 66 - Phase diagrams
- Lecture 67 - Phases and components
- Lecture 68 - Uses of phase diagrams

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Phases present in the system
- Lecture 70 - Composition of phases present in the system
- Lecture 71 - Proportion of phases present in the system
- Lecture 72 - Microstructure evolution during solidification in isomorphous systems
- Lecture 73 - Eutectic system
- Lecture 74 - Eutectic reaction
- Lecture 75 - Eutectic, hypoeutectic and hypereutectic alloys
- Lecture 76 - Gibbs's phase rule
- Lecture 77 - Fe-C phase diagram
- Lecture 78 - Eutectoid, hypoeutectoid and hypereutectoid steels
- Lecture 79 - Microstructure of a hypoeutectoid steel
- Lecture 80 - Microstructure of a hypereutectoid steel
- Lecture 81 - Diffusion
- Lecture 82 - Fick's first law
- Lecture 83 - Fick's second law
- Lecture 84 - Error function solution of Fick's second law
- Lecture 85 - Atomic mechanisms of diffusion
- Lecture 86 - Substitutional diffusion revisited
- Lecture 87 - Diffusion paths
- Lecture 88 - Steady and unsteady state diffusion
- Lecture 89 - Phase Transformation
- Lecture 90 - Nucleation
- Lecture 91 - Nucleation and capillary rise
- Lecture 92 - Nucleation, growth and overall transformation
- Lecture 93 - Time-temperature-transformation (TTT) diagram
- Lecture 94 - Homogeneous and heterogeneous nucleation
- Lecture 95 - Heat treatment of steels
- Lecture 96 - TTT diagram of Eutectoid Steels
- Lecture 97 - Quenching and martensite
- Lecture 98 - Austempering and bainite
- Lecture 99 - Tempering
- Lecture 100 - Residual stresses and Quench cracks
- Lecture 101 - Marquenching and martempering
- Lecture 102 - TTT diagram of hypoeutectoid and hypereutectoid steels
- Lecture 103 - TTT diagram of alloy steel
- Lecture 104 - hardenability of steels
- Lecture 105 - Glass Ceramics
- Lecture 106 - Tensile test
- Lecture 107 - Plastic deformation and crystal structure

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Shape change
- Lecture 109 - Slip
- Lecture 110 - Resolved shear stress
- Lecture 111 - CRSS
- Lecture 112 - Schmid's law
- Lecture 113 - CRSS
- Lecture 114 - Why is experimental CRSS less than theoretical CRSS
- Lecture 115 - Strengthening mechanisms
- Lecture 116 - Dislocation density
- Lecture 117 - Frank-Read source
- Lecture 118 - strain hardening
- Lecture 119 - Dislocation interaction leading to strain hardening - I
- Lecture 120 - Dislocation interaction leading to strain hardening - II
- Lecture 121 - Solid solution hardening
- Lecture 122 - Grain size hardening
- Lecture 123 - Age hardening - I
- Lecture 124 - Age hardening - II
- Lecture 125 - Metastable precipitates
- Lecture 126 - Annealing of cold-worked metals
- Lecture 127 - Recovery
- Lecture 128 - Recrystallization
- Lecture 129 - Grain Growth
- Lecture 130 - True stress and true strain
- Lecture 131 - Creep
- Lecture 132 - Effect of stress and temperature on creep
- Lecture 133 - Creep Mechanisms
- Lecture 134 - Composites
- Lecture 135 - Isostrain modulus
- Lecture 136 - Isostress modulus
- Lecture 137 - Fracture
- Lecture 138 - Ductile and Brittle Fracture
- Lecture 139 - Role of crack size
- Lecture 140 - Griffith's Criterion
- Lecture 141 - Stress Concentration
- Lecture 142 - Ductile to brittle transition
- Lecture 143 - Enhancing fracture resistance
- Lecture 144 - Toughening of glass
- Lecture 145 - Toughening of glass
- Lecture 146 - Fatigue

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 147 - Sub-Critical crack growth

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Introduction to Crystal Elasticity and Crystal Pla

Subject Co-ordinator - Prof. Swarup bag

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Structure and properties of materials - Part I
- Lecture 2 - Structure and properties of materials - Part II
- Lecture 3 - Elasticity Isotropic elasticity of materials; Anisotropic elasticity - Part I
- Lecture 4 - Elasticity Isotropic elasticity of materials; Anisotropic elasticity - Part II
- Lecture 5 - Continuum Plasticity - I (Part A)
- Lecture 6 - Continuum Plasticity - I (Part B)
- Lecture 7 - Continuum Plasticity - II (Part A)
- Lecture 8 - Continuum Plasticity - II (Part B)
- Lecture 9 - Crystal Plasticity - I (Part A)
- Lecture 10 - Crystal Plasticity - I (Part B)
- Lecture 11 - Crystal Plasticity - II (Part A)
- Lecture 12 - Crystal Plasticity - II (Part B)
- Lecture 13 - Crystal Plasticity - II (Part C)
- Lecture 14 - Hardening Mechanisms in Metals - Part I
- Lecture 15 - Hardening Mechanisms in Metals - Part II
- Lecture 16 - Hardening Mechanisms in Metals - Part III
- Lecture 17 - Multi-Scale Approach to Materials Modelling

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Advanced Characterization Techniques

Subject Co-ordinator - Dr. Krishanu Biswas, Prof.N.P.Gurao

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Advanced Characterization Techniques  
Lecture 2 - Advanced Characterization Techniques  
Lecture 3 - Advanced Characterization Techniques  
Lecture 4 - Advanced Characterization Techniques  
Lecture 5 - Advanced Characterization Techniques  
Lecture 6 - Advanced Characterization Techniques  
Lecture 7 - Advanced Characterization Techniques  
Lecture 8 - Advanced Characterization Techniques  
Lecture 9 - Advanced Characterization Techniques  
Lecture 10 - Advanced Characterization Techniques  
Lecture 11 - Advanced Characterization Techniques  
Lecture 12 - Advanced Characterization Techniques  
Lecture 13 - Advanced Characterization Techniques  
Lecture 14 - Advanced Characterization Techniques  
Lecture 15 - Advanced Characterization Techniques  
Lecture 16 - Advanced Characterization Techniques  
Lecture 17 - Advanced Characterization Techniques  
Lecture 18 - Advanced Characterization Techniques  
Lecture 19 - Advanced Characterization Techniques  
Lecture 20 - Advanced Characterization Techniques  
Lecture 21 - Advanced Characterization Techniques  
Lecture 22 - Advanced Characterization Techniques  
Lecture 23 - Advanced Characterization Techniques  
Lecture 24 - Advanced Characterization Techniques  
Lecture 25 - Advanced Characterization Techniques  
Lecture 26 - Advanced Characterization Techniques  
Lecture 27 - Advanced Characterization Techniques  
Lecture 28 - Advanced Characterization Techniques  
Lecture 29 - Advanced Characterization Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Advanced Characterization Techniques
- Lecture 31 - Advanced Characterization Techniques
- Lecture 32 - Advanced Characterization Techniques
- Lecture 33 - Advanced Characterization Techniques

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Electroceramics

Subject Co-ordinator - Dr. Ashish Garg

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
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Lecture 19  
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Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Fuels Refractory and Furnaces

Subject Co-ordinator - Prof. Satish Ch. Koria

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Energy Resources and Environment
- Lecture 2 - Characterization of Fuels
- Lecture 3 - Characterization of Fuels
- Lecture 4 - Production of Secondary Fuels
- Lecture 5 - Materials Balance in Coke-making
- Lecture 6 - Heat Balance and Clean Development Mechanism
- Lecture 7 - Production of Secondary Fuels
- Lecture 8 - Materials and Heat Balance in Gasification
- Lecture 9 - Principles of combustion
- Lecture 10 - Principles of combustion
- Lecture 11 - Materials balance in combustion
- Lecture 12 - Principles of Combustion
- Lecture 13 - Flame Temperature Calculations
- Lecture 14 - Refractory in Furnaces
- Lecture 15 - Refractory in Furnaces
- Lecture 16 - Furnace
- Lecture 17 - Heat Utilization in furnaces, energy flow diagrams
- Lecture 18 - Heat Utilization in furnaces, energy flow diagrams
- Lecture 19 - Heat Utilization in Furnaces
- Lecture 20 - Heat Utilization in Furnaces
- Lecture 21 - Transport Phenomena in Furnaces
- Lecture 22 - Macroscopic Energy Balance
- Lecture 23 - Macroscopic Energy Balance
- Lecture 24 - Macroscopic Energy Balance
- Lecture 25 - Macroscopic Energy Balance
- Lecture 26 - Macroscopic Energy Balance
- Lecture 27 - Principles of Burner Design
- Lecture 28 - Transport Phenomena in Furnaces
- Lecture 29 - Transport Phenomena in Furnaces

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transport Phenomena in Furnaces
- Lecture 31 - Transport Phenomena in Furnaces
- Lecture 32 - Steady Heat flows in Furnace and Heat Exchanger
- Lecture 33 - Exercises on Heat Flow in Furnaces and Heat Exchangers
- Lecture 34 - Exercises on Heat Flow in Furnaces and Heat Exchangers
- Lecture 35 - Miscellaneous Topics
- Lecture 36 - Miscellaneous Topics
- Lecture 37 - Miscellaneous Topics
- Lecture 38 - Miscellaneous topics
- Lecture 39 - Furnace efficiency, Fuel Saving, Carbon Offset
- Lecture 40 - Furnace efficiency, Fuel Saving, Carbon Offset

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Introduction to Biomaterials

Subject Co-ordinator - Dr. Kantesh Balani, Dr. Birkamjit Basu

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to basic concepts of Biomaterials Science; Salient properties of important material
- Lecture 2 - Manufacturing and properties of metals, ceramics, polymers and composites
- Lecture 3 - Concept of biocompatibility, host response, structure-property of biological cell
- Lecture 4 - Structure and properties of cells, protein and cellular adaptation process
- Lecture 5 - Cell-I
- Lecture 6 - Cell-II
- Lecture 7 - Cell Migration and Cell Division and cell death
- Lecture 8 - Cell Differentiation and Cell Death
- Lecture 9 - Cell Apoptosis-I
- Lecture 10 - Cell Apoptosis-II
- Lecture 11 - Structure and properties of Protein; cell - material interaction
- Lecture 12 - Assessment of biocompatibility of biomaterials
- Lecture 13 - Biological testing (hemocompatibility, tribological testing)
- Lecture 14 - Structure and properties of bone as well as in vivo testing and histocompatibility assessment
- Lecture 15 - Important biometallic alloys
- Lecture 16 - Ti Alloy
- Lecture 17 - Co-Cr-Mo alloys
- Lecture 18 - Bioceramics
- Lecture 19 - Processing of Bioceramics
- Lecture 20 - Ceramics, Bioceramics and Glasses
- Lecture 21 - Sintering and mechanical properties of ceramics
- Lecture 22 - Fracture and toughening of ceramic composites
- Lecture 23 - Development of based bioceramic composites for hard tissue replacement
- Lecture 24 - Alternative phosphate materials, based composites with bactericidal property and glass ceramics
- Lecture 25 - Electrostatic Spraying of UHMWPE-HA-CNT composites
- Lecture 26 - Thin Films and Coatings
- Lecture 27 - Thermal Spray Coatings
- Lecture 28 - Biocompatibility of plasma sprayed CNT reinforced Hydroxyapatite biocomposite coatings
- Lecture 29 - Biocompatibility of Alumina and CNT reinforced Hydroxyapatite

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Glass-ceramics for dental restoration applications
- Lecture 31 - Structure and properties of polymers
- Lecture 32 - Biodegradable polymers (Importance)
- Lecture 33 - Biodegradable polymers (Types)
- Lecture 34 - Mechanisms of Bioerosion
- Lecture 35 - External field and material interaction
- Lecture 36 - Tissue Engineering and wound healing
- Lecture 37 - Understanding Design Concepts of Bio-implants
- Lecture 38 - Understanding Design Concepts of Dental-implants
- Lecture 39 - Understanding Design Concepts of Orthopedic-implant

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Materials and Energy balance in Metallurgical Processes

Subject Co-ordinator - Prof. Satish Ch. Koria

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Course
- Lecture 2 - Measurement of Quantities
- Lecture 3 - Exercises on Measurement of Quantities, Introduction to Stoichiometry
- Lecture 4 - Stoichiometry Concept and Exercise
- Lecture 5 - Exercise on Stoichiometry and Introduction to Thermochemistry
- Lecture 6 - Thermochemistry
- Lecture 7 - Exercise on Thermochemistry & Frequently Asked Questions
- Lecture 8 - Errors in Measurements
- Lecture 9 - Basics of Materials & Energy Balance
- Lecture 10 - Introduction to Mineral Beneficiation
- Lecture 11 - Materials Balance in Mineral Processing and Faq
- Lecture 12 - Exercises in Mineral Processing
- Lecture 13 - Calcination Concepts & Exercises
- Lecture 14 - Pyromet Extraction Unit Processes
- Lecture 15 - Predominance Area Diagram
- Lecture 16 - Material Balance in Roasting; illustration
- Lecture 17 - Heat Balance in Roasting illustration
- Lecture 18 - Exercises on Roasting
- Lecture 19 - Exercises on Roasting
- Lecture 20 - Smelting Matte Smelting
- Lecture 21 - Exercise-I Matte Smelting
- Lecture 22 - Exercise-II Matte Smelting
- Lecture 23 - Reduction Smelting
- Lecture 24 - Lead Smelting Material Balance
- Lecture 25 - Imperial Smelting Process
- Lecture 26 - Introduction to Ironmaking
- Lecture 27 - Coke Making
- Lecture 28 - Ironmaking Fundamentals
- Lecture 29 - Material & Heat Balance in Ironmaking - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Material & Heat Balance in Ironmaking - II
- Lecture 31 - RIST Diagram - I
- Lecture 32 - RIST Diagram - II
- Lecture 33 - Concepts in Converting
- Lecture 34 - Exercise in Converting
- Lecture 35 - Additional Topics - I Melting in Cupola
- Lecture 36 - Additional Topics - II Gasification
- Lecture 37 - Additional Topics - III Material Balance in Gasification
- Lecture 38 - Additional Topics - IV Industrial Furnaces
- Lecture 39 - Energy Balance in Industrial Furnaces
- Lecture 40 - Thoughts on Application of Energy Balance

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Optoelectronic Materials and Devices

Subject Co-ordinator - Prof. Deepak Gupta, Prof. Monica Katiyar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Conductivity of materials, Drude's theory and its failures
- Lecture 2 - Free electron theory
- Lecture 3 - Free electron theory
- Lecture 4 - Crystal structure, Reciprocal lattice I
- Lecture 5 - Reciprocal lattice II, Brillouin zone and Bragg's diffraction condition
- Lecture 6 - Electrons in a crystal, Bloch's electron
- Lecture 7 - Free electron band diagrams in an empty lattice
- Lecture 8 - Effect of periodic potential, Origin of band-gap through Kronig-Penny model
- Lecture 9 - Electron dynamics
- Lecture 10 - Conduction in relation to band diagrams
- Lecture 11 - Semiconductor E-k diagrams and their material properties
- Lecture 12 - Equilibrium carrier statistics in semiconductors
- Lecture 13 - Equilibrium carrier statistics in semiconductors
- Lecture 14 - Equilibrium carrier statistics in semiconductors
- Lecture 15 - Doping in semiconductors
- Lecture 16 - Equilibrium carrier statistics in semiconductors
- Lecture 17 - Equilibrium carrier statistics in semiconductors
- Lecture 18 - Semiconductor junctions in band-diagrams
- Lecture 19 - Linear dielectric behavior
- Lecture 20 - Non-linear dielectric behavior
- Lecture 21 - Carrier recombination-generation - I
- Lecture 22 - Carrier recombination-generation - II
- Lecture 23 - R-G statistics via R-G centers
- Lecture 24 - Optoelectronic materials and bandgap engineering
- Lecture 25 - Optical properties of materials
- Lecture 26 - Optical properties of single interfaces
- Lecture 27 - Optical Properties of two interfaces
- Lecture 28 - Drift
- Lecture 29 - Diffusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Continuity Equation
- Lecture 31 - Resistor and diode (p-n junction)
- Lecture 32 - Fundamentals of p-n junction
- Lecture 33 - Fundamentals of p-n junction (Continued...)
- Lecture 34 - Solar cells
- Lecture 35 - Microelectronics processing
- Lecture 36 - MOS capacitor
- Lecture 37 - Transistor
- Lecture 38 - Organic Electronics
- Lecture 39 - Organic Light Emitting Diodes
- Lecture 40 - Organic Solar Cells and Organics Thin Film Transistors

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Steel Making

Subject Co-ordinator - Prof. Satish Ch. Korla, Prof. Dipak Mazumdar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Structure of Materials

Subject Co-ordinator - Dr. Anandh Subramaniam

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview  
Lecture 2 - Geometry of Crystals  
Lecture 3 - Geometry of Crystals  
Lecture 4 - Geometry of Crystals  
Lecture 5 - Geometry of Crystals  
Lecture 6 - Geometry of Crystals  
Lecture 7 - Geometry of Crystals  
Lecture 8 - Geometry of Crystals  
Lecture 9 - Geometry of Crystals  
Lecture 10 - Geometry of Crystals  
Lecture 11 - Geometry of Crystals  
Lecture 12 - Geometry of Crystals  
Lecture 13 - Miller Indices  
Lecture 14 - Miller Indices (Continued...) and Crystal Structures  
Lecture 15 - Crystal Structures  
Lecture 16 - Crystal Structures  
Lecture 17 - Crystal Structures  
Lecture 18 - Crystal Structures  
Lecture 19 - Crystal Structures  
Lecture 20 - Crystal Structures  
Lecture 21 - Crystal Structures (Continued...) and Defects in Crystals  
Lecture 22 - Defects in Crystals  
Lecture 23 - Defects in Crystals  
Lecture 24 - Defects in Crystals  
Lecture 25 - Defects in Crystals  
Lecture 26 - Defects in Crystals  
Lecture 27 - Defects in Crystals  
Lecture 28 - Defects in Crystals  
Lecture 29 - Defects in Crystals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diffusion in Solids
- Lecture 31 - Diffusion in Solids
- Lecture 32 - Phase Diagrams
- Lecture 33 - Phase Diagrams
- Lecture 34 - Phase Diagrams
- Lecture 35 - Phase Diagrams
- Lecture 36 - Phase Diagrams
- Lecture 37 - Phase Transformations
- Lecture 38 - Phase Transformations
- Lecture 39 - Phase Transformations
- Lecture 40 - Phase Transformations
- Lecture 41 - Phase Transformations
- Lecture 42 - Phase Transformations
- Lecture 43 - Phase Transformations
- Lecture 44 - Phase Transformations
- Lecture 45 - Phase Transformations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Environmental Degradation of Materials

Subject Co-ordinator - Dr. Kallol Mondal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction, Basic definition of corrosion

Lecture 2 - Forms of Degradation, Thermodynamics of corrosion

Lecture 3 - Thermodynamics of corrosion

Lecture 4 - Thermodynamics of corrosion

Lecture 5 - Thermodynamics of corrosion, Electrochemical series, Concentration cell

Lecture 6 - Reduction Potential series, Pourbaix diagram

Lecture 7 - Pourbaix diagram

Lecture 8 - Pourbaix diagram

Lecture 9 - Pourbaix diagram, Kinetics of corrosion

Lecture 10 - Kinetics of corrosion, Rate expression, Solved problems

Lecture 11 - Solved problems on the corrosion rate, Exchange current density

Lecture 12 - Exchange current density, Polarization, Activation Polarization, Tafel Equation

Lecture 13 - Activation Polarization, Concentration Polarization

Lecture 14 - Concentration Polarization, Mixed Potential Theory

Lecture 15 - Mixed Potential Theory, Explanation of corrosion events on the basis of Mixed potential theory,

Lecture 16 - Explanation of corrosion events on the basis of Mixed potential theory, Effect of impurity, Effect

Lecture 17 - Explanation of corrosion events on the basis of Mixed potential theory, Effect of area factor, C

Lecture 18 - Passivation and Mixed potential theory

Lecture 19 - Passivation and Mixed potential theory

Lecture 20 - Different corrosion protection mechanisms, electrochemical ways of protection, cathodic protection

Lecture 21 - Cathodic and anodic protection

Lecture 22 - Anodic protection, Forms of corrosion, Factors of corrosion

Lecture 23 - Forms of corrosion, Uniform Corrosion, Galvanic corrosion

Lecture 24 - Galvanic corrosion

Lecture 25 - Crevice corrosion

Lecture 26 - Crevice corrosion, Pitting corrosion

Lecture 27 - Pitting corrosion, Intergranular corrosion

Lecture 28 - Intergranular corrosion, Dealloying

Lecture 29 - Dealloying, Erosion corrosion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Erosion corrosion, Cavitation
- Lecture 31 - Cavitation, Fretting corrosion, corrosion cracking
- Lecture 32 - Stress corrosion cracking
- Lecture 33 - Stress corrosion cracking
- Lecture 34 - Biologically influenced corrosion, liquid metal attack
- Lecture 35 - Corrosion protection, change of materials, effect of design of component
- Lecture 36 - Corrosion protection, change of environment, Inhibitors, coatings
- Lecture 37 - Oxidation and hot corrosion, pitting Bedworth ratio, thermodynamics of oxidation
- Lecture 38 - Thermodynamics of oxidation, Ellingham diagram, oxidation kinetics and laws
- Lecture 39 - Oxide structure and Oxidation
- Lecture 40 - Hot corrosion, corrosion testing and failure analysis, linear polarization
- Lecture 41 - Degradation of composites, polymers and ceramics, corrosion and society

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Phase Diagrams in Materials Science and Engineering

Subject Co-ordinator - Dr. Krishanu Biswas

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Heterogeneous equilibrium and Free energy Formalism
- Lecture 3 - Concept of Chemical Potential
- Lecture 4 - Phase Rule-I
- Lecture 5 - Phase Rule-II and Single Component Equilibria
- Lecture 6 - Single Component Phase Diagram
- Lecture 7 - Binary Phase Diagram - Isomorphous Diagram
- Lecture 8 - Binary Isomorphous System
- Lecture 9 - Solidification of Isomorphous Alloys
- Lecture 10 - Free Energy of Binary Isomorphous Phase Diagram
- Lecture 11 - Phase Diagram of Binary Eutectic Systems Edit Lesson
- Lecture 12 - Solidification of eutectic, hypo-eutectic and hyper-eutectic alloys & their morphologies - I
- Lecture 13 - Solidification of eutectic, hypo-eutectic and hyper-eutectic alloys & their morphologies - II
- Lecture 14 - Phase diagrams of binary eutectic two terminal solid solution
- Lecture 15 - Phase diagrams of binary peritectic System - I
- Lecture 16 - Phase diagrams of binary peritectic System - II
- Lecture 17 - Phase diagrams of binary peritectic System with intermediate phases
- Lecture 18 - Intermediate Phases
- Lecture 19 - Introduction to Monotectic Phase Diagram
- Lecture 20 - Microstructural Evolution of Monotectic Phase Diagram
- Lecture 21 - Free Energy Composition diagrams for Monotectic systems and Syntactic phase diagram
- Lecture 22 - Quasichemical theory - I
- Lecture 23 - Quasichemical theory - II
- Lecture 24 - Quasichemical theory Free energy formalism
- Lecture 25 - Solid state reaction
- Lecture 26 - Introduction to Iron-Carbon phase diagram
- Lecture 27 - Eutectoid transformation in Iron-Carbon phase diagram
- Lecture 28 - Austenite to pearlite transformation in Iron-Carbon phase diagram
- Lecture 29 - Hypo-eutectoid steels

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pearlite Transformation
- Lecture 31 - Martensite Transformation - I
- Lecture 32 - Martensite Transformation - II
- Lecture 33 - Tempering of Martensite
- Lecture 34 - Bainite Transformation
- Lecture 35 - TTT curves for Steel
- Lecture 36 - Cast Iron - I
- Lecture 37 - Cast Iron - II
- Lecture 38 - Ductile Iron and Nodular Iron
- Lecture 39 - Malleable Iron
- Lecture 40 - Alloyed Cast Iron
- Lecture 41 - Phase Diagram for different Solid State Reaction
- Lecture 42 - Phase Diagram of Ceramic
- Lecture 43 - Ternary Phase Diagram - I
- Lecture 44 - Ternary Phase Diagram - II
- Lecture 45 - Ternary Phase Diagram and Tie Line Construction - I
- Lecture 46 - Ternary Phase Diagram and Tie Line Construction - II
- Lecture 47 - Ternary Phase Diagram and Tie Line Construction - III
- Lecture 48 - Ternary Isomorphous Phase Diagram
- Lecture 49 - Ternary Three Phase Equilibria
- Lecture 50 - Three Phase Equilibria in Ternary Systems - I
- Lecture 51 - Three Phase Equilibria in Ternary Systems - II
- Lecture 52 - Solidification Behaviour of Ternary Alloy
- Lecture 53 - Three Phase Equilibria
- Lecture 54 - Ternary Four Phase Equilibria - I
- Lecture 55 - Ternary Four Phase Equilibria - II
- Lecture 56 - Solidification Behaviour of Ternary Eutectic Alloys
- Lecture 57 - Phase Diagram of Ternary Eutectic with Terminal Solid Solution
- Lecture 58 - Ternary Peritectic Reaction
- Lecture 59 - Quasi-peritectic Reaction
- Lecture 60 - Case Studies on Ternary Phase Diagrams - I
- Lecture 61 - Case Studies on Ternary Phase Diagrams - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Fundamentals of Material Processing - I

Subject Co-ordinator - Prof. Shashank Shekhar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Solidification (Casting)
- Lecture 3 - Solidification (Welding)
- Lecture 4 - Thermodynamics of Solidification
- Lecture 5 - Kinetics of Solidification (Homogeneous)
- Lecture 6 - Kinetics of Solidification (Heterogeneous)
- Lecture 7 - Heat Flow
- Lecture 8 - Heat Flow (Continued...)
- Lecture 9 - Heat Flow (Insulating Mold Condition)
- Lecture 10 - Heat Flow (Insulating Mold Condition) (Continued...)
- Lecture 11 - Heat Flow (Interface Resistance Controlled Solidification)
- Lecture 12 - Heat Flow (Effect of Superheat)
- Lecture 13 - Heat Flow (Solidification of Alloys)
- Lecture 14 - Composition Variation
- Lecture 15 - Composition Variation (Continued...)
- Lecture 16 - Complete and Limited Liquid Diffusion
- Lecture 17 - Mixed Mode Solidification
- Lecture 18 - Mixed Mode Solidification and Zone Refining
- Lecture 19 - Zone Refining (Continued...)
- Lecture 20 - Cellular Solidification of Single Phase Alloy
- Lecture 21 - Cellular Solidification of Single Phase Alloy (Continued...)
- Lecture 22 - Cellular Solidification of Single Phase Alloy (Continued...)
- Lecture 23 - Plane Front Solidification of Multiphase Alloy
- Lecture 24 - Plane Front Solidification of Multiphase Alloy (Continued...)
- Lecture 25 - Fluid Flow Considerations
- Lecture 26 - Introduction to Powder Processing
- Lecture 27 - Introduction to Powder Processing (Continued...)
- Lecture 28 - Powder characterization
- Lecture 29 - Powder Characterization Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Powder Characterization using Surface Area
- Lecture 31 - Powder Characterization using Gas Permeability Method
- Lecture 32 - Powder Manufacturing
- Lecture 33 - Powder Manufacturing (Continued...)
- Lecture 34 - Powder Manufacturing (Continued...)
- Lecture 35 - Powder Consolidation
- Lecture 36 - Powder Consolidation (Continued...)
- Lecture 37 - Particle Packing
- Lecture 38 - Powder Compaction
- Lecture 39 - Powder Compaction (Continued...)
- Lecture 40 - Sintering Theory

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Heat Treatment and Surface Hardening - I

Subject Co-ordinator - Dr. Kallol Mondal, Prof. Sandeep Sangal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Heat Treatment and Importance of Material Tetrahedron
- Lecture 2 - Case studies in reference to Material tetrahedron T/t information and processing
- Lecture 3 - Few more case studies in reference to processing with T/t modification
- Lecture 4 - Critical Definition and Phase Transformation Thermodynamics and Driving Force
- Lecture 5 - Thermodynamics of Phase Transformation Driving force of Phase Transformation
- Lecture 6 - Thermodynamics of Phase Transformation and Driving Force for Phase Transformation
- Lecture 7 - Finding Value of Driving Force ( $\Delta G$ ) and Single Component (liquid-solid)
- Lecture 8 - Finding Value of Driving Force ( $\Delta G$ ) and Nucleation Single Component (liquid-solid)
- Lecture 9 - Nucleation Treatment Single Component (Solid-Liquid) - I
- Lecture 10 - Nucleation Treatment Single Component (Solid-Liquid) - II
- Lecture 11 - Solved Problem on Nucleation rate and How to determine the value of  $\Delta s_l$  Physical Concept & Inter
- Lecture 12 - How to determine the value of  $\Delta s_l$  (Physical Concept and Interfacial Energy)
- Lecture 13 - Interfacial Energy - I
- Lecture 14 - Interfacial Energy - II
- Lecture 15 - Heterogeneous Nucleation - I
- Lecture 16 - Heterogeneous Nucleation - II
- Lecture 17 - Solid - Solid Transformation and Nucleation rate - I
- Lecture 18 - Solid - Solid Transformation and Nucleation rate - II
- Lecture 19 - Phase Diagram and G vs X plot - I
- Lecture 20 - Phase Diagram and G vs X plot - II
- Lecture 21 - Phase Diagram and G vs X plot - III
- Lecture 22 - Introduction to Kinetics of Phase Transformation
- Lecture 23 - Variation of  $\Delta G^*$  and  $r^*$  with Undercooling
- Lecture 24 - Nucleation rate - I
- Lecture 25 - Nucleation Rate - II
- Lecture 26 - Critical Undercooling
- Lecture 27 - Maximum nucleation rate for homogeneous nucleation
- Lecture 28 - Maximum nucleation rate for heterogeneous nucleation
- Lecture 29 - Nucleation kinetics in solid state

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- Lecture 30 - Interface controlled growth
- Lecture 31 - Diffusion controlled growth
- Lecture 32 - Avrami Kinetics - I
- Lecture 33 - Avrami Kinetics - II
- Lecture 34 - Avrami Kinetics - III
- Lecture 35 - Time-Temperature-Transformation (TTT) diagram
- Lecture 36 - Diffusion in Solids - I
- Lecture 37 - Diffusion in Solids - II
- Lecture 38 - Diffusion in Solids - III
- Lecture 39 - Diffusion in Solids - IV
- Lecture 40 - Applications of heat treatment

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Fundamentals of Material Processing - Part 2

Subject Co-ordinator - Prof. Shashank Shekhar, Prof. Jitesh J Thakkar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Metal Working
- Lecture 2 - Continuum Mechanics
- Lecture 3 - Stress Invariants
- Lecture 4 - Strain Tensors and Mohr circle for strains
- Lecture 5 - Yield Stress Criterion
- Lecture 6 - Effective Stress and Strain
- Lecture 7 - Work Hardening and Flow Behaviour
- Lecture 8 - Effect of Strain Rate
- Lecture 9 - Combined Effect of Strain, Strain Rate and Temperature
- Lecture 10 - Effect of Temperature
- Lecture 11 - Cold, Warm and Hot Working
- Lecture 12 - Mechanics of Metal Working
- Lecture 13 - Wire Drawing
- Lecture 14 - Wire Drawing (Continued...)
- Lecture 15 - Hodographs
- Lecture 16 - Upper-Bound Analysis
- Lecture 17 - Plane Strain Indentation
- Lecture 18 - Strain Calculation Models and Friction
- Lecture 19 - Types of Friction
- Lecture 20 - Effect of Friction in Rolling
- Lecture 21 - Vacuum Technology
- Lecture 22 - Vacuum Technology (Continued...)
- Lecture 23 - Thermal Evaporation
- Lecture 24 - Thermal Evaporation (Continued...)
- Lecture 25 - Thermal Evaporation (Continued...)
- Lecture 26 - Plasma Physics
- Lecture 27 - Plasma Physics (Continued...)
- Lecture 28 - Sputtering
- Lecture 29 - Sputtering (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sputtering (Continued...)
- Lecture 31 - Chemical Vapor Deposition
- Lecture 32 - Chemical Vapor Deposition (Continued...)
- Lecture 33 - Chemical Vapor Deposition (Continued...)
- Lecture 34 - Chemical Vapor Deposition (Continued...)
- Lecture 35 - Epitaxy, Molecular Beam Epitaxy and Atomic Layer Deposition
- Lecture 36 - Adsorption and Nucleation
- Lecture 37 - Thin Film Growth
- Lecture 38 - Kinetics of Thin Film Growth
- Lecture 39 - Thin Film Morphology- Zone Structure Model
- Lecture 40 - Thin Film Characterization
- Lecture 41 - Thin Film Characterization

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Nature and Properties of Materials - An Introduction

Subject Co-ordinator - Dr. Ashish Garg

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Material Evolution
- Lecture 2 - Bonding in Materials
- Lecture 3 - Correlation between bond and physical properties
- Lecture 4 - Crystal Structure
- Lecture 5 - Unit Cell (Primitive and Non-primitive)
- Lecture 6 - Crystal Systems and Bravais Lattices
- Lecture 7 - Bravais Lattice and Symmetry in Crystals
- Lecture 8 - Symmetry in Crystals
- Lecture 9 - Symmetry and Correlation with the Bravais Lattice
- Lecture 10 - Miller Indices (Planes and Directions)
- Lecture 11 - Miller Indices - Part 2
- Lecture 12 - Miller Indices - Part 3
- Lecture 13 - Miller Indices and Weiss Zone Law
- Lecture 14 - Structure of Metals and Alloys
- Lecture 15 - Structure of Metals, Packing, Co-ordination and Interstices
- Lecture 16 - Interstices, Solid Solutions and Alloys
- Lecture 17 - Solid Solutions
- Lecture 18 - Solid Solutions
- Lecture 19 - Covalent Solids
- Lecture 20 - Covalent Solids (Continued...) and Ionic Solids
- Lecture 21 - Ionic Solids
- Lecture 22 - Ionic solids (Continued...)
- Lecture 23 - ionic Solids (Continued...)
- Lecture 24 - Ionic Solids (Continued...)
- Lecture 25 - Ionic Solids (Ceramics)
- Lecture 26 - HCP based Structure
- Lecture 27 - Structure of Non-crystalline Solids (glasses)
- Lecture 28 - Structure of Non-Crystalline Solids
- Lecture 29 - Structure of Non-Crystalline Solids (Polymers)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structure of Polymers
- Lecture 31 - Structure of Polymers (Continued...)
- Lecture 32 - Structure Determination (X-ray Diffraction)
- Lecture 33 - X-ray Diffraction
- Lecture 34 - X-ray Diffraction (Continued...)
- Lecture 35 - X-ray Diffraction (Continued...)
- Lecture 36 - X-ray Diffraction (Continued...)
- Lecture 37 - X-ray Diffraction (Continued...)
- Lecture 38 - Defects in Solids (Point Defects)
- Lecture 39 - Point Defect Concentration
- Lecture 40 - 2-D Defects

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Defects in Crystalline Solids - Part I

Subject Co-ordinator - Prof. Shashank Shekhar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Defects
- Lecture 2 - Equilibrium Points Defects
- Lecture 3 - Energy of Vacancy Formation
- Lecture 4 - Vacancy Concentration Measurement Techniques
- Lecture 5 - Self-interstitial Defects+Frenkel Defects
- Lecture 6 - Schottky Defects+Extrinsic Defects
- Lecture 7 - Interstitials in Iron
- Lecture 8 - Defects Reaction+Kroger-Vink Notation
- Lecture 9 - Defects Reaction and its Thermodynamics
- Lecture 10 - Equilibrium Concentration using Defects Reaction
- Lecture 11 - Examples on defect reaction
- Lecture 12 - Diffusion (Interstitial Diffusion)
- Lecture 13 - Non-steady state diffusion
- Lecture 14 - Self-diffusion + Examples
- Lecture 15 - Diffusion in substitutional alloys+Diffusion along defects
- Lecture 16 - History of Dislocations
- Lecture 17 - Volterra Model + Structure of Dislocations + Burger vectors
- Lecture 18 - Characteristics of Dislocations
- Lecture 19 - Mixed Dislocations + Dislocation Loops
- Lecture 20 - Elastic Continuum Model + Strain field for screw dislocations
- Lecture 21 - Stress and Strain Fields
- Lecture 22 - Stress State around Edge Dislocations+Elastic Energy of Dislocations
- Lecture 23 - Glide Forces on Dislocations+Line Tension on Dislocations
- Lecture 24 - Climb Forces on Dislocations+Interaction Between Dislocations
- Lecture 25 - Image Forces on Dislocations
- Lecture 26 - Resistance to Dislocation Motion+Peierl Nebarro Valley
- Lecture 27 - Slip System+Examples
- Lecture 28 - Dislocations and Slips+Examples
- Lecture 29 - Critical resolved Shear Stress+Examples (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Glide+Kinks
- Lecture 31 - Cross-slip+Climb
- Lecture 32 - Climb+Jogs
- Lecture 33 - Examples on Jogs+Dislocation Intersection
- Lecture 34 - Dislocation Intersection and step characteristics+Superjogs
- Lecture 35 - Strain and strain-rate due to dislocation motion+Velocity of dislocations+Observation of dislocation
- Lecture 36 - Observation of dislocation (Continued...) + Dislocation Dynamics
- Lecture 37 - Dislocations in FCC+Partial dislocations
- Lecture 38 - Partial dislocations (Continued...) +Stacking Fault
- Lecture 39 - Thompson's Tetrahedron+Examples
- Lecture 40 - Dislocations in BCC+Asymmetry of Slip

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Corrosion - Part I

Subject Co-ordinator - Dr. Kallol Mondal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to corrosion - I
- Lecture 2 - Introduction to corrosion - II
- Lecture 3 - Types and forms of corrosion
- Lecture 4 - Uniform and Galvanic corrosion
- Lecture 5 - Crevice and Pitting corrosion
- Lecture 6 - Forms of corrosion
- Lecture 7 - Electrochemical Nature of Corrosion and its Thermodynamics
- Lecture 8 - Thermodynamics aspects of corrosion - I
- Lecture 9 - Thermodynamics aspects of corrosion - II
- Lecture 10 - Thermodynamics aspects of corrosion - III
- Lecture 11 - Relation Between Free Energy and Equilibrium Constant
- Lecture 12 - Derivation of Nernst Equation
- Lecture 13 - Standard Reduction Potential Series for Pure Metals
- Lecture 14 - Reduction Potentials in Acidic and Neutral Solutions
- Lecture 15 - Nernst equation in terms of pH
- Lecture 16 - Limitations of Standard Reduction Potential Series of Pure Metals
- Lecture 17 - Concentration Cell Formation and Galvanic Series
- Lecture 18 - Examples of Concentration cell and Spontaneity of Corrosion Process
- Lecture 19 - Spontaneity of Corrosion Process and Introduction to Pourbaix Diagram
- Lecture 20 - Construction of Pourbaix Diagram
- Lecture 21 - Construction of Pourbaix diagram for Ni-H<sub>2</sub>O system - I
- Lecture 22 - Construction of Pourbaix diagram for Ni-H<sub>2</sub>O system - II
- Lecture 23 - Construction of Pourbaix diagram for Ni-H<sub>2</sub>O system - III
- Lecture 24 - Pourbaix diagram of Ni-H<sub>2</sub>O and Al-H<sub>2</sub>O
- Lecture 25 - Inferences from Pourbaix diagram of Fe-H<sub>2</sub>O and Al-H<sub>2</sub>O
- Lecture 26 - Estimation of Corrosion Rate - I
- Lecture 27 - Estimation of Corrosion Rate - II
- Lecture 28 - Estimation of Corrosion Rate - III
- Lecture 29 - Exchange Current Density

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Exchange Current Density and Standard Hydrogen Electrode
- Lecture 31 - Electrical Double Layer and Polarization
- Lecture 32 - Correlation between Current Density and Overvoltage
- Lecture 33 - Introduction to Butler-Volmer Equation
- Lecture 34 - Derivation of Tafel Equation
- Lecture 35 - Tafel Plot and Activation Polarization
- Lecture 36 - Activation polarization, concentration polarization and total polarization
- Lecture 37 - Summary of concentration polarization (CP) and introduction to mixed potential theory - I
- Lecture 38 - Mixed potential theory - II
- Lecture 39 - Understanding of mixed potential theory through the case studies and events of corrosion - I
- Lecture 40 - Understanding of mixed potential theory through the case studies and events of corrosion - II
- Lecture 41 - Understanding of mixed potential theory through the case studies and events of corrosion - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Advanced ceramics for strategic applications

Subject Co-ordinator - Prof. H.S. Maiti

Co-ordinating Institute - Central Glass and Ceramic Research Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Crystal Structure
- Lecture 4 - Crystal Structure (Continued...)
- Lecture 5 - Crystal Structure (Continued...)
- Lecture 6 - Crystal Structure (Continued...)
- Lecture 7 - Defects in crystalline solids
- Lecture 8 - Defects in crystalline solids (Continued...)
- Lecture 9 - Dislocation
- Lecture 10 - Two and Three Dimensional Defects
- Lecture 11 - Electrical Conduction in ceramics
- Lecture 12 - Electrical Conduction in Ceramics (Continued...)
- Lecture 13 - Electrical Conduction in Ceramics (Continued...)
- Lecture 14 - Electrical Conduction in Ceramics (Continued...)
- Lecture 15 - Electrical Conduction in Ceramics (Continued...)
- Lecture 16 - Electrical Conduction in Ceramics (Continued...)
- Lecture 17 - Electrical Phenomenon in Insulators
- Lecture 18 - Electrical Phenomenon in Insulators (Continued...)
- Lecture 19 - Ferroelectric , Piezoelectric and Pyroelectric Ceramics
- Lecture 20 - Ferroelectric , Piezoelectric and Pyroelectric Ceramics (Continued...)
- Lecture 21 - Ferroelectric , Piezoelectric and Pyroelectric Ceramics (Continued...)
- Lecture 22 - Ferroelectric , Piezoelectric and Pyroelectric Ceramics (Continued...)
- Lecture 23 - Relaxor Ferroelectric
- Lecture 24 - Superconductivity
- Lecture 25 - Superconductivity (Continued...)
- Lecture 26 - Ceramic Gas Sensor
- Lecture 27 - Ceramic Gas Sensor (Continued...)
- Lecture 28 - Solid Oxide Fuel Cell
- Lecture 29 - Solid Oxide Fuel Cell (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solid Oxide Fuel Cell (Continued...)
- Lecture 31 - Hydrogen Generation through MIEC Reactor
- Lecture 32 - Lithium Ion Battery
- Lecture 33 - Lithium Ion Battery (Continued...)
- Lecture 34 - Magnetic Ceramics
- Lecture 35 - Magnetic Ceramics (Continued...)
- Lecture 36 - Magnetic Ceramics (Continued...)
- Lecture 37 - Magnetic Ceramics (Continued...)
- Lecture 38 - Sintering of Ceramics
- Lecture 39 - Sintering of Ceramics (Continued...)
- Lecture 40 - Sintering of Ceramics (Continued...)
- Lecture 41 - Sintering of Ceramics (Continued...)
- Lecture 42 - Mechanical Properties of Ceramic Materials
- Lecture 43 - Mechanical Properties of Ceramic Materials (Continued...)
- Lecture 44 - Mechanical Properties of Ceramic Materials (Continued...)
- Lecture 45 - Mechanical Properties of Ceramic Materials (Continued...)
- Lecture 46 - Structural Ceramics Materials
- Lecture 47 - Bioceramics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Non-ferrous Extractive Metallurgy

Subject Co-ordinator - Prof. H.S. Ray, Mr. L. Pugazhenthay

Co-ordinating Institute - IIT - Kharagpur | India Lead Zine Development Association

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Brief History of Non-ferrous Metal
- Lecture 2 - Brief History of Non-ferrous Metal (Continued...)
- Lecture 3 - Sources of Non-ferrous Metal
- Lecture 4 - Mineral Beneficiation Techniques
- Lecture 5 - General Methods of Metal Extraction
- Lecture 6 - Principles of Carbon Reduction
- Lecture 7 - Principles of Hydrometallurgy
- Lecture 8 - Principles of Electrometallurgy
- Lecture 9 - Electrometallurgy (Continued...) and Temkin Model for Fused Salts
- Lecture 10 - Refining of Metals - Chemical Methods
- Lecture 11 - Refining of Metals - Physical Methods
- Lecture 12 - Concluding part of Module - 4
- Lecture 13 - Concluding part of Module - 4 (Continued...)
- Lecture 14 - Module - 5 Extraction of Metals from Oxides, Extraction of Magnesium
- Lecture 15 - Extraction Aluminium
- Lecture 16 - Extraction Aluminium (Continued...1)
- Lecture 17 - Extraction Aluminium (Continued...2)
- Lecture 18 - Extraction Aluminium (Continued...3)
- Lecture 19 - Extraction of Tin
- Lecture 20 - Extraction of Ferro Alloys
- Lecture 21 - Module - 6 Extraction of Metals from Sulphides Extraction of Copper
- Lecture 22 - Extraction of Copper (Continued...)
- Lecture 23 - Hydrometallurgy of Copper
- Lecture 24 - Extraction of Lead
- Lecture 25 - Extraction of Zinc-Imperial Smelting Process
- Lecture 26 - Module - 7 Extraction of metals from halides, Extraction of reactor metals
- Lecture 27 - Extraction of reactor metals (Continued...1)
- Lecture 28 - Extraction of reactor metals (Continued...2)
- Lecture 29 - Extraction of Titanium

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Extraction of Precious Metals
- Lecture 31 - Production of Secondary Metals and Treatment of Wastes
- Lecture 32 - Energy and Environment Related Issues in Nonferrous Metals Production
- Lecture 33 - Energy and Environment Related Issues in Nonferrous Metals Production (Continued...1)
- Lecture 34 - Energy and Environment Related Issues in Nonferrous Metals Production (Continued...2)
- Lecture 35 - Energy and Environment Related Issues in Nonferrous Metals Production (Continued...3)
- Lecture 36 - Energy and Environment Related Issues in Nonferrous Metals Production (Continued...4)
- Lecture 37 - Energy and Environment Related Issues in Nonferrous Metals Production (Continued...5)
- Lecture 38 - Energy and Environment Related Issues in Nonferrous Metals Production (Continued...6)
- Lecture 39 - Nonferrous Metals in India - Unleashing its true potential
- Lecture 40 - Nonferrous Metals in India - Unleashing its true potential (Continued...)
- Lecture 41 - Review and Summary
- Lecture 42 - Review and Summary (Continued...1)
- Lecture 43 - Review and Summary (Continued...2)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Principles of Physical Metallurgy

Subject Co-ordinator - Prof. R.N. Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Atomic Bond and Crystal Structure
- Lecture 3 - Atomic Bond and Crystal Structure (Continued...1)
- Lecture 4 - Atomic Bond and Crystal Structure (Continued...2)
- Lecture 5 - Experimental Tools & Techniques
- Lecture 6 - Experimental Tools & Techniques (Continued...)
- Lecture 7 - Solidification of Pure Metal
- Lecture 8 - Plastic Deformation of Pure Metal
- Lecture 9 - Plastic Deformation of Pure Metal (Continued...)
- Lecture 10 - Crystal Defects in Metals
- Lecture 11 - Crystal Defects in Metals (Continued...1)
- Lecture 12 - Crystal Defects in Metals (Continued...2)
- Lecture 13 - Crystal Defects in Metals (Continued...3)
- Lecture 14 - Crystal Defects in Metals (Continued...4)
- Lecture 15 - Diffusion in Solids
- Lecture 16 - Diffusion in Solids (Continued...)
- Lecture 17 - Numerical Examples in Diffusion
- Lecture 18 - Solidification of Binary Alloys
- Lecture 19 - Solidification of Binary Alloys (Continued...1)
- Lecture 20 - Solidification of Binary Alloys (Continued...2)
- Lecture 21 - Solidification of Binary Alloys (Continued...3)
- Lecture 22 - Solidification of Binary Alloys (Continued...4)
- Lecture 23 - Iron-Carbon Phase Diagram
- Lecture 24 - Iron-Carbon Phase Diagram (Continued...)
- Lecture 25 - Ternary Phase Diagram
- Lecture 26 - Common Binary Alloys
- Lecture 27 - Metal Working
- Lecture 28 - Metal Working
- Lecture 29 - Precipitation for Solid Solution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Precipitation for Solid Solution (Continued...)
- Lecture 31 - Heat Treatment of Steel
- Lecture 32 - Heat Treatment of Steel (Continued...1)
- Lecture 33 - Heat Treatment of Steel (Continued...2)
- Lecture 34 - Heat Treatment of Steel (Continued...3)
- Lecture 35 - Heat Treatment of Steel (Continued...4)
- Lecture 36 - Heat Treatment of Steel (Continued...5)
- Lecture 37 - Surface Hardening
- Lecture 38 - Structural Steel
- Lecture 39 - Structural Steel (Continued...)
- Lecture 40 - Ultra High Strength Steel
- Lecture 41 - Preferred Orientation
- Lecture 42 - Metal Joining

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Processing of Semiconducting Materials

Subject Co-ordinator - Dr. Pallab Banerji

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Electronics Materials  
Lecture 2 - Electrical Conductivity of Materials  
Lecture 3 - Direct and Indirect Band Semiconductors  
Lecture 4 - Doping in Semiconductors  
Lecture 5 - Semiconductor Statistics  
Lecture 6 - Importance of Doping  
Lecture 7 - Diffusion and Ion Implantation - I  
Lecture 8 - Diffusion and Ion Implantation - II  
Lecture 9 - Diffusion and Ion Implantation - III  
Lecture 10 - Elemental Semiconductors  
Lecture 11 - Compound Semiconductors  
Lecture 12 - Bulk Crystal Growth - I  
Lecture 13 - Bulk Crystal Growth - II  
Lecture 14 - Ga As Crystal Growth  
Lecture 15 - Defects in Crystals - I  
Lecture 16 - Defects in Crystals - II  
Lecture 17 - Band Gap Engineering - I  
Lecture 18 - Band Gap Engineering - II  
Lecture 19 - Chemical Vapour Deposition - I  
Lecture 20 - Chemical Vapour Deposition - II  
Lecture 21 - MOCVD  
Lecture 22 - Molecular Beam Epitaxy - I  
Lecture 23 - Molecular Beam Epitaxy - II  
Lecture 24 - p - n Junction  
Lecture 25 - Carrier Transport in P - N Junction  
Lecture 26 - Characterization - I  
Lecture 27 - Characterization - II  
Lecture 28 - Optical Characterization - I  
Lecture 29 - Metal-Semiconductor Contact - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Metal-Semiconductor Contact - II
- Lecture 31 - Applications of Metal-Semiconductor Contact
- Lecture 32 - Oxidation - I
- Lecture 33 - Oxidation - II
- Lecture 34 - Different Types of Semiconductor - I
- Lecture 35 - Oxidation - I
- Lecture 36 - Oxidation - II
- Lecture 37 - Dielectric Films
- Lecture 38 - Low - K and High - K materials
- Lecture 39 - Metallization
- Lecture 40 - Materials for Photovoltaics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Science and Technology of Polymers

Subject Co-ordinator - Prof. B. Adhikari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Concepts on Polymers
- Lecture 2 - Basic Concepts on Polymers (Continued...)
- Lecture 3 - Basic Concepts on Polymers (Continued...)
- Lecture 4 - Polymer Raw Materials
- Lecture 5 - Principles of Polymer Synthesis
- Lecture 6 - Principles of Polymer Synthesis (Continued...)
- Lecture 7 - Principles of Polymer Synthesis (Continued...)
- Lecture 8 - Principles of Polymer Synthesis (Continued...)
- Lecture 9 - Principles of Polymer Synthesis (Continued...)
- Lecture 10 - Principles of Polymer Synthesis (Continued...)
- Lecture 11 - Structure and Properties of Polymers (Continued...)
- Lecture 12 - Structure and Properties of Polymers (Continued...)
- Lecture 13 - Structure and Properties of Polymers (Continued...)
- Lecture 14 - Structure and Properties of Polymers (Continued...)
- Lecture 15 - Polymerization Techniques
- Lecture 16 - Polymerization Techniques (Continued...)
- Lecture 17 - Polymerization Techniques (Continued...)
- Lecture 18 - Polymer Products
- Lecture 19 - Polymer Products (Continued...)
- Lecture 20 - Rubber Products
- Lecture 21 - Rubber Products (Continued...)
- Lecture 22 - Conducting Polymers
- Lecture 23 - Conducting Polymers (Continued...)
- Lecture 24 - Liquid Crystalline Polymers
- Lecture 25 - Stimuli Responsive Polymer and its application
- Lecture 26 - Stimuli Responsive Polymer and its application (Continued...)
- Lecture 27 - Polymeric Nanomaterials and Devices (Continued...)
- Lecture 28 - Polymeric Nanomaterials and Devices (Continued...)
- Lecture 29 - Polymeric Nanomaterials and Devices (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Environmental Degradation of Polymers
- Lecture 31 - Environmental Degradation of Polymers (Continued...)
- Lecture 32 - Polymer Composites
- Lecture 33 - Polymer Composites (Continued...)
- Lecture 34 - Polymer Composites (Continued...)
- Lecture 35 - Multicomponent Polymeric Materials
- Lecture 36 - Multicomponent Polymeric Materials (Continued...)
- Lecture 37 - Multicomponent Polymeric Materials (Continued...)
- Lecture 38 - Viscoelasticity
- Lecture 39 - Engineering and Speciality Polymers
- Lecture 40 - Engineering and Speciality Polymers (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Advanced Materials and Processes

Subject Co-ordinator - Prof. B.S. Murty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Structure of Materials - Part I  
Lecture 2 - Structure of Materials - Part II  
Lecture 3 - Nano Crystalline Materials - Part I  
Lecture 4 - Nano Crystalline Materials - Part II  
Lecture 5 - Nano Crystalline Materials - Part III  
Lecture 6 - Nano Crystalline Materials - Part IV  
Lecture 7 - Amorphous Materials - Part I  
Lecture 8 - Amorphous Materials - Part II  
Lecture 9 - Amorphous Materials - Part III  
Lecture 10 - Amorphous Materials - Part IV  
Lecture 11 - Amorphous Materials - Part V  
Lecture 12 - Quasicrystals - Part I  
Lecture 13 - Quasicrystals - Part II  
Lecture 14 - Nano Quasicrystals - Part I  
Lecture 15 - Nano Quasicrystals - Part II  
Lecture 16 - Rapid Solidification Processing  
Lecture 17 - Mechanical Alloying  
Lecture 18 - Advanced AI Alloys - Part I  
Lecture 19 - Advanced AI Alloys - Part II  
Lecture 20 - Advanced AI Alloys - Part III  
Lecture 21 - Advanced AI Alloys - Part IV and Ti Alloys  
Lecture 22 - Shape Memory Alloys  
Lecture 23 - Strengthening Mechanisms - Part I  
Lecture 24 - Strengthening Mechanisms - Part II  
Lecture 25 - Superalloys  
Lecture 26 - In-Situ Composites - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Principles of Polymer Synthesis

Subject Co-ordinator - Prof. Rajat K Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Historical development of polymer science
- Lecture 2 - Molecular Weight Determination Of Polymers
- Lecture 3 - Molecular Weight Determination Of Polymers (Continued...)
- Lecture 4 - Molecular Weight Determination of Polymers (Continued...)
- Lecture 5 - Molecular Weight Determination of Polymers (Continued...)
- Lecture 6 - Principles of step growth polymerization
- Lecture 7 - Principles of step growth polymerization (Continued...)
- Lecture 8 - Principles of step growth polymerization (Continued...)
- Lecture 9 - Principles of step growth polymerization (Continued...)
- Lecture 10 - Principles of step growth polymerization (Continued...)
- Lecture 11 - Principles of radical chain polymerization
- Lecture 12 - Principles of radical chain polymerization (Continued...)
- Lecture 13 - Principles of radical chain polymerization (Continued...)
- Lecture 14 - Principles of radical chain polymerization (Continued...)
- Lecture 15 - Principles of radical chain polymerization (Continued...)
- Lecture 16 - Principles of radical chain polymerization (Continued...)
- Lecture 17 - Principles of Chain Copolymerization
- Lecture 18 - Principles of Chain Copolymerization (Continued...)
- Lecture 19 - Principles of Chain Copolymerization (Continued...)
- Lecture 20 - Principles of Living Chain polymerization
- Lecture 21 - Principles of Living Chain polymerization (Continued...)
- Lecture 22 - Design of Chemical Reactors
- Lecture 23 - Design of Chemical Reactors (Continued...)
- Lecture 24 - Design of Chemical Reactors (Continued...)
- Lecture 25 - Design of Chemical Reactors (Continued...)
- Lecture 26 - Design of Chemical Reactors (Continued...)
- Lecture 27 - Design of Chemical Reactors (Continued...)
- Lecture 28 - Design of Chemical Reactors (Continued...)
- Lecture 29 - Design of Chemical Reactors (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design of Chemical Reactors (Continued...)
- Lecture 31 - Design of Chemical Reactors (Continued...)
- Lecture 32 - Synthesis of industrial polymers
- Lecture 33 - Synthesis of industrial polymers (Continued...)
- Lecture 34 - Synthesis of industrial polymers (Continued...)
- Lecture 35 - Synthesis of industrial polymers (Continued...)
- Lecture 36 - Synthesis of industrial polymers (Continued...)
- Lecture 37 - Synthesis of industrial polymers (Continued...)
- Lecture 38 - Synthesis of industrial polymers (Continued...)
- Lecture 39 - Synthesis of industrial polymers (Continued...)
- Lecture 40 - Synthesis of industrial polymers (Continued...)
- Lecture 41 - Synthesis of industrial polymers (Continued...)
- Lecture 42 - Synthesis of industrial polymers (Continued...)
- Lecture 43 - Synthesis of industrial polymers (Continued...)
- Lecture 44 - Synthesis of industrial polymers (Continued...)
- Lecture 45 - Synthesis of industrial polymers (Continued...)
- Lecture 46 - Synthesis of industrial polymers (Continued...)
- Lecture 47 - Synthesis of industrial polymers (Continued...)



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Advanced Materials and Processes

Subject Co-ordinator - Prof. Jayanta Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Introduction (Continued...)  
Lecture 5 - Introduction (Continued...)  
Lecture 6 - Bulk Metallic Glass, Glassy and Amorphous Materials  
Lecture 7 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 8 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 9 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 10 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 11 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 12 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 13 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 14 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 15 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 16 - Shape Memory Alloys  
Lecture 17 - Shape Memory Alloys (Continued...)  
Lecture 18 - Shape Memory Alloys (Continued...)  
Lecture 19 - Shape Memory Alloys (Continued...)  
Lecture 20 - Shape Memory Alloys (Continued...)  
Lecture 21 - Shape Memory Alloys  
Lecture 22 - Shape Memory Alloys  
Lecture 23 - Shape Memory Alloys  
Lecture 24 - Shape Memory Alloys  
Lecture 25 - Shape Memory Alloys  
Lecture 26 - Introduction of High Temperature Materials  
Lecture 27 - Introduction of High Temperature Materials (Continued...)  
Lecture 28 - Introduction of High Temperature Materials (Continued...)  
Lecture 29 - Introduction of High Temperature Materials (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction of High Temperature Materials (Continued...)
- Lecture 31 - Superalloys
- Lecture 32 - Superalloys (Continued...)
- Lecture 33 - Superalloys (Continued...)
- Lecture 34 - Superalloys (Continued...)
- Lecture 35 - Superalloys (Continued...)
- Lecture 36 - Nanomaterials
- Lecture 37 - Nanomaterials
- Lecture 38 - Nanomaterials
- Lecture 39 - Nanomaterials
- Lecture 40 - Nanomaterials
- Lecture 41 - Nanomaterials
- Lecture 42 - Nanomaterials
- Lecture 43 - Nanomaterials
- Lecture 44 - Nanomaterials
- Lecture 45 - Nanomaterials
- Lecture 46 - Soft and Hard Magnetic Materials
- Lecture 47 - Soft and Hard Magnetic Materials (Continued...)
- Lecture 48 - Soft and Hard Magnetic Materials (Continued...)
- Lecture 49 - Soft and Hard Magnetic Materials (Continued...)
- Lecture 50 - Soft and Hard Magnetic Materials (Continued...)
- Lecture 51 - Advanced Processes
- Lecture 52 - Advanced Processes (Continued...)
- Lecture 53 - Advanced Processes (Continued...)
- Lecture 54 - Advanced Processes (Continued...)
- Lecture 55 - Advanced Processes (Continued...)
- Lecture 56 - Advanced Functional Alloys
- Lecture 57 - Advanced Functional Alloys (Continued...)
- Lecture 58 - Advanced Functional Alloys (Continued...)
- Lecture 59 - Advanced Functional Alloys (Continued...)
- Lecture 60 - Advanced Functional Alloys (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Advanced Metallurgical Thermodynamics

Subject Co-ordinator - Prof. B.S. Murty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic definitions
- Lecture 2 - Free energy, Stability, equilibrium in a unary system
- Lecture 3 - Effect of Pressure on equilibrium transformations
- Lecture 4 - Free energy of solutions, free energy-composition diagrams
- Lecture 5 - Solution models, chemical potential
- Lecture 6 - Phase rule, free energy-composition diagrams and phase diagrams
- Lecture 7 - Evolution of phase diagrams
- Lecture 8 - Evolution of phase diagrams, miscibility gap
- Lecture 9 - To concept, partition less solidification
- Lecture 10 - To concept, partition less solidification (Continued...)
- Lecture 11 - Eutectic solidification, glass formation
- Lecture 12 - Kauzmann paradox, order of a transformation, glass forming ability
- Lecture 13 - Eutectic solidification, coupled growth, heterogeneous nucleation
- Lecture 14 - Peritectic solidification, metastable phase diagrams
- Lecture 15 - Errors in drawing phase diagrams, Fe-C vs. Fe-Fe<sub>3</sub>C phase diagram
- Lecture 16 - Free energy of undercooled liquid, shape of nucleus
- Lecture 17 - Solid state phase transformations - Precipitation
- Lecture 18 - Precipitation
- Lecture 19 - Precipitation - quasicrystals
- Lecture 20 - Precipitate coarsening, stability of a phase, spinodal decomposition
- Lecture 21 - Spinodal decomposition
- Lecture 22 - Eutectoid reaction
- Lecture 23 - Eutectoid reaction (Continued...)
- Lecture 24 - Bainitic transformation
- Lecture 25 - Kinetics of eutectoid transformations
- Lecture 26 - Martensitic Transformation
- Lecture 27 - Martensitic transformation, order-disorder transformation
- Lecture 28 - Miscibility gap in phase diagrams
- Lecture 29 - Phase diagram calculations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Thermodynamics of heterogeneous systems

Lecture 31 - Thermodynamics of heterogeneous systems (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Materials Characterization

Subject Co-ordinator - Dr. S. Sankaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Properties of light, Image formation

Lecture 2 - Magnification and resolution

Lecture 3 - Depth of field, focus and field of view

Lecture 4 - Lens defects, filters and light microscopy introduction

Lecture 5 - Optical microscope demo., Bright field imaging, opaque specimen illumination

Lecture 6 - Opaque stop microscopy, Phase contrast microscopy

Lecture 7 - Dark field microscopy, Polarization microscopy

Lecture 8 - Differential interference contrast and fluorescence microscopy

Lecture 9 - Sample preparation techniques for optical microscopy

Lecture 10A - Tutorial problems (Continuation...)

Lecture 10 - Tutorial problems

Lecture 11 - Introduction to scanning electron Microscopy

Lecture 12 - Lens aberrations, Object resolution, Image quality

Lecture 13 - Interaction between electrons and sample, Imaging capabilities, Structural analysis, Elemental analysis

Lecture 14 - SEM and its mode of operation, Effect of aperture size, Working distance, condenser lens strength

Lecture 15 - SEM and its mode of operation- continuation, Relation between probe current and probe diameter,

Lecture 16 - Factors affecting Interaction volume, Demonstration of SEM

Lecture 17 - Image formation and interpretation

Lecture 18 - Image formation and interpretation continued, EDS, WDS

Lecture 19 - Special contrast mechanisms, Monte Carlo simulations of Interaction volume

Lecture 20 - Electron channeling contrast imaging (ECCI), Electron back scattered diffraction (EBSD)-Theory &

Lecture 21 - Tutorial Problems on SEM

Lecture 22 - Basics of X-ray emission from source, electron excitation and X-ray interaction with materials

Lecture 23 - Properties of X-rays

Lecture 24 - Bragg's Law Derivation

Lecture 25 - Diffraction relationship with reciprocal space

Lecture 26 - X-ray scattering

Lecture 27 - Factors affecting intensities of X-ray peaks

Lecture 28 - Factors affecting intensities of X-ray peaks- continuation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Effect of crystallite size and strain on intensity of X-rays
- Lecture 30 - Profile fit, Factors affecting peak broadening
- Lecture 31 - Indexing of diffraction pattern, Quantitative analysis
- Lecture 32 - Indexing, Quantitative analysis-continuation, Residual stress measurements
- Lecture 33 - XRD and Residual stress measurement- lab demonstration
- Lecture 34 - Introduction to Transmission Electron Microscopy (TEM)
- Lecture 35 - Fundamentals of Transmission Electron Microscopy (TEM)
- Lecture 36 - Basics of Diffraction-1
- Lecture 37 - Basics of Diffraction-2
- Lecture 38 - TEM imaging-1
- Lecture 39 - TEM imaging-2
- Lecture 40 - TEM instrument demonstration
- Lecture 41 - TEM sample preparation-1
- Lecture 42 - TEM sample preparation-2
- Lecture 43 - XRD Tutorial - 1
- Lecture 44 - XRD tutorial - 2
- Lecture 45 - TEM Tutorial - 1
- Lecture 46 - TEM Tutorial - 2
- Lecture 47 - Quantitative metallography - Tutorial 1
- Lecture 48 - Quantitative metallography - Tutorial 2
- Lecture 49 - Quantitative metallography - Tutorial 3
- Lecture 50 - Quantitative metallography - Tutorial 4
- Lecture 51 - Quantitative metallography - Tutorial 5
- Lecture 52 - Quantitative metallography - Tutorial 6
- Lecture 53 - Quantitative metallography - Tutorial 7

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Physics of Materials

Subject Co-ordinator - Dr. Prathap Haridoss

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Properties of Materials
- Lecture 3 - Thermal Expansion
- Lecture 4 - Measuring Electrical Conductivity
- Lecture 5 - Free Electron Gas
- Lecture 6 - The Ideal Gas
- Lecture 7 - Drude Model
- Lecture 8 - Drude Model
- Lecture 9 - Drude Model
- Lecture 10 - Drude Model
- Lecture 11 - Large Systems and Statistical Mechanics
- Lecture 12 - Maxwell Boltzmann Statistics
- Lecture 13 - Classical Particles and Quantum Particles
- Lecture 14 - History of Quantum Mechanics - 1
- Lecture 15 - History of Quantum Mechanics - 2
- Lecture 16 - Introduction to Drude Sommerfeld model
- Lecture 17 - Fermi-Dirac Statistics - Part 1
- Lecture 18 - Fermi-Dirac Statistics - Part 2
- Lecture 19 - Features of the Fermi Dirac Distribution Function
- Lecture 20 - Maxwell-Boltzmann Distribution Vs Fermi-Dirac Distribution
- Lecture 21 - Anisotropy and Periodic Potential in a Solid
- Lecture 22 - Confinement and Quantization - Part 1
- Lecture 23 - Confinement and Quantization - Part 2
- Lecture 24 - Density of States
- Lecture 25 - Fermi Energy, Fermi Surface, Fermi Temperature
- Lecture 26 - Electronic Contribution to Specific Heat at Constant Volume
- Lecture 27 - Reciprocal Space-1
- Lecture 28 - Reciprocal Space-2
- Lecture 29 - Reciprocal Space-3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wigner Seitz Cell and Introduction to Brillouin Zones
- Lecture 31 - Brillouin Zones, Diffraction, and Allowed Energy Levels
- Lecture 32 - E Vs k, Brillouin Zones and the Origin of Bands
- Lecture 33 - Calculating Allowed Energy Bands and Forbidden Band Gaps
- Lecture 34 - Bands; Free Electron Approximation, Tight Binding Approximation
- Lecture 35 - Semiconductors
- Lecture 36 - Magnetic Properties
- Lecture 37 - Electron Compounds; Phonons, Optoelectronic Materials
- Lecture 38 - Superconductivity
- Lecture 39 - Bose-Einstein Statistics
- Lecture 40 - Physics of Nano Scale Materials; Course Summary



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Electronic materials, devices, and fabrication

Subject Co-ordinator - Prof. Parasuraman S

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Metals, semiconductors and insulators  
Lecture 2 - Introduction to semiconductors  
Lecture 3 - Density of states and Fermi-Dirac statistics  
Lecture 4 - Assignment 1 - Bonding, DOS, and Fermi statistics  
Lecture 5 - Intrinsic semiconductors  
Lecture 6 - Intrinsic semiconductors - conductivity  
Lecture 7 - Assignment 2 - Intrinsic semiconductors  
Lecture 8 - Extrinsic semiconductors  
Lecture 9 - Extrinsic semiconductors - Fermi level  
Lecture 10 - Extrinsic semiconductors - conductivity  
Lecture 11 - Assignment 3 - Extrinsic semiconductors  
Lecture 12 - Metal-semiconductor junctions  
Lecture 13 - Assignment 4 - Metal-semiconductor junctions  
Lecture 14 - pn junctions in equilibrium  
Lecture 15 - pn junctions under bias  
Lecture 16 - pn junction breakdown and heterojunctions  
Lecture 17 - Assignment 5 - pn junctions  
Lecture 18 - Transistors  
Lecture 19 - MOSFETs  
Lecture 20 - Assignment 6 - transistors  
Lecture 21 - Optoelectronic devices  
Lecture 22 - Optoelectronic devices  
Lecture 23 - Optoelectronic devices  
Lecture 24 - Optoelectronic devices  
Lecture 25 - Optoelectronic devices  
Lecture 26 - Assignment 7 - optical properties  
Lecture 27 - Assignment 8 - optoelectronic devices  
Lecture 28 - Semiconductor manufacturing  
Lecture 29 - Si wafer manufacturing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - IC device manufacturing
- Lecture 31 - Layering
- Lecture 32 - Doping
- Lecture 33 - Lithography
- Lecture 34 - Etching and deposition (growth)
- Lecture 35 - Metallization and polishing
- Lecture 36 - Process and device evaluation
- Lecture 37 - Productivity and process yield
- Lecture 38 - Clean room design and contamination control
- Lecture 39 - Devices and IC formation
- Lecture 40 - IC circuit logic and packaging

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Fundamentals of optical and scanning electron micro

Subject Co-ordinator - Dr. S. Sankaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Properties of light, Image formation

Lecture 2 - Magnification and resolution

Lecture 3 - Depth of field, focus and field of view

Lecture 4 - Lens defects, filters and light microscopy introduction

Lecture 5 - Optical microscope demo., Bright field imaging, opaque specimen illumination

Lecture 6 - Opaque stop microscopy, Phase contrast microscopy

Lecture 7 - Dark field microscopy, Polarization microscopy

Lecture 8 - Differential interference contrast and fluorescence microscopy

Lecture 9 - Sample preparation techniques for optical microscopy

Lecture 10 - Tutorial problems

Lecture 11 - Tutorial problems (Continued...)

Lecture 12 - Introduction to scanning electron Microscopy

Lecture 13 - Lens aberrations, Object resolution, Image quality

Lecture 14 - Interaction between electrons and sample, Imaging capabilities, Structural analysis, Elemental a

Lecture 15 - SEM and its mode of operation, Effect of aperture size, Working distance, condenser lens strength

Lecture 16 - SEM and its mode of operation- continuation, Relation between probe current and probe diameter,

Lecture 17 - Factors affecting Interaction volume, Demonstration of SEM

Lecture 18 - Image formation and interpretation

Lecture 19 - Image formation and interpretation continued, EDS, WDS

Lecture 20 - Special contrast mechanisms, Monte Carlo simulations of Interaction volume

Lecture 21 - Electron channeling contrast imaging (ECCI), Electron back scattered diffraction (EBSD)-Theory &

Lecture 22 - Tutorial Problems on SEM

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Fundamentals of electronic materials and devices

Subject Co-ordinator - Prof. Parasuraman S

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Electronic Materials
- Lecture 2 - Semiconductors - Introduction
- Lecture 3 - Electron statistics in a solid
- Lecture 4 - Worked numericals on week 1 lessons
- Lecture 5 - Intrinsic semiconductors
- Lecture 6 - Intrinsic semiconductors - conductivity
- Lecture 7 - Optional - worked assignment on intrinsic semiconductors
- Lecture 8 - Extrinsic semiconductors - Introduction
- Lecture 9 - Extrinsic semiconductors - Fermi level
- Lecture 10 - Extrinsic semiconductors - Mobility
- Lecture 11 - Worked assignment on extrinsic semiconductors
- Lecture 12 - Metal-semiconductor junctions
- Lecture 13 - pn junctions in equilibrium
- Lecture 14 - Optional - worked assignment on metal-semiconductor junctions
- Lecture 15 - pn junctions under bias
- Lecture 16 - Junction breakdown and heterojunctions
- Lecture 17 - Worked assignment on pn junctions
- Lecture 18 - Transistors - overview
- Lecture 19 - MOSFETs
- Lecture 20 - Worked assignment on transistors
- Lecture 21 - Optoelectronic devices - Introduction
- Lecture 22 - Light emitting diodes
- Lecture 23 - Solid state semiconductor lasers
- Lecture 24 - Optional - worked assignment on optical properties
- Lecture 25 - Photodetectors
- Lecture 26 - Solar cells
- Lecture 27 - Worked assignment on optoelectronic devices

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Introduction to Reciprocal Space and its use in Sc

Subject Co-ordinator - Dr. Prathap Haridoss

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Reciprocal space; Definition and Properties

Lecture 2 - Condition for Diffraction

Lecture 3 - Worked out examples

Lecture 4 - Ewald Sphere and lattices in reciprocal space

Lecture 5 - Wigner Sietz cells and Brillouin Zones

Lecture 6 - Worked out exmaples

Lecture 7 - Brillouin Zones, Diffraction and allowed energy levels

Lecture 8 - E Vs K, Brillouin zones and the Origin of Bands

Lecture 9 - Week 3 Worked out examples

Lecture 10 - Reciprocal space as Fourier transform of real lattice

Lecture 11 - Alternate notation of reciprocal space

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Analysis and Modeling of Welding

Subject Co-ordinator - Dr. G. Phanikumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to fusion welding processes

Lecture 2 - Introduction to fusion welding processes

Lecture 3 - Heat sources - Part 1/2

Lecture 4 - Heat sources - Part 2/2

Lecture 5 - Heat removal

Lecture 6 - Thermal Modelling - Part 1/2

Lecture 7 - Thermal Modelling - Part 2/2

Lecture 8 - Zones in a weldment

Lecture 9 - Analytical Solutions to Weld Thermal Field

Lecture 10 - Conduction to Keyhole mode

Lecture 11 - Fluid flow modelling - Part 1/2

Lecture 12 - Fluid flow modelling - Part 2/2

Lecture 13 - Solute transfer modelling - Part 1/2

Lecture 14 - Solute transfer modelling - Part 2/2

Lecture 15 - Solute segregation profile - Part 1/2

Lecture 16 - Solute segregation profile - Part 2/2

Lecture 17 - Microstructure Formation in Fusion Welds

Lecture 18 - Numerical Solutions to Thermal Field and Fluid Flow in Welding - Part 1

Lecture 19 - Numerical Solutions to Thermal Field and Fluid Flow in Welding - Part 2

Lecture 20 - Dissimilar Welding

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Theory and Practice of Non Destructive Testing

Subject Co-ordinator - Dr. Ranjit Bauri

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Visual optical method  
Lecture 2 - Dye Penetrant Testing - 1  
Lecture 3 - Dye Penetrant Testing - 2  
Lecture 4 - Dye Penetrant Testing - 3  
Lecture 5 - Dye Penetrant Testing - 4  
Lecture 6 - Magnetic particle testing - 1  
Lecture 7 - Magnetic particle testing - 2  
Lecture 8 - Magnetic particle testing - 3  
Lecture 9 - Magnetic particle testing - 4  
Lecture 10 - Magnetic particle testing - 5  
Lecture 11 - Eddy current testing - 1  
Lecture 12 - Eddy current testing - 2  
Lecture 13 - Eddy current testing - 3  
Lecture 14 - Eddy current testing - 4  
Lecture 15 - Eddy current testing - 5  
Lecture 16 - Ultrasonic testing - 1  
Lecture 17 - Ultrasonic testing - 2  
Lecture 18 - Ultrasonic testing - 3  
Lecture 19 - Ultrasonic testing - 4  
Lecture 20 - Ultrasonic testing - 5  
Lecture 21 - Ultrasonic testing - 6  
Lecture 22 - Ultrasonic testing - 7  
Lecture 23 - Ultrasonic testing - 8  
Lecture 24 - Ultrasonic testing - 9  
Lecture 25 - Ultrasonic testing - 10  
Lecture 26 - Acoustic Emission Testing - 1  
Lecture 27 - Acoustic Emission Testing - 2  
Lecture 28 - Acoustic Emission Testing - 3  
Lecture 29 - Acoustic Emission Testing - 4

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- Lecture 30 - Acoustic Emission Testing - 5
- Lecture 31 - Radiography - 1
- Lecture 32 - Radiography - 2
- Lecture 33 - Radiography - 3
- Lecture 34 - Radiography - 4
- Lecture 35 - Radiography - 5
- Lecture 36 - Radiography - 6
- Lecture 37 - Radiography - 7
- Lecture 38 - Radiography - 8
- Lecture 39 - Radiography - 9
- Lecture 40 - Radiography - 10



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Defects in Materials

Subject Co-ordinator - Prof. Sundararaman M

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to defects in materials  
Lecture 2 - 1-D Lattice  
Lecture 3 - 2-D Lattice  
Lecture 4 - 3-D Lattice - a  
Lecture 5 - 3-D Lattice - b  
Lecture 6 - 3-D Lattice - c  
Lecture 7 - 3-D Crystals  
Lecture 8 - Types of Point Defects  
Lecture 9 - Vacancy Concentration Determination - 1  
Lecture 10 - Vacancy Concentration Determination - 2  
Lecture 11 - Point Defect Interstitial  
Lecture 12 - Transformation of co-ordinates  
Lecture 13 - Tensor - 1  
Lecture 14 - Tensor - 2  
Lecture 15 - Strain  
Lecture 16 - Stress  
Lecture 17 - Description of Dislocation - 1  
Lecture 18 - Description of Dislocation - 2  
Lecture 19 - Stress field around Dislocation  
Lecture 20 - Self Energy of Dislocation  
Lecture 21 - Force on Dislocation  
Lecture 22 - Forces Between Dislocation  
Lecture 23 - Chemical Force on Dislocation  
Lecture 24 - Perfect Dislocation in FCC Structures  
Lecture 25 - Intrinsic Stacking Faults in FCC  
Lecture 26 - Extrinsic Faults and Thompson Tetrahedron in FCC  
Lecture 27 - Dislocations in BCC and HCP  
Lecture 28 - Dislocations in Ordered Alloys and Dislocation Dislocation Interaction  
Lecture 29 - Twinning - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Twinning - 2
- Lecture 31 - Martensitic Transformation - 1
- Lecture 32 - Martensitic Transformation - 2
- Lecture 33 - Interfaces - 1
- Lecture 34 - Interfaces - 2
- Lecture 35 - Defect Interaction and Strength

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Elementary Stereology for Quantitative Metallography

Subject Co-ordinator - Dr. S. Sankaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Method of Stereology

Lecture 2 - Volume Fraction and Particle Size - Part 1

Lecture 3 - Volume Fraction and Particle Size - Part 2

Lecture 4 - Geometric Probability - Part 1

Lecture 5 - Geometric Probability - Part 2

Lecture 6 - Probability Distributions

Lecture 7 - Volume Fraction and Particle Size - Part 3

Lecture 8 - Volume Fraction and Particle Size - Part 4

Lecture 9 - Geometrical Probability - I

Lecture 10 - Geometrical Probability - II

Lecture 11 - Basic Stereological Parameters - Part 1

Lecture 12 - Basic Stereological Parameters - Part 2

Lecture 13 - Counting of grains and particles - Part 1

Lecture 14 - Description of Polycrystalline Microstructures derived measures

Lecture 15 - Counting of grains and particles - Part 2

Lecture 16 - Counting of Grains and Particles - Part 3

Lecture 17 - Counting of Grains and Particles - Part 4

Lecture 18 - Other Applications of the Disector

Lecture 19 - Stereology of Anisotropic Microstructures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Welding of Advanced High Strength Steels for Autom

Subject Co-ordinator - Prof. Murugaiyan Amirthalingam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course, Introduction to physical metallurgy of steels
- Lecture 2 - Martensitic transformation, Introduction to modern automotive steels
- Lecture 3 - Introduction to modern automotive steels
- Lecture 4 - Introduction to advanced high strength steels
- Lecture 5 - Introduction to Dual Phase Steel and TRIP Steel Heat Treatments
- Lecture 6 - Thermal and Mechanical Processing of TRIP and Hot Forming Steels
- Lecture 7 - Introduction to Welding Processes in Automotive Industries
- Lecture 8 - Principles of Resistance Spot Welding (RSW)
- Lecture 9 - Process Characteristics of Resistance Spot Welding - Part I
- Lecture 10 - Process Characteristics of Resistance Spot Welding - Part II
- Lecture 11 - Introduction to Laser Beam Welding - Part I
- Lecture 12 - Introduction to Laser Beam Welding - Part II
- Lecture 13 - Principles of Gas Metal Arc Welding - Part I
- Lecture 14 - Principles of Gas Metal Arc Welding - Part II
- Lecture 15 - Welding Metallurgy of Advanced High Strength Steels - Part I
- Lecture 16 - Microstructural Evolution During Welding of Advanced High Strength Steels
- Lecture 17 - Elemental Behaviour During Welding of Advanced High Strength Steels
- Lecture 18 - Quantification of Microstructural Constituents in Automotive Steel Welds - Part I
- Lecture 19 - Quantification of Microstructural Constituents in Automotive Steel Welds - Part II and Mechanical
- Lecture 20 - Methodologies to Improve the Weldability of Advanced High Strength Steels

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Surface Engineering of Nanomaterials

Subject Co-ordinator - Prof. Kaushik Pal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Tribology and Its Classification

Lecture 2 - Friction Tribology

Lecture 3 - Wear and Corrosion

Lecture 4 - Lubrication

Lecture 5 - Effect of Tribology on Surface of Nanomaterials

Lecture 6 - Conventional Surface Engineering

Lecture 7 - Types of Surface Modifications

Lecture 8 - Physical Modifications

Lecture 9 - Chemical Modifications

Lecture 10 - Applications of Surface Engineering towards Nanomaterials

Lecture 11 - Deposition and Surface Modification Methods

Lecture 12 - Physical Vapour Deposition (PVD)

Lecture 13 - Chemical Vapour Deposition (CVD)

Lecture 14 - Advanced Surface Modification Practices

Lecture 15 - Advantages of Deposition for Surface Modification

Lecture 16 - Synthesis, Processing and Characterization of Nano-structured Coatings

Lecture 17 - Functional Coatings

Lecture 18 - Advanced Coating Practices

Lecture 19 - Characterization of Nano-coatings

Lecture 20 - Applications of Nano-coatings

Lecture 21 - Need of Advanced Methods for Surface and Coating Testings

Lecture 22 - Size Dependency in Nanostructures of Nanocoatings

Lecture 23 - Size Effect in Electrochemical Properties of Nanostructured Coatings

Lecture 24 - Size Effect in Mechanical Properties of Nanostructured Coatings

Lecture 25 - Size Effect in Physical and Other Properties of Nanostructured Coatings

Lecture 26 - Thin Films for Surface Engineering of Nanomaterials

Lecture 27 - Sputtering Techniques

Lecture 28 - Evaporation Processes

Lecture 29 - Thin Film Deposition through Gas Phase Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Liquid Phase Techniques
- Lecture 31 - Microencapsulation Processes
- Lecture 32 - Microencapsulation
- Lecture 33 - Plating of Nanocomposite Coatings - I
- Lecture 34 - Plating of Nanocomposite Coatings - II
- Lecture 35 - Advantages of Microencapsulation over Other Conventional Methods
- Lecture 36 - Current Trends in Surface Modification of Nanomaterials - Part-1
- Lecture 37 - Current Trends in Surface Modification of Nanomaterials - Part-2
- Lecture 38 - Current Trends in Surface Modification of Nanomaterials - Part-3
- Lecture 39 - Modified Nanomaterials
- Lecture 40 - Main Problems in Synthesis of Modified Nanomaterials

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Material Science and Engineering

Subject Co-ordinator - Dr. Vivek Pancholi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Atomic structure and bonding  
Lecture 3 - Crystal systems and structures  
Lecture 4 - X-ray diffraction  
Lecture 5 - Crystal planes and directions  
Lecture 6 - Optical microscope  
Lecture 7 - Optical aberration  
Lecture 8 - Metallography  
Lecture 9 - Microstructure  
Lecture 10 - Quantitative metallography  
Lecture 11 - Crystallographic defects  
Lecture 12 - Diffusion  
Lecture 13 - Phase diagram - 1  
Lecture 14 - Phase diagram - 2  
Lecture 15 - Eutectic phase diagram  
Lecture 16 - Equilibrium and non-equilibrium cooling  
Lecture 17 - Equilibrium cooling of eutectic system  
Lecture 18 - Solidification structure  
Lecture 19 - Iron-carbon phase diagram  
Lecture 20 - Nucleation and growth  
Lecture 21 - TTT and CCT curves  
Lecture 22 - Heat treatment  
Lecture 23 - Precipitation  
Lecture 24 - Elastic behaviour  
Lecture 25 - Tensile test  
Lecture 26 - Engineering and true stress and strain  
Lecture 27 - Plastic deformation - 1  
Lecture 28 - Plastic deformation - 2  
Lecture 29 - Strengthening mechanism - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strengthening mechanism - 2
- Lecture 31 - Strengthening mechanism - 3
- Lecture 32 - Strengthening mechanism - 4
- Lecture 33 - Fracture
- Lecture 34 - Fracture
- Lecture 35 - Fatigue
- Lecture 36 - Creep
- Lecture 37 - NDT
- Lecture 38 - Ceramics, polymers, composites
- Lecture 39 - Electrical and magnetic properties
- Lecture 40 - Alloy designation and properties



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Structural Analysis of Nanomaterials

Subject Co-ordinator - Prof. Kaushik Pal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Structure of Materials
- Lecture 3 - Imperfections in Structure of Materials
- Lecture 4 - Phase Diagram
- Lecture 5 - Transformation of Phases
- Lecture 6 - Basic Properties
- Lecture 7 - Basic Properties
- Lecture 8 - Basic Properties
- Lecture 9 - Basic Properties
- Lecture 10 - Selection of Nanomaterials based on Applications
- Lecture 11 - Introduction to X-Ray Diffraction
- Lecture 12 - Diffraction Methods and Directions of XRD
- Lecture 13 - Determination of Crystal Structures by XRD Patterns
- Lecture 14 - Precise Parameter Measurements
- Lecture 15 - Orientation of Single Crystals
- Lecture 16 - Qualitative Analysis by Diffraction
- Lecture 17 - Quantitative Analysis by Diffraction
- Lecture 18 - Microscopic Structural Analysis of Nanomaterials - I
- Lecture 19 - Microscopic Structural Analysis of Nanomaterials - II
- Lecture 20 - Other Characterization Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC: Biomaterials for Bone Tissue Engineering Applications

Subject Co-ordinator - Prof. Bikramjit Basu

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Biomaterial  
Lecture 3 - Biocompatibility  
Lecture 4 - Host response  
Lecture 5 - Tissue Eng  
Lecture 6 - Scaffold  
Lecture 7 - Bone structure  
Lecture 8 - Bone properties  
Lecture 9 - Implant - I  
Lecture 10 - Implant - II  
Lecture 11 - Proteins  
Lecture 12 - Cell structure  
Lecture 13 - Bacteria structure  
Lecture 14 - Antibacterial assay  
Lecture 15 - Cell fate processes  
Lecture 16 - Cell division  
Lecture 17 - Cell differentiation  
Lecture 18 - Stem cells  
Lecture 19 - Osseointegration  
Lecture 20 - In vivo testing  
Lecture 21 - Cell-material interaction  
Lecture 22 - Cell-signalling  
Lecture 23 - In vitro testing  
Lecture 24 - Cytotoxicity assays  
Lecture 25 - Biocompatibility assay  
Lecture 26 - Clinical trials - I  
Lecture 27 - Clinical trials - II  
Lecture 28 - Metal manufacturing  
Lecture 29 - Ceramics manufacturing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Polymers manufacturing
- Lecture 31 - Additive manufacturing
- Lecture 32 - HA-Ti-Toughness, Cell functionality
- Lecture 33 - HA-CaTiO<sub>3</sub> development
- Lecture 34 - HA- BaTiO<sub>3</sub> Functional Prop
- Lecture 35 - HA-Ag antimicrob and cell viability
- Lecture 36 - HA-ZnO, Cell fate and antimicrobial
- Lecture 37 - Dental ceramics processing
- Lecture 38 - Sr-based glass Ceramics
- Lecture 39 - Acetabular socket (Compression mold)
- Lecture 40 - ZTA femoral ball head fabrication

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Iron Making

Subject Co-ordinator - Prof Govind S Gupta

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39 - Live Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Elements of Ocean Engineering

Subject Co-ordinator - Dr. Ashoke Bhar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Physical Oceanography - I
- Lecture 3 - Physical Oceanography - II
- Lecture 4 - Physical Oceanography - III
- Lecture 5 - Physical Oceanography - IV
- Lecture 6 - Sediments & Open Ocean
- Lecture 7 - Open Ocean - I
- Lecture 8 - Open Ocean - II
- Lecture 9 - Physical Properties of Water
- Lecture 10 - Water and Waves
- Lecture 11 - Waves - I
- Lecture 12 - Waves - II
- Lecture 13 - Waves - III
- Lecture 14 - Introduction to Offshore Structures - I
- Lecture 15 - Introduction to Offshore Structures - II
- Lecture 16 - Waves - IV
- Lecture 17 - The Wave Spectra
- Lecture 18 - The Wave Spectra (Continued...1)
- Lecture 19 - The Wave Spectra (Continued...2)
- Lecture 20 - Offshore Structures - I
- Lecture 21 - Offshore Structures - II
- Lecture 22 - Offshore Structures - III
- Lecture 23 - Floating Offshore Structures
- Lecture 24 - Drilling from Platforms
- Lecture 25 - Drilling and Topsides
- Lecture 26 - Topsides
- Lecture 27 - Mooring Systems
- Lecture 28 - Mooring Systems (Continued...1)
- Lecture 29 - Static Analysis of Mooring Cable

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Static Analysis of Mooring Cable (Continued...)
- Lecture 31 - Mooring Systems (Continued...2)
- Lecture 32 - Mooring Systems (Continued...3)
- Lecture 33 - Mooring Systems (Continued...4)
- Lecture 34 - Mooring Systems (Continued...5)
- Lecture 35 - Mooring Systems (Continued...6)
- Lecture 36 - Fixed Offshore Structures
- Lecture 37 - Fixed Offshore Structures (Continued...)
- Lecture 38 - Structural Analysis of Jacket Platforms
- Lecture 39 - Structural Analysis of Jacket Platforms (Continued...1)
- Lecture 40 - Structural Analysis of Jacket Platforms (Continued...2)
- Lecture 41 - Jacket Pile Selection
- Lecture 42 - Jacket Pile Selection (Continued...1)
- Lecture 43 - Jacket Pile Selection (Continued...2)
- Lecture 44 - Floating Platform Design
- Lecture 45 - Semi-Submersibles
- Lecture 46 - Semi-Submersibles & TLPs
- Lecture 47 - Tension Leg Platform
- Lecture 48 - Tension Leg Platform (Continued...)
- Lecture 49 - SPAR Platform

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Hydrostatics and Stability

Subject Co-ordinator - Dr. Hari V. Warrior

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Archimedes Principle  
Lecture 3 - Archimedes Principle (Continued...)  
Lecture 4 - Numerical Integration  
Lecture 5 - Problems in Stability - I  
Lecture 6 - Problems in Stability - II  
Lecture 7 - Problems in Stability - III  
Lecture 8 - Problems in Integration  
Lecture 9 - Free Surface Effect  
Lecture 10 - Inclining Experiment  
Lecture 11 - Hydrostatic Curves - I  
Lecture 12 - Hydrostatic Curves - II  
Lecture 13 - Stability Curve  
Lecture 14 - Dynamical Stability - I  
Lecture 15 - Dynamical Stability - II  
Lecture 16 - Heeling Moment - I  
Lecture 17 - Heeling Moment - II  
Lecture 18 - Heeling Moment - III  
Lecture 19 - Dynamical Stability - III  
Lecture 20 - Discussion  
Lecture 21 - Righting Stability - I  
Lecture 22 - Righting Stability - II  
Lecture 23 - Trim Calculations - I  
Lecture 24 - Trim Calculations - II  
Lecture 25 - Trim Stability - I  
Lecture 26 - Trim Stability - II  
Lecture 27 - Dry Docking - I  
Lecture 28 - Dry Docking - II  
Lecture 29 - Bilging - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bilging - II
- Lecture 31 - Bilging - III
- Lecture 32 - Bilging - IV
- Lecture 33 - Safety Regulations
- Lecture 34 - Safety Regulations (Continued...)
- Lecture 35 - Safety Regulations (Continued...)
- Lecture 36 - Ship Stability on Waves
- Lecture 37 - Ship Stability on Waves (Continued...)
- Lecture 38 - Ship Stability on Waves (Continued...)
- Lecture 39 - Wave Theory
- Lecture 40 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Marine Construction and Welding

Subject Co-ordinator - Prof. N.R. Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to ships & offshore structures
- Lecture 2 - Characteristics of shipbuilding industry
- Lecture 3 - Structural Requirement
- Lecture 4 - Basic Structural Components
- Lecture 5 - Structural Subassemblies
- Lecture 6 - Bulkheads
- Lecture 7 - Decks & Shells
- Lecture 8 - Structural Assemblies Double Bottom Construction
- Lecture 9 - Wing Tanks & Duct Keels
- Lecture 10 - Fore & Aftend Construction
- Lecture 11 - General Cargo Carrier
- Lecture 12 - Bulk Carrier
- Lecture 13 - Structural Details
- Lecture 14 - Container Ship
- Lecture 15 - RO-RO Ship
- Lecture 16 - Oil Tanker
- Lecture 17 - Structural Alignment & Continuity
- Lecture 18 - Steel Material Preparation
- Lecture 19 - Shot Blasting
- Lecture 20 - Acid Pickling
- Lecture 21 - Plate Cutting
- Lecture 22 - Plate & Section Forming - I
- Lecture 23 - Plate & Section Forming - II
- Lecture 24 - Line Heating
- Lecture 25 - Fusion Welding & Power Source
- Lecture 26 - Welding Parameters & their Effects
- Lecture 27 - Welding Methods
- Lecture 28 - Shielded Metal Arc Welding
- Lecture 29 - Gas Metal Arc Welding - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gas Metal Arc Welding - II
- Lecture 31 - Gas Tungsten Arc Welding
- Lecture 32 - Submerged Arc Welding
- Lecture 33 - Electroslag Welding
- Lecture 34 - Electrogas Welding
- Lecture 35 - Friction Stir Welding
- Lecture 36 - FSW Metallurgy
- Lecture 37 - Welding Defects & NDT
- Lecture 38 - Welding Distortions
- Lecture 39 - Distortion Mechanism & Types of Distortion
- Lecture 40 - Distortion Control & Mitigation
- Lecture 41 - Welding Sequence

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Marine Hydrodynamics

Subject Co-ordinator - Dr. T. Sahoo

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Marine Hydrodynamics
- Lecture 2 - Law of Conservation of Mass - Continuity of Equation
- Lecture 3 - Streamlines and Flow Direction
- Lecture 4 - Worked Examples on Various Types of Flow
- Lecture 5 - Equation of Motion (Law of Conservation of Momentum)
- Lecture 6 - Applications of Equations of Motion
- Lecture 7 - Applications of Equations of Motion (Continued...)
- Lecture 8 - Two Dimensional Flows
- Lecture 9 - Two Dimensional Flows (Continued...)
- Lecture 10 - Source, Sink and Doublet
- Lecture 11 - Worked Examples on Two Dimensional Flows
- Lecture 12 - Conformal Mapping and Joukowski Transformation
- Lecture 13 - Uniform Flow Past an Elliptic Cylinder
- Lecture 14 - Aerofoil theory
- Lecture 15 - Aerofoil theory (Continued...)
- Lecture 16 - Aerofoil theory (Continued...)
- Lecture 17 - Schwarz - Christoffel Transformation
- Lecture 18 - Motion of a cylinder
- Lecture 19 - Vertex Motion
- Lecture 20 - Irrotational Flow - A Bird's eyeview
- Lecture 21 - Introduction to Water Waves
- Lecture 22 - Basic Equation and Conditions of Water Waves
- Lecture 23 - Water particle kinematics in wave motion
- Lecture 24 - Capillary Gravity Waves
- Lecture 25 - Linearised Long Wave Equation
- Lecture 26 - Linearised Long Wave Equation (Continued...)
- Lecture 27 - Wave motion in two layer fluids
- Lecture 28 - Worked Examples on Wave Motion
- Lecture 29 - Worked Examples on Wave Motion (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gravity wave transformation and energy rotation
- Lecture 31 - Gravity wave transformation and energy rotation (Continued...)
- Lecture 32 - Gravity wave transformation and energy rotation (Continued...)
- Lecture 33 - Navier - Stokes equation of motion
- Lecture 34 - Analysis of Basic Flow Problems
- Lecture 35 - Analysis of Basic Flow Problems (Continued...)
- Lecture 36 - Unsteady unidirectional flows
- Lecture 37 - Unsteady unidirectional flows (Continued...)
- Lecture 38 - An introduction to Boundary Layer Theory
- Lecture 39 - Solution methods for Boundary Layer Equations
- Lecture 40 - Solutions Methods for Boundary Layer Equations (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Seakeeping and Manoeuvring

Subject Co-ordinator - Prof. Debabrata Sen

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Regular Water Waves - I
- Lecture 2 - Regular Water Waves - II
- Lecture 3 - Definition of Ship Motions & Encounter Frequency
- Lecture 4 - Single Degree of Freedom Motions in Regular Waves
- Lecture 5 - Uncoupled Heave, Pitch and Roll - I
- Lecture 6 - Uncoupled Heave, Pitch and Roll - II
- Lecture 7 - Uncoupled Heave, Pitch and Roll - III
- Lecture 8 - Uncoupled Heave, Pitch and Roll - IV
- Lecture 9 - Uncoupled Heave, Pitch and Roll - V
- Lecture 10 - Coupled Motions
- Lecture 11 - Irregular Waves
- Lecture 12 - Description of Irregular Waves by Spectrum
- Lecture 13 - Theoretical Wave Spectrum
- Lecture 14 - Ship Motion in Irregular Waves - I
- Lecture 15 - Ship Motion in Irregular Waves - II
- Lecture 16 - Ship Motion in Irregular Waves - III
- Lecture 17 - Description of Short-Crested Sea
- Lecture 18 - Motions in Short-Crested Sea
- Lecture 19 - Derived Responses & Dynamic Effects - I
- Lecture 20 - Derived Responses & Dynamic Effects - II
- Lecture 21 - Derived Responses & Dynamic Effects - III
- Lecture 22 - Seakeeping Considerations in Design
- Lecture 23 - Manoeuvring
- Lecture 24 - Dynamic Equations of Motion - I
- Lecture 25 - Dynamic Equations of Motion - II
- Lecture 26 - Hydrodynamic Derivatives
- Lecture 27 - Controls-Fixed Stability
- Lecture 28 - Stability & Cotrollability
- Lecture 29 - Definitive Manoeuvres - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Definitive Manoeuvres - II
- Lecture 31 - Definitive Manoeuvres - III
- Lecture 32 - Non-linear Equations of Motion
- Lecture 33 - Non-linear Equations & Model Tests
- Lecture 34 - Captive Model Tests and Experimental Determination of Hydrodynamic Derivatives
- Lecture 35 - PMM Tests - I
- Lecture 36 - PMM Tests - II
- Lecture 37 - Rudder & Control Surfaces - I
- Lecture 38 - Rudder & Control Surfaces - II
- Lecture 39 - Theoretical Determination of Hydrodynamic Derivatives - I
- Lecture 40 - Theoretical Determination of Hydrodynamic Derivatives - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Applied Thermodynamics for Marine Systems

Subject Co-ordinator - Prof. P.K. Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction & Some Definitions
- Lecture 2 - First Law of Thermodynamics (Closed System)
- Lecture 3 - First Law of Thermodynamics (Open System)
- Lecture 4 - Second Law of Thermodynamics
- Lecture 5 - Second Law and Carnot Principle
- Lecture 6 - Property of Pure Substance, Steam Table
- Lecture 7 - Ideal Gas Laws, Different Processes
- Lecture 8 - Introduction to Vapour Power Cycle
- Lecture 9 - Vapour Power Cycle
- Lecture 10 - Steam Power Cycle, Steam Nozzle
- Lecture 11 - Basic Concept of Turbine, Velocity Diagram
- Lecture 12 - Steam Turbine-Impulse
- Lecture 13 - Reaction Turbine Compounding
- Lecture 14 - Comparison of Different Staging Arrangement
- Lecture 15 - Basics Laws of Fluid Mechanics
- Lecture 16 - Pipe Friction, Major Loss, Minor Loss
- Lecture 17 - Pipeline & Pipe Network
- Lecture 18 - Refrigeration Vapour Compression Cycle
- Lecture 19 - Psychometrics
- Lecture 20 - Psychometrics (Continued...)
- Lecture 21 - Psychometric Processes
- Lecture 22 - Psychometric Processes (Continued...), Air Conditioning
- Lecture 23 - Summer & Winter Air Conditioning
- Lecture 24 - Gas Power Cycles, Cycles for IC Engines
- Lecture 25 - Gas Turbine Cycles
- Lecture 26 - Modification of Brayton Cycle
- Lecture 27 - Introduction to Convective Heat Transfer Forced & Free Convection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Performance of Marine Vehicles at Sea

Subject Co-ordinator - Prof. Debabrata Sen, Prof. S.C. Misra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Components of Resistance - I
- Lecture 2 - Components of Resistance - II
- Lecture 3 - Dimensional Analysis
- Lecture 4 - Frictional Resistance
- Lecture 5 - Wave Making Resistance
- Lecture 6 - Other Components of Resistance
- Lecture 7 - Model Experiments
- Lecture 8 - Shallow Water Effects
- Lecture 9 - Ship hull form and Resistance
- Lecture 10 - Propeller Geometry - Part I
- Lecture 11 - Propeller Geometry - Part II
- Lecture 12 - Introduction to High Speed Crafts - Part I
- Lecture 13 - Introduction to High Speed Crafts - Part II
- Lecture 14 - Propeller in Open Water - Part I
- Lecture 15 - Propeller in Open Water - Part II
- Lecture 16 - Propeller 'behind' a ship
- Lecture 17 - Propeller experiments
- Lecture 18 - Propeller theories - Part I
- Lecture 19 - Propeller Theories
- Lecture 20 - Cavitation
- Lecture 21 - Regular Sea Waves - I
- Lecture 22 - Regular Sea Waves - II
- Lecture 23 - Irregular sea Waves - I
- Lecture 24 - Irregular Sea Waves - II
- Lecture 25 - Ship Motion in Regular Waves - I
- Lecture 26 - Ship Motion in Regular Waves - II
- Lecture 27 - Ship Motion in Regular Waves - III
- Lecture 28 - Ship Motion in irregular Waves - I
- Lecture 29 - Ship Motion in irregular Waves - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ship Motion in irregular Waves - III
- Lecture 31 - Motion in Short Crested Sea, Coupled Motions
- Lecture 32 - Derived Responses
- Lecture 33 - Ship Controllability
- Lecture 34 - Equation of Motion in Horizontal Plane
- Lecture 35 - Hydrodynamic Derivatives and Stability
- Lecture 36 - Hydrodynamic Derivatives and Stability
- Lecture 37 - Ship Trials and Maneuvers - I
- Lecture 38 - Ship Trials and Maneuvers - II
- Lecture 39 - Heel During Turn, IMO Requirements
- Lecture 40 - Rudder Hydrodynamics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Strength and Vibration of Marine Structures

Subject Co-ordinator - Prof. S.K. Satsangi, Prof. A.H. Sheikh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Ship Structures - I  
Lecture 2 - Introduction to Ship Structures - II  
Lecture 3 - Deflection of Structure Beam - I  
Lecture 4 - Deflection of Structure Beam - II  
Lecture 5 - Deflection of Structure Beam - III  
Lecture 6 - Deflection of Structure Beam - IV  
Lecture 7 - Statically Indeterminate Structures - I  
Lecture 8 - Statically Indeterminate Structures - II  
Lecture 9 - Statically Indeterminate Structures - III  
Lecture 10 - Statically Indeterminate Structures - IV  
Lecture 11 - Statically Indeterminate Structures - V  
Lecture 12 - Statically Indeterminate Structures - VI  
Lecture 13 - Longitudinal Bending of Hull Girder - I  
Lecture 14 - Longitudinal Bending of Hull Girder - II  
Lecture 15 - Longitudinal Bending of Hull Grider - III  
Lecture 16 - Theory of Column - I  
Lecture 17 - Theory of Column - II  
Lecture 18 - Theory of Column - III  
Lecture 19 - Theory of Column - IV  
Lecture 20 - Calculation of Momentum of Inertia of Main Section  
Lecture 21 - Bending in Inclined Condition  
Lecture 22 - Calculation of Deflection/Shear Stress  
Lecture 23 - Ship Vibration - I  
Lecture 24 - Ship Vibration - II  
Lecture 25 - Ship Vibration - III  
Lecture 26 - Ship Vibration - IV  
Lecture 27 - Ship Vibration - V  
Lecture 28 - Propeller Induced Vibration & Hull Frequency Estimation  
Lecture 29 - Hull Frequency Estimation from Basic Group (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of Bulkhead - I
- Lecture 31 - Analysis of Bulkhead - II
- Lecture 32 - Stress Concentration/Structural Discontinuities
- Lecture 33 - Composite Construction
- Lecture 34 - Method of Plastic Analysis
- Lecture 35 - Calculation of Natural Frequency of Hull Girder
- Lecture 36 - Hull Resonance Diagram

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Water Economics and Governance

Subject Co-ordinator - Prof. Manoj Kumar Tiwari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Global Water Availability and Uses
- Lecture 3 - Water Availability and Uses in India
- Lecture 4 - Surface Water and Ground Water Resources
- Lecture 5 - Water Use Practices and Major Challenges
- Lecture 6 - Background to Water Rights
- Lecture 7 - Water Rights
- Lecture 8 - Right to Sanitation
- Lecture 9 - Rights to Water and Sanitation - Underline Principals and Implementation
- Lecture 10 - Water Rights
- Lecture 11 - Water Sustainability
- Lecture 12 - The Dublin Statement on Water Sustainability
- Lecture 13 - Action Agenda in the Dublin Statement on Water Sustainability
- Lecture 14 - Water Sustainability
- Lecture 15 - Water Sustainability
- Lecture 16 - Valuing Water
- Lecture 17 - Valuing Water
- Lecture 18 - Valuing Water
- Lecture 19 - Valuing Water
- Lecture 20 - Valuing Water
- Lecture 21 - Pricing Water
- Lecture 22 - Pricing Water
- Lecture 23 - Pricing Water
- Lecture 24 - Pricing Water
- Lecture 25 - Pricing Water
- Lecture 26 - Water Pricing
- Lecture 27 - Conflicts in Water Pricing
- Lecture 28 - Conflicts in Water Pricing
- Lecture 29 - Conflicts in Water Pricing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Water Pricing Case Studies
- Lecture 31 - Economics of Water Projects
- Lecture 32 - Economics of Water Projects
- Lecture 33 - Economics of Water Projects
- Lecture 34 - Economics of Water Projects
- Lecture 35 - Economics of Demand and Sectoral Allocation
- Lecture 36 - Economics Evaluation of Water Projects
- Lecture 37 - Evaluation of Water Projects
- Lecture 38 - Evaluation of Water Projects
- Lecture 39 - Evaluation of Water Projects
- Lecture 40 - Evaluation of Water Projects
- Lecture 41 - Evaluation of Water Projects
- Lecture 42 - Evaluation of Water Projects
- Lecture 43 - Water Governance
- Lecture 44 - Elements, Dimensions and Principles of Water Governance
- Lecture 45 - Principles of Water Governance
- Lecture 46 - Principles of Water Governance and Effective Water Governance Schemes
- Lecture 47 - Effective Water Governance Schemes and its Benchmarking
- Lecture 48 - Decision Making and Implementation in Water Governance and its Benchmarking
- Lecture 49 - Water Governance in India
- Lecture 50 - Water Governance in India
- Lecture 51 - Water Governance in India
- Lecture 52 - Water Governance in India
- Lecture 53 - Water Governance in India
- Lecture 54 - Water Dispute Management
- Lecture 55 - Water Dispute Management
- Lecture 56 - Water Dispute Management
- Lecture 57 - Water Dispute Management
- Lecture 58 - Global Water Diplomacy
- Lecture 59 - Global Water Diplomacy
- Lecture 60 - Global Water Diplomacy
- Lecture 61 - Course Summary
- Lecture 62 - Course Summary (Continued...)
- Lecture 63 - Live Session-1
- Lecture 64 - Live Session-2
- Lecture 65 - Live Session-2 (April 20, 2018)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Design of Offshore Structures

Subject Co-ordinator - Dr. S. Nallayarasu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Loads On Offshore Structures - 1  
Lecture 2 - Loads On Offshore Structures - 2  
Lecture 3 - Loads On Offshore Structures - 3  
Lecture 4 - Loads On Offshore Structures - 4  
Lecture 5 - Loads On Offshore Structures - 5  
Lecture 6 - Loads On Offshore Structures - 6  
Lecture 7 - Loads On Offshore Structures - 7  
Lecture 8 - Concepts of Fixed Offshore Platform Deck and Jacket - 1  
Lecture 9 - Concepts of Fixed Offshore Platform Deck and Jacket - 2  
Lecture 10 - Concepts of Fixed Offshore Platform Deck and Jacket - 3  
Lecture 11 - Concepts of Fixed Offshore Platform Deck and Jacket - 4  
Lecture 12 - Concepts of Fixed Offshore Platform Deck and Jacket - 5  
Lecture 13 - Steel Tubular Member Design - 1  
Lecture 14 - Steel Tubular Member Design - 2  
Lecture 15 - Steel Tubular Member Design - 3  
Lecture 16 - Steel Tubular Member Design - 4  
Lecture 17 - Steel Tubular Member Design - 5  
Lecture 18 - Tubular Joint Design for Static and Cyclic Loads - 1  
Lecture 19 - Tubular Joint Design for Static and Cyclic Loads - 2  
Lecture 20 - Tubular Joint Design for Static and Cyclic Loads - 3  
Lecture 21 - Tubular Joint Design for Static and Cyclic Loads - 4  
Lecture 22 - Tubular Joint Design for Static and Cyclic Loads - 5  
Lecture 23 - Tubular Joint Design for Static and Cyclic Loads - 6  
Lecture 24 - Tubular Joint Design for Static and Cyclic Loads - 7  
Lecture 25 - Tubular Joint Design for Static and Cyclic Loads - 8  
Lecture 26 - Tubular Joint Design for Static and Cyclic Loads - 9  
Lecture 27 - Tubular Joint Design for Static and Cyclic Loads - 10  
Lecture 28 - Tubular Joint Design for Static and Cyclic Loads - 11  
Lecture 29 - Tubular Joint Design for Static and Cyclic Loads - 12

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30	- Jackup RIGS-Analysis and Design	- 1
Lecture 31	- Jackup RIGS-Analysis and Design	- 2
Lecture 32	- Jackup RIGS-Analysis and Design	- 3
Lecture 33	- Jackup RIGS-Analysis and Design	- 4
Lecture 34	- Jackup RIGS-Analysis and Design	- 5
Lecture 35	- Design Against Accidental Loads	- 1
Lecture 36	- Design Against Accidental Loads	- 2
Lecture 37	- Design Against Accidental Loads	- 3
Lecture 38	- Design Against Accidental Loads	- 4
Lecture 39	- Design Against Accidental Loads	- 5
Lecture 40	- Design Against Accidental Loads	- 6
Lecture 41	- Design Against Accidental Loads	- 7
Lecture 42	- Design Against Accidental Loads	- 8



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Foundation for Offshore Structures

Subject Co-ordinator - Dr. S. Nallayarasu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basics of Soil Mechanics - I  
Lecture 2 - Basics of Soil Mechanics - II  
Lecture 3 - Basics of Soil Mechanics - III  
Lecture 4 - Basics of Soil Mechanics - IV  
Lecture 5 - Basics of Soil Mechanics - V  
Lecture 6 - Basics of Soil Mechanics - VI  
Lecture 7 - Basics of Soil Mechanics - VII  
Lecture 8 - Bearing Capacity of Foundations - I  
Lecture 9 - Bearing Capacity of Foundations - II  
Lecture 10 - Pile Foundation - I  
Lecture 11 - Pile Foundation - II  
Lecture 12 - Pile Foundation - III  
Lecture 13 - Pile Foundation - IV  
Lecture 14 - Pile Foundation - V  
Lecture 15 - Pile Foundation - VI  
Lecture 16 - Pile Installation - I  
Lecture 17 - Pile Installation - II  
Lecture 18 - Pile Driveability Analysis - I  
Lecture 19 - Pile Driveability Analysis - II  
Lecture 20 - Pile Driveability Analysis - III  
Lecture 21 - Pile Driveability Analysis - IV  
Lecture 22 - Pile Driveability Analysis - V  
Lecture 23 - Onbottom Stability of Jackets - I  
Lecture 24 - Onbottom Stability of Jackets - II  
Lecture 25 - Pile Load Test - I  
Lecture 26 - Pile Load Test - II  
Lecture 27 - Pile Load Test - III  
Lecture 28 - Special Topics  
Lecture 29 - Special Foundations - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Special Foundations - II
- Lecture 31 - Special Foundations - III
- Lecture 32 - Pile Group Effects
- Lecture 33 - Two Pile Group Effect For Axial Load

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Health, Safety and Environmental Management in  
Petroleum and Offshore Engineering

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Terminologies
- Lecture 2 - Introduction to HSE
- Lecture 3 - Safety assurance and assessment
- Lecture 4 - Safety assurance and assessment (Continued...)
- Lecture 5 - Safety in design and operations
- Lecture 6 - Organizing for safety
- Lecture 7 - Hazard classification and assessment, Hazard evaluation and hazard control
- Lecture 8 - HaZOP
- Lecture 9 - HaZOP (Continued...)
- Lecture 10 - Hazard evaluation and hazard control
- Lecture 11 - Hazard Identification and Management in Oil & Gas Industry using HAZOP
- Lecture 12 - FMEA
- Lecture 13 - FMEA (Continued...)
- Lecture 14 - Environmental Issues and Management
- Lecture 15 - Impact of Oil and Gas Industry on Marine Environment
- Lecture 16 - Oil Hydrocarbon in Marine Environment
- Lecture 17 - Chemicals and Wastes from Offshore and Oil Industry
- Lecture 18 - Dispersion Models & Atmospheric Pollution
- Lecture 19 - Atmospheric Pollution (Continued...)
- Lecture 20 - Hazard Assessment and Accident Scenario
- Lecture 21 - Dose Assessment, Safety Regulation
- Lecture 22 - Toxic Release and Dispersion Modeling
- Lecture 23 - Chemical Exposure Index (CEI)
- Lecture 24 - Chemical Exposure Index (Continued.)
- Lecture 25 - Quantitative Risk Assessment
- Lecture 26 - Quantitative Risk Assessment (Liquid Release Models Case Study - Continued...)
- Lecture 27 - Fire and Explosion Modeling
- Lecture 28 - Fire and Explosion Modeling Flammability Diagrams

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Explosion Modeling
- Lecture 30 - Fire and Explosion Preventive Measures
- Lecture 31 - Probabilistic Risk Analysis
- Lecture 32 - Safety Measures in Design and Process Operations
- Lecture 33 - Case Studies
- Lecture 34 - Case Studies (Continued...)
- Lecture 35 - Software Used in HSE an Over View

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Port and Harbour Structures

Subject Co-ordinator - Prof. R. Sundaravadivelu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Layout of ports
- Lecture 2 - Continuation of layout of ports
- Lecture 3 - Visakhapatnam port
- Lecture 4 - Ships and size of ships
- Lecture 5 - Port planning
- Lecture 6 - Harbour layout
- Lecture 7 - Site characteristics & navigation channel
- Lecture 8 - Bathymetric survey
- Lecture 9 - Tide, surge, tsunami and wave
- Lecture 10 - Wave rose diagram
- Lecture 11 - Breakwater
- Lecture 12 - Design of breakwater - Part-1
- Lecture 13 - Design of breakwater - Part-2
- Lecture 14 - Berm breakwater
- Lecture 15 - Dredging & methods of disposal
- Lecture 16 - Berthing structures modelling
- Lecture 17 - Berthing structures - analyses
- Lecture 18 - Loads
- Lecture 19 - Types of berthing structures
- Lecture 20 - Design of berthing, structures-1
- Lecture 21 - Design of offshore berthing, structures-1
- Lecture 22 - Estimation of mooring, berthing and seismic forces
- Lecture 23 - Estimation seismic forces
- Lecture 24 - Active and passive earth pressure and differential water pressure
- Lecture 25 - Load combinations and design
- Lecture 26 - Fenders
- Lecture 27 - Mechanical handling system
- Lecture 28 - Single buoy mooring and open sea jetty - Part 1
- Lecture 29 - Single buoy mooring and open sea jetty - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Slipway, drydock, floating dock, shiplift
- Lecture 31 - Soil structure interaction
- Lecture 32 - Calculation of fixity depth
- Lecture 33 - Pile load test
- Lecture 34 - Ground improvement techniques
- Lecture 35 - Analysis of pile with spring support
- Lecture 36 - UPV, Half cell potential, Low high Integrity Test
- Lecture 37 - Mooring Dolphin at KPT
- Lecture 38 - Coastal structures and environmental management
- Lecture 39 - BOQ and Cost Estimate
- Lecture 40 - Proposed Mega Terminal Chennai
- Lecture 41 - Preliminary Project Report on Shipyard
- Lecture 42 - Procedures & clearances before implementation of a project
- Lecture 43 - Detailed project report
- Lecture 44 - Environmental studies of a project
- Lecture 45 - Design of pile
- Lecture 46 - Design and construction of diaphragm wall
- Lecture 47 - Empirical relationship between spt and several soil properties
- Lecture 48 - Model studies for a deep water port\_case study

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Ship Resistance and Propulsion

Subject Co-ordinator - Dr. P. Krishnankutty, Prof. V. Anantha Subramanian

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Syllabus and Introduction

Lecture 2 - Seaway Effects on Resistance

Lecture 3 - Ship Types and Powering Aspects

Lecture 4 - Frictional Resistance and Turbulence Stimulation

Lecture 5 - Wave Making Resistance

Lecture 6 - Bulbous Bow on Ship Resistance

Lecture 7 - Air and Wind Resistance Dimensional Analysis - I

Lecture 8 - Dimensional Analysis - II, Model Tests and Ship Resistance Prediction Methods - I

Lecture 9 - Model Tests and Ship Resistance Prediction Methods - II

Lecture 10 - Model Tests and Ship Resistance Prediction Methods - III

Lecture 11 - Resistance in Shallow Water

Lecture 12 - Canal Effects on Resistance Holtrap-Mennen Method for Ship Resistance Prediction

Lecture 13 - Ship Resistance Prediction Methods - I

Lecture 14 - Ship Resistance Prediction Methods - II

Lecture 15 - Resistance of Advanced Marine Vehicles - I

Lecture 16 - Resistance of Advanced Marine Vehicles - II

Lecture 17 - Resistance of Advanced Marine Vehicles - III

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Coastal Engineering

Subject Co-ordinator - Prof. V. Sundar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Wave deformation - I
- Lecture 2 - Wave deformation - II
- Lecture 3 - wave deformation (problems - I)
- Lecture 4 - wave deformation (problems - II)
- Lecture 5 - wave deformation (problems - III)
- Lecture 6 - Sediment charecteristics - I
- Lecture 7 - Sediment charecteristics - II
- Lecture 8 - Radiation stresses - I
- Lecture 9 - Radiation stresses - II
- Lecture 10 - Longshore sediment transport - I
- Lecture 11 - Longshore sediment transport - II
- Lecture 12 - Longshore sediment transport (problems - I)
- Lecture 13 - Longshore sediment transport (problems - II)
- Lecture 14 - Coastal erosion protection measures - I
- Lecture 15 - Coastal erosion protection measures - II
- Lecture 16 - Coastal erosion protection measures - III
- Lecture 17 - Coastal erosion protection measures - IV
- Lecture 18 - Coastal erosion protection measures - V
- Lecture 19 - Coastal erosion protection measures - VI
- Lecture 20 - Coastal erosion protection measures - VII
- Lecture 21 - Coastal erosion protection measures - VIII
- Lecture 22 - Coastal erosion protection measures - IX
- Lecture 23 - Coastal erosion protection measures - X
- Lecture 24 - Cheaper CEP methods - XI
- Lecture 25 - Geosynthetics - I
- Lecture 26 - Geosynthetics - II
- Lecture 27 - Breakwaters - I
- Lecture 28 - Breakwaters - II
- Lecture 29 - Breakwaters - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Breakwaters - IV
- Lecture 31 - Forces on coastal structures - I
- Lecture 32 - Forces on coastal structures - II
- Lecture 33 - Scour under marine structures
- Lecture 34 - Physical modelling of coastal structures - I
- Lecture 35 - Physical modelling of coastal structures - II
- Lecture 36 - Tsunami - I
- Lecture 37 - Tsunami - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Wave Hydrodynamics

Subject Co-ordinator - Prof. V. Sundar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Fluid Dynamics - I
- Lecture 2 - Basic Fluid Dynamics - II
- Lecture 3 - Introduction
- Lecture 4 - Wave Motion - I
- Lecture 5 - Wave Motion - II
- Lecture 6 - Wave Motion - III
- Lecture 7 - Wave Motion Problems
- Lecture 8 - Standing Wave Theory
- Lecture 9 - Wave Deformation - I
- Lecture 10 - Wave Deformation - II
- Lecture 11 - Wave Deformation and Problems
- Lecture 12 - Random Waves
- Lecture 13 - Random Waves and Problems - I
- Lecture 14 - Random Waves and Problems - II
- Lecture 15 - Random Waves and Problems - III
- Lecture 16 - Simulation of Random Waves
- Lecture 17 - Directional waves
- Lecture 18 - Wave Loads on Structures - I
- Lecture 19 - Wave Loads on Structures - II
- Lecture 20 - Wave Loads on Structures and Problems - I
- Lecture 21 - Wave Loads on Structures and Problems - II
- Lecture 22 - Wave loads on Large Boides
- Lecture 23 - Finite Amplitude Wave Theories
- Lecture 24 - Hydrodynamic Testing Facility
- Lecture 25 - Hydrodynamic Testing Facility at IITM

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Ocean Structures and Materials

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and objectives
- Lecture 2 - Fixed type offshore structures
- Lecture 3 - Compliant type offshore structures - I
- Lecture 4 - Compliant type offshore structures - II
- Lecture 5 - Drill ships and basics of drilling
- Lecture 6 - Subsea production systems
- Lecture 7 - Environmental loads - I
- Lecture 8 - Environmental loads - II
- Lecture 9 - Types of coastal structures - I
- Lecture 10 - Types of coastal structures - II
- Lecture 11 - Summary of coastal structures
- Lecture 12 - Tutorials on Module - I
- Lecture 13 - Outline of planning of ocean structures
- Lecture 14 - Introduction to design
- Lecture 15 - Construction techniques
- Lecture 16 - Dredging - I
- Lecture 17 - Dredging - II
- Lecture 18 - Uncertainties in analysis and design
- Lecture 19 - Design adequacy - Example I
- Lecture 20 - Design adequacy - Example II
- Lecture 21 - Dredging equipments' specifications
- Lecture 22 - Ocean Pollution
- Lecture 23 - Foundation and sea bed anchors
- Lecture 24 - Introduction to materials - I
- Lecture 25 - Introduction to materials - II
- Lecture 26 - Concrete in marine environment
- Lecture 27 - Concrete
- Lecture 28 - Repair materials for marine structures
- Lecture 29 - Corrosion in concrete - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Corrosion in concrete - II
- Lecture 31 - Material sin repair and rehabilitation
- Lecture 32 - Materials for special repair
- Lecture 33 - New materials for coastal embankments - I
- Lecture 34 - New materials for coastal embankments - II
- Lecture 35 - Non-destructive testing
- Lecture 36 - Structural health monitoring
- Lecture 37 - Wireless sensor networking
- Lecture 38 - Repair and rehabilitation-Fenders

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Dynamics of Ocean Structures

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to different types of ocean structures - I
- Lecture 2 - Introduction to different types of ocean structures - II
- Lecture 3 - Introduction to different types of ocean structures - III
- Lecture 4 - Types of Compliant towers
- Lecture 5 - New Generation offshore and Coastal structures
- Lecture 6 - Environmental forces
- Lecture 7 - Wave forces, Current
- Lecture 8 - Introduction to Structural dynamics
- Lecture 9 - Characteristics of single degree - of - freedom model
- Lecture 10 - Methods of writing equation of motion
- Lecture 11 - Free and forced vibration of single degree - of - freedom systems
- Lecture 12 - Undamped and damped systems - I
- Lecture 13 - Undamped and damped systems - II
- Lecture 14 - Undamped and damped systems - III
- Lecture 15 - Comparison of methods
- Lecture 16 - Examples
- Lecture 17 - Numerical problems in single degree - of - freedom systems
- Lecture 18 - Two degrees - of - freedom systems
- Lecture 19 - Eigenvalues and Eigenvectors
- Lecture 20 - Orthogonality of modes
- Lecture 21 - Study of Multi degrees - of - freedom systems
- Lecture 22 - Equations of motion
- Lecture 23 - Natural frequencies and mode shapes
- Lecture 24 - Stodla, Rayleigh - Ritz and influence coefficient methods, Dunkerley
- Lecture 25 - Continuous system
- Lecture 26 - Structural action of offshore structures
- Lecture 27 - Fluid - Structure interaction - I
- Lecture 28 - Fluid - Structure interaction - II Dynamic analysis of offshore jacket platforms
- Lecture 29 - Steps of analysis using software

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Steps of analysis using software (Continued...)
- Lecture 31 - Dynamic analysis of articulated towers
- Lecture 32 - Iterative frequency domain - I
- Lecture 33 - Iterative frequency domain - II
- Lecture 34 - Multi - legged articulated towers
- Lecture 35 - Response control of multi-legged articulated towers using tuned mass dampers Experimental and an
- Lecture 36 - Development of Tension Leg Platforms and geometric optimization
- Lecture 37 - Dynamic analyses of TLPs
- Lecture 38 - Development of Mass, stiffness and damping matrices of TLP from first principles
- Lecture 39 - Estimate of classical damping
- Lecture 40 - TLPs under seismic excitation
- Lecture 41 - Direct Integration method
- Lecture 42 - Development of new generation offshore structures
- Lecture 43 - Introduction to stochastic dynamics of ocean structures
- Lecture 44 - Response spectrum
- Lecture 45 - Narrow band process
- Lecture 46 - Return period, Fatigue prediction
- Lecture 47 - Modal response method, Modal mass contribution
- Lecture 48 - Missing mass correction, Example problems
- Lecture 49 - Duhamel's integral

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Advanced Marine Structures

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Scope
- Lecture 2 - Fixed type structures
- Lecture 3 - Compliant type structures
- Lecture 4 - New generation marine structures
- Lecture 5 - Environmental loads - I
- Lecture 6 - Environmental loads - II
- Lecture 7 - Environmental loads - III
- Lecture 8 - Environmental loads - IV
- Lecture 9 - Other loads - I
- Lecture 10 - Other loads - II
- Lecture 11 - Ultimate load design principles - I
- Lecture 12 - Ultimate Limit State - I
- Lecture 13 - Ultimate Limit State - II
- Lecture 14 - Ultimate Limit State - III
- Lecture 15 - Partial safety factor
- Lecture 16 - Plastic design - I
- Lecture 17 - Plastic design - II
- Lecture 18 - Plastic design - III
- Lecture 19 - Plastic design - IV - Example problems - I
- Lecture 20 - Plastic analysis - Example problems - II
- Lecture 21 - Plastic analysis - Example problems - III
- Lecture 22 - Theories of failure - I
- Lecture 23 - Theories of failure - II
- Lecture 24 - Theories of failure - III
- Lecture 25 - Theories of failure - IV
- Lecture 26 - Shear centre - I
- Lecture 27 - Shear centre - II - Examples
- Lecture 28 - Plastic capacity of sections under combined loads - I
- Lecture 29 - Plastic capacity of sections under combined loads - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Impact analysis- fundamentals - I
- Lecture 31 - Impact analysis- fundamentals - II
- Lecture 32 - Ultimate capacity of tubular joints
- Lecture 33 - Fluid structure interaction - I
- Lecture 34 - Fluid structure interaction - II
- Lecture 35 - Fluid induced vibration - I
- Lecture 36 - Fluid induced vibration - II
- Lecture 37 - Flow through perforated members - I
- Lecture 38 - Flow through perforated members - numerical studies - II
- Lecture 39 - Flow through perforated members - III - Analytical studies
- Lecture 40 - Introduction to Reliability - I
- Lecture 41 - Introduction to Reliability - II
- Lecture 42 - Introduction to Reliability - III
- Lecture 43 - Reliability framework in Marine structures
- Lecture 44 - Ultimate Limit state and Reliability approach - I
- Lecture 45 - Ultimate limit state and Reliability approach - II
- Lecture 46 - Levels of Reliability
- Lecture 47 - FOSM and AFOSM methods of Reliability
- Lecture 48 - Fracture and Fatigue
- Lecture 49 - Fatigue failure
- Lecture 50 - Fatigue loading and fatigue analysis
- Lecture 51 - Deterministic fatigue analysis
- Lecture 52 - Spectral fatigue analysis
- Lecture 53 - Stress concentration and fatigue analysis



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Dynamics of Ocean Structures

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Offshore structures
- Lecture 2 - Introduction to Offshore structures (Continued...)
- Lecture 3 - Environmental Loads
- Lecture 4 - Structural action of Ocean structures
- Lecture 5 - Single Degree of Freedom
- Lecture 6 - Equations of Motion
- Lecture 7 - Free Vibration of SDOF systems
- Lecture 8 - Damped and Undamped Forced Vibration
- Lecture 9 - Damped Forced Vibration
- Lecture 10 - Response building
- Lecture 11 - Numerical Example (SDOF)
- Lecture 12 - Numerical Example II
- Lecture 13 - Numerical Example
- Lecture 14 - Numerical Example - MDOF
- Lecture 15 - Numerical Example - Eigen value problems
- Lecture 16 - Orthogonality of modes - MDOF system models
- Lecture 17 - Numerical Methods for MDOF systems
- Lecture 18 - Influence Coefficient Method - MDOF
- Lecture 19 - STODLA Method - MDOF
- Lecture 20 - Stodla Method - Examples
- Lecture 21 - Rayleighs Method
- Lecture 22 - Modal Response Analysis for MDOF
- Lecture 23 - Rayleigh Damping
- Lecture 24 - Caughey Damping
- Lecture 25 - Damping Matrix by Super Positioning Method
- Lecture 26 - Duhamels Integral
- Lecture 27 - Modal superposition and truncation
- Lecture 28 - Modal participation and missing mass corrections
- Lecture 29 - Fluid Structure Interaction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fluid Structure Interaction - II
- Lecture 31 - Retrofitting and Rehabilitation - Application through Dynamics
- Lecture 32 - Drag and Earthquake Forces
- Lecture 33 - Articulated Towers
- Lecture 34 - Fluid Structure Interaction Application in Ocean Structure
- Lecture 35 - Response Control of Compliant Structures (MLAT)
- Lecture 36 - MLATs with Passive Dampers
- Lecture 37 - Tension Leg Platforms
- Lecture 38 - Tension Leg Platforms - II
- Lecture 39 - Fluid Structure Interaction.
- Lecture 40 - Dynamic Analysis of TLPs under Springing and Ringing Waves
- Lecture 41 - Numerical Integration
- Lecture 42 - Dynamic Analysis of Offshore Triceratops
- Lecture 43 - Stochastic Process
- Lecture 44 - Stochastic Process (Continued...)
- Lecture 45 - Response Spectrum - I
- Lecture 46 - Response Spectrum - II
- Lecture 47 - Return Period and Fatigue Damage

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Health, Safety and Environmental Management in Offshore and Petroleum

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Risk and Reliability of offshore structures

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Uncertainties  
Lecture 3 - Uncertainties - II  
Lecture 4 - Probability and Plausibility  
Lecture 5 - Rules of Probability  
Lecture 6 - Plausible Reasoning - I  
Lecture 7 - Plausible Reasoning - Quantitative rules  
Lecture 8 - Quantitative Rules  
Lecture 9 - Probability Distribution  
Lecture 10 - Random Variables  
Lecture 11 - Random Variables - II  
Lecture 12 - Sampling Estimates  
Lecture 13 - Modelling of Environmental Loads  
Lecture 14 - Exercises - I  
Lecture 15 - Introduction  
Lecture 16 - Components of Reliability analysis  
Lecture 17 - Levels of Reliability  
Lecture 18 - Error Estimation  
Lecture 19 - Reliability methods - I  
Lecture 20 - Reliability methods - II  
Lecture 21 - Reliability methods - III  
Lecture 22 - Reliability methods - IV  
Lecture 23 - System Reliability - I  
Lecture 24 - System Reliability - II  
Lecture 25 - System Reliability - III  
Lecture 26 - Failure domains  
Lecture 27 - Failure domains II  
Lecture 28 - Application Problem - I  
Lecture 29 - Application Problem - I (Continued...)

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- Lecture 30 - Application Problem II
- Lecture 31 - Application Problem II (Continued...)
- Lecture 32 - Application Problem II (Continued...)
- Lecture 33 - Risk and Reliability
- Lecture 34 - Reliability analysis of structural systems
- Lecture 35 - Codes on structural reliability
- Lecture 36 - Variables in Reliability analysis
- Lecture 37 - Mechanical models in Reliability analysis
- Lecture 38 - Mechanical modes in Reliability analysis - II
- Lecture 39 - Stochastic Process - I
- Lecture 40 - Stochastic Process - II
- Lecture 41 - Fatigue Reliability
- Lecture 42 - Design SN curve
- Lecture 43 - Simplified Fatigue Assessment
- Lecture 44 - Short term fatigue damage
- Lecture 45 - Behaviour of tubular joints
- Lecture 46 - Tubular Joints - Experimental studies on T-Joints
- Lecture 47 - Risk Assessment
- Lecture 48 - Logical Risk analysis
- Lecture 49 - Risk analysis of Mechanical Systems
- Lecture 50 - FMEA II
- Lecture 51 - Design FMEA for Offshore Triceratops
- Lecture 52 - Fault Tree Analysis
- Lecture 53 - Event Tree Analysis
- Lecture 54 - Consequence Analysis
- Lecture 55 - Risk Acceptability
- Lecture 56 - Risk and Hazard assessment
- Lecture 57 - Risk Picture
- Lecture 58 - Risk Management

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:HSE for offshore and petroleum engineers-Practices

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Drilling Operation and Consequences  
Lecture 3 - Drilling Accidents  
Lecture 4 - Oil Spills  
Lecture 5 - Ecological Monitoring  
Lecture 6 - Pollution Modeling - I  
Lecture 7 - Pollution Modeling - II  
Lecture 8 - Pollution Modeling - III  
Lecture 9 - Hazard Management  
Lecture 10 - Introduction  
Lecture 11 - HSE Practices  
Lecture 12 - Lessons learnt from accidents  
Lecture 13 - HSE guidelines  
Lecture 14 - HSE lessons  
Lecture 15 - Risk Assessment - I  
Lecture 16 - Financing Risk  
Lecture 17 - Financing Risk Example Problem  
Lecture 18 - Risk Assessment and Accident Analysis  
Lecture 19 - Accident analysis  
Lecture 20 - Hazard assessment - I  
Lecture 21 - Hazard Analysis - I  
Lecture 22 - Hazop - I  
Lecture 23 - Hazop - II  
Lecture 24 - Hazop - III  
Lecture 25 - Hazop - IV  
Lecture 26 - Hazop - V  
Lecture 27 - Hazop (Case study)  
Lecture 28 - Accidents in offshore platforms  
Lecture 29 - Hazard Control

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - FMEA
- Lecture 31 - FMEA Example
- Lecture 32 - FMEA Example - II
- Lecture 33 - Excercises
- Lecture 34 - Dose Response Assessment
- Lecture 35 - Flammability characteristics
- Lecture 36 - Flammability diagram
- Lecture 37 - Explosions
- Lecture 38 - Chemical Explosions
- Lecture 39 - Fire and Explosion Prevention - I
- Lecture 40 - Explosion and Prevention
- Lecture 41 - Fire Prevention Practices
- Lecture 42 - Industrial Hygiene control
- Lecture 43 - Chemical Risk Analysis
- Lecture 44 - Chemical Risk Analysis - II
- Lecture 45 - CEI - Examples
- Lecture 46 - QRA Application
- Lecture 47 - Hazard Identification Practices
- Lecture 48 - Risk in Marine Systems - I
- Lecture 49 - Risk in Marine Systems - II
- Lecture 50 - Safety measures in design and operation
- Lecture 51 - Safety measures in design and operation - II
- Lecture 52 - Safety factors for confined spaces - I
- Lecture 53 - Safety practices for confined spaces - II
- Lecture 54 - Safety practices for Fire protection
- Lecture 55 - Process safety management



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Offshore Structures Under Special Loads Including Fire Resistance

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Novelty of fixed platforms
- Lecture 3 - Novelty of compliant platforms
- Lecture 4 - Novelty of floating platforms
- Lecture 5 - New generation offshore platforms - I
- Lecture 6 - New generation offshore platforms - II
- Lecture 7 - Offshore Triceratops
- Lecture 8 - Offshore Regasification platforms
- Lecture 9 - Environmental loads - I
- Lecture 10 - Environmental loads - II
- Lecture 11 - Wind loads
- Lecture 12 - Ice loads - I
- Lecture 13 - Ice loads - II
- Lecture 14 - Response spectrum - I
- Lecture 15 - Response spectrum - II
- Lecture 16 - Uncertainties
- Lecture 17 - Earthquake loads - I
- Lecture 18 - Earthquake loads - II
- Lecture 19 - Earthquake loads - III
- Lecture 20 - General design requirements
- Lecture 21 - Impact and Non-impact wave loads - I
- Lecture 22 - Impact and Non-impact wave loads - II
- Lecture 23 - Unsymmetrical bending - I
- Lecture 24 - Unsymmetrical bending - II
- Lecture 25 - Unsymmetrical bending - III
- Lecture 26 - Shear centre - I
- Lecture 27 - Shear centre - II
- Lecture 28 - Shear centre - III
- Lecture 29 - Shear centre - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Curved beams - I
- Lecture 31 - Curved beams - II
- Lecture 32 - Curved beams - III
- Lecture 33 - Curved beams - IV
- Lecture 34 - Curved beams - V
- Lecture 35 - Rings and chain links - I
- Lecture 36 - Rings and chain links - II
- Lecture 37 - Marine risers
- Lecture 38 - Marine risers under VIM
- Lecture 39 - Fire safety overview
- Lecture 40 - Explosion - I
- Lecture 41 - Explosion and fire protection - I
- Lecture 42 - Explosion and fire protection - II
- Lecture 43 - Blast Resistance - I
- Lecture 44 - Blast Resistance - II
- Lecture 45 - Blast Resistance - III
- Lecture 46 - Blast Resistance - IV
- Lecture 47 - Material Strength - I
- Lecture 48 - Material Strength - II
- Lecture 49 - Material Strength - III
- Lecture 50 - Fire resistant design overview
- Lecture 51 - Types of fire
- Lecture 52 - Design Approach - I
- Lecture 53 - Design Approach - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Computer Methods Of Structural Analysis of Offshore Structures

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to structural analysis - Part 1
- Lecture 2 - Introduction to structural analysis - Part 2
- Lecture 3 - System of linear equations - Part 1
- Lecture 4 - System of linear equations - Part 2
- Lecture 5 - Matrices - Part 1
- Lecture 6 - Matrices - Part 2
- Lecture 7 - Beam Element 1 - Part 1
- Lecture 8 - Beam Element 1 - Part 2
- Lecture 9 - Beam Element 2 - Part 1
- Lecture 10 - Beam Element 2 - Part 2
- Lecture 11 - Stiffness matrix of beam element - Part 1
- Lecture 12 - Stiffness matrix of beam element - Part 2
- Lecture 13 - Stiffness method of analysis of planar orthogonal structures - Part 1
- Lecture 14 - Stiffness method of analysis of planar orthogonal structures - Part 2
- Lecture 15 - Example on continuous beam - Part 1
- Lecture 16 - Example on continuous beam - Part 2
- Lecture 17 - Example - II - Part 1
- Lecture 18 - Example - II - Part 2
- Lecture 19 - Example - II (Continued...)
- Lecture 20 - Example - III - Part 1
- Lecture 21 - Example - III - Part 2
- Lecture 22 - Planar non-orthogonal frame - Part 1
- Lecture 23 - Planar non-orthogonal frame - Part 2
- Lecture 24 - Non-orthogonal structures - II
- Lecture 25 - Planar non-orthogonal frame
- Lecture 26 - Non-orthogonal structures - III - Part 1
- Lecture 27 - Non-orthogonal structures - III - Part 2
- Lecture 28 - Example problem
- Lecture 29 - Example problem

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Planar non-orthogonal frame using computer code - Part 1
- Lecture 31 - Planar non-orthogonal frame using computer code - Part 2
- Lecture 32 - Planar non-orthogonal frame - Example 3 - Part 1
- Lecture 33 - Planar non-orthogonal frame - Example 3 - Part 2
- Lecture 34 - Planar truss system
- Lecture 35 - Planar truss system examples - Part 1
- Lecture 36 - Planar truss system examples - Part 2
- Lecture 37 - 3D structures - analysis by stiffness method - Part 1
- Lecture 38 - 3D structures - analysis by stiffness method - Part 2
- Lecture 39 - 3D structures - transformation matrix - Part 1
- Lecture 40 - 3D structures - transformation matrix - Part 2
- Lecture 41 - Y-Z-X transformation for 3d analysis
- Lecture 42 - Z-Y-X transformation for 3d analysis - Part 1
- Lecture 43 - Z-Y-X transformation for 3d analysis - Part 2
- Lecture 44 - Analysis of space frames - Example 1 - Part 1
- Lecture 45 - Analysis of space frames - Example 1 - Part 2
- Lecture 46 - Analysis of space frames - Example 1 - Part 3
- Lecture 47 - Analysis of space frame structures
- Lecture 48 - 3d analysis of space frames - Example 1 - Part 1
- Lecture 49 - 3d analysis of space frames - Example 1 - Part 2
- Lecture 50 - 3d analysis - Example 2 - Part 1
- Lecture 51 - 3d analysis - Example 2 - Part 2
- Lecture 52 - 3d truss analysis
- Lecture 53 - Special elements
- Lecture 54 - Non-prismatic members - Part 1
- Lecture 55 - Non-prismatic members - Part 2
- Lecture 56 - Offshore structures - 1 - Part 1
- Lecture 57 - Offshore structures - 1 - Part 2
- Lecture 58 - Offshore structures - 2 - Part 1
- Lecture 59 - Offshore structures - 2 - Part 2
- Lecture 60 - Offshore structures - 3 - Part 1
- Lecture 61 - Offshore structures - 3 - Part 2
- Lecture 62 - Offshore compliant structures - 1 - Part 1
- Lecture 63 - Offshore compliant structures - 1 - Part 2
- Lecture 64 - Offshore compliant structures - 2 - Part 1
- Lecture 65 - Offshore compliant structures - 2 - Part 2
- Lecture 66 - New generation platforms - Part 1
- Lecture 67 - New generation platforms - Part 2
- Lecture 68 - Environmental loads - 1 - Part 1

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Environmental loads - 1 - Part 2
- Lecture 70 - Wave spectra - Part 1
- Lecture 71 - Wave spectra - Part 2
- Lecture 72 - Wind loads - Part 1
- Lecture 73 - Wind loads - Part 2
- Lecture 74 - Wind loads - 2 - Part 1
- Lecture 75 - Wind loads - 2 - Part 2
- Lecture 76 - Ice load and Earthquake load - Part 1
- Lecture 77 - Ice load and Earthquake load - Part 2
- Lecture 78 - Dynamic analysis - 1 - Part 1
- Lecture 79 - Dynamic analysis - 1 - Part 2
- Lecture 80 - Dynamic analysis - 2 - Part 1
- Lecture 81 - Dynamic analysis - 2 - Part 2
- Lecture 82 - Dynamic analysis - 3 - Part 1
- Lecture 83 - Dynamic analysis - 3 - Part 2
- Lecture 84 - Computer methods of dynamic analysis - Part 1
- Lecture 85 - Computer methods of dynamic analysis - Part 2
- Lecture 86 - Damping estimate - Part 1
- Lecture 87 - Damping estimate - Part 2
- Lecture 88 - Damping estimate - 2 - Part 1
- Lecture 89 - Damping estimate - 2 - Part 2
- Lecture 90 - Newmark's method - Part 1
- Lecture 91 - Newmark's method - Part 2
- Lecture 92 - Articulated towers - Part 1
- Lecture 93 - Articulated towers - Part 2
- Lecture 94 - Tension leg platforms - Part 1
- Lecture 95 - Tension leg platforms - Part 2
- Lecture 96 - Tension leg platforms - 2 - Part 1
- Lecture 97 - Tension leg platforms - 2 - Part 2
- Lecture 98 - New generation offshore structures - Part 1
- Lecture 99 - New generation offshore structures - Part 2
- Lecture 100 - Triceratops-2 - Part 1
- Lecture 101 - Triceratops-2 - Part 2
- Lecture 102 - Random process - 1 - Part 1
- Lecture 103 - Random process - 1 - Part 2
- Lecture 104 - Random process - 2 - Part 1
- Lecture 105 - Random process - 2 - Part 2
- Lecture 106 - Response spectrum - Part 1
- Lecture 107 - Response spectrum - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Return period and Stochastic process - Part 1
- Lecture 109 - Return period and Stochastic process - Part 2
- Lecture 110 - Stochastic modelling - Part 1
- Lecture 111 - Stochastic modelling - Part 2
- Lecture 112 - Fatigue damage - 1 - Part 1
- Lecture 113 - Fatigue damage - 1 - Part 2
- Lecture 114 - Fatigue damage - 2 - Part 1
- Lecture 115 - Fatigue damage - 2 - Part 2
- Lecture 116 - Fatigue estimate of offshore platform - Part 1
- Lecture 117 - Fatigue estimate of offshore platform - Part 2
- Lecture 118 - Live Session

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Structural Health Monitoring

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to SHM - Part 1
- Lecture 2 - Introduction to SHM - Part 2
- Lecture 3 - Necessity of SHM - Part 1
- Lecture 4 - Necessity of SHM - Part 2
- Lecture 5 - Components of SHM - Part 1
- Lecture 6 - Components of SHM - Part 2
- Lecture 7 - Challenges in SHM - Part 1
- Lecture 8 - Challenges in SHM - Part 2
- Lecture 9 - Advantages of SHM - Part 1
- Lecture 10 - Advantages of SHM - Part 2
- Lecture 11 - Components of SHM process - Part 1
- Lecture 12 - Components of SHM process - Part 2
- Lecture 13 - SHM issues applied to concrete structures - Part 1
- Lecture 14 - SHM issues applied to concrete structures - Part 2
- Lecture 15 - Level of uncertainties in SHM process - Part 1
- Lecture 16 - Level of uncertainties in SHM process - Part 2
- Lecture 17 - Short term and long term Structural Health Monitoring (SHM) - Part 1
- Lecture 18 - Short term and long term Structural Health Monitoring (SHM) - Part 2
- Lecture 19 - Local and Global Health Monitoring
- Lecture 20 - Data Evaluation and Assessment
- Lecture 21 - Estimation of Structural Health i.e. Structural Health Monitoring (SHM)
- Lecture 22 - Estimation of Structural Health using Static SHM
- Lecture 23 - Structural Health Monitoring (SHM) Planning and Management - Part 1
- Lecture 24 - Structural Health Monitoring (SHM) Planning and Management - Part 2
- Lecture 25 - Vibration based health monitoring scheme - Part 1
- Lecture 26 - Vibration based health monitoring scheme - Part 2
- Lecture 27 - Structural Health monitoring methods
- Lecture 28 - Structural Health monitoring methods
- Lecture 29 - Damage identification using lumped mass and Element modal stiffness - Part 1

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Damage identification using lumped mass and Element modal stiffness - Part 2
- Lecture 31 - Damage identification by visual Inspection method - Part 1
- Lecture 32 - Damage identification by visual Inspection method - Part 2
- Lecture 33 - Various vibration based method in SHM-1 - Part 1
- Lecture 34 - Various vibration based method in SHM-1 - Part 2
- Lecture 35 - Comparison of Damage Detection Method - II
- Lecture 36 - Damage Detection Method - II
- Lecture 37 - Structural Health Monitoring (SHM) and Statistical Pattern Recognition (SPR)
- Lecture 38 - Long term SHM (Structural Health Monitoring)
- Lecture 39 - Non-Destructive evaluation - I - Part 1
- Lecture 40 - Non-Destructive evaluation - I - Part 2
- Lecture 41 - Non-Destructive evaluation - II
- Lecture 42 - Non-Destructive evaluation - III
- Lecture 43 - Crack detection in Composites
- Lecture 44 - Various sensor technologies - Part 1
- Lecture 45 - Various sensor technologies - Part 2
- Lecture 46 - Fibre Optic sensors - Part 1
- Lecture 47 - Fibre Optic sensors - Part 2
- Lecture 48 - Smart sensing for SHM - Part 1
- Lecture 49 - Smart sensing for SHM - Part 2
- Lecture 50 - Sensing requirements in special structures
- Lecture 51 - The sensor requirements and Data acquisition - Part 1
- Lecture 52 - The sensor requirements and Data acquisition - Part 2
- Lecture 53 - Acquisition system and Networking for SHM - Part 1
- Lecture 54 - Acquisition system and Networking for SHM - Part 2
- Lecture 55 - Wireless Sensor Networking (WSN) - Part 1
- Lecture 56 - Wireless Sensor Networking (WSN) - Part 2
- Lecture 57 - SHM layout design of offshore structures
- Lecture 58 - Vibration Based damage detection
- Lecture 59 - SHM design - Part 1
- Lecture 60 - SHM design - Part 2
- Lecture 61 - Artificial Intelligence (AI) in structural health monitoring (SHM)
- Lecture 62 - Plausibility of errors in SHM
- Lecture 63 - Artificial Neural Network (ANN) in the SHM process.
- Lecture 64 - Damage detection
- Lecture 65 - Application of SHM in Infrastructure Engineering - Part 1
- Lecture 66 - Application of SHM in Infrastructure Engineering - Part 2
- Lecture 67 - Design of sensor layout for SHM - Part 1
- Lecture 68 - Design of sensor layout for SHM - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - SHM applied to BSLRP - Part 1
- Lecture 70 - SHM applied to BSLRP - Part 2
- Lecture 71 - SHM design for BSLRP - Part 1
- Lecture 72 - SHM design for BSLRP - Part 2
- Lecture 73 - SHM design-2 for BSLRP - Part 1
- Lecture 74 - SHM design-2 for BSLRP - Part 2
- Lecture 75 - SHM design by experimental investigations for lab scale model of TLP-I - Part 1
- Lecture 76 - SHM design by experimental investigations for lab scale model of TLP-I - Part 2
- Lecture 77 - SHM design by experimental investigations for lab scale model of TLP-II - Part 1
- Lecture 78 - SHM design by experimental investigations for lab scale model of TLP-II - Part 2
- Lecture 79 - Structural Health Monitoring (SHM) of lab scale model of TLP-III - Part 1
- Lecture 80 - Structural Health Monitoring (SHM) of lab scale model of TLP-III - Part 2
- Lecture 81 - Structural Health Monitoring (SHM) of lab scale model of TLP-IV - Part 1
- Lecture 82 - Structural Health Monitoring (SHM) of lab scale model of TLP-IV - Part 2
- Lecture 83 - Future Scope of SHM - Part 1
- Lecture 84 - Future Scope of SHM - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Electromagnetic Theory (Prof. D.K. Ghosh)

Subject Co-ordinator - Prof. D.K. Ghosh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Scalar field and its Gradient  
Lecture 2 - Line and Surface Integrals  
Lecture 3 - Divergence and Curl of Vector Fields  
Lecture 4 - Conservative Field, Stoke's Theorem  
Lecture 5 - Laplacian  
Lecture 6 - Electric Field Potential  
Lecture 7 - Gauss's Law, Potential  
Lecture 8 - Electric Field and Potential  
Lecture 9 - Potential and Potential Energy - I  
Lecture 10 - Potential and Potential Energy - II  
Lecture 11 - Potential and Potential Energy - III  
Lecture 12 - Coefficients of Potential and Capacitance  
Lecture 13 - Poission and Laplace Equation  
Lecture 14 - Solutions of Laplace Equation - I  
Lecture 15 - Solutions of Laplace Equation - II  
Lecture 16 - Solutions of Laplace Equation - III  
Lecture 17 - Special Techniques - I  
Lecture 18 - Special Techniques - II  
Lecture 19 - Special Techniques - III  
Lecture 20 - Dielectrics - I  
Lecture 21 - Dielectrics - II  
Lecture 22 - Dielectrics - III  
Lecture 23 - Equation of Continuity  
Lecture 24 - a) Force between current loops b) Magnetic Vector Potential  
Lecture 25 - Magnetic Vector Potential  
Lecture 26 - Boundary Conditions  
Lecture 27 - Magnetized Material  
Lecture 28 - Magentostatics (Continued...), Time Varying Field (Introduction)  
Lecture 29 - Faraday's Law and Inductance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Maxwell's Equations
- Lecture 31 - Maxwell's Equations and Conservation Laws
- Lecture 32 - Conservation Laws
- Lecture 33 - a) Angular Momentum Conservation b) Electromagnetic Waves
- Lecture 34 - Electromagnetic Waves
- Lecture 35 - Propagation of Electromagnetic Waves in a metal
- Lecture 36 - Waveguides - I
- Lecture 37 - Waveguides - II
- Lecture 38 - Resonating Cavity
- Lecture 39 - Radiation - I
- Lecture 40 - Radiation - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Special Theory of Relativity

Subject Co-ordinator - Prof. Shiva Prasad

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Problem with Classical Physics

Lecture 2 - Michelson-Morley Experiment

Lecture 3 - Postulates of Special Theory of Relativity and Galilean Transformation

Lecture 4 - Look out for a New Transformation

Lecture 5 - Lorentz Transformation

Lecture 6 - Length Contraction and Time Dilation

Lecture 7 - Examples of Length Contraction and Time Dilation

Lecture 8 - Velocity Transformation and Examples

Lecture 9 - A Three Event Problem

Lecture 10 - A Problem involving Light and Concept of Casuality

Lecture 11 - Problems involving Casuality and Need to Redefine Momentum

Lecture 12 - Minkowski Space and Four Vectors

Lecture 13 - Proper Time a Four Scalar

Lecture 14 - Velocity Four Vector

Lecture 15 - Momentum Energy Four Vector

Lecture 16 - Relook at Collision Problems

Lecture 17 - Zero Rest Mass Particle and Photon

Lecture 18 - Doppler Effect in Light

Lecture 19 - Example in C-Frame

Lecture 20 - Force in Relativity

Lecture 21 - Force Four-Vector

Lecture 22 - Electric & Magnetic Field Transformation

Lecture 23 - Example of EM Field Transformation

Lecture 24 - Current Density Four Vector and Maxwell Equation

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Quantum Information and Computing

Subject Co-ordinator - Prof.Dipan Ghosh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Why Quantum Computing?
- Lecture 2 - Postulates of Quantum Mechanics - I
- Lecture 3 - Postulates of Quantum Mechanics - II
- Lecture 4 - Qubit - The smallest unit
- Lecture 5 - Qubit - Bloch sphere representation
- Lecture 6 - Multiple Qubit States and Quantum Gates
- Lecture 7 - Quantum Gates
- Lecture 8 - Quantum Circuits
- Lecture 9 - No-Cloning Theorem and Quantum Teleportation
- Lecture 10 - Super Dense Coding
- Lecture 11 - Density Matrix - I
- Lecture 12 - Density Matrix - II
- Lecture 13 - Bloch Sphere and Density Matrix
- Lecture 14 - Measurement Postulates - I
- Lecture 15 - Measurement Postulates - II
- Lecture 16 - Simple Algorithms-Deutsch Algorithm
- Lecture 17 - Deutsch-Josza and Bernstein - Vazirani Algorithms
- Lecture 18 - Simon Problem
- Lecture 19 - Grover's Search Algorithm - I
- Lecture 20 - Grover's Search Algorithm - II
- Lecture 21 - Grover's Search Algorithm - III
- Lecture 22 - Grover's Search Algorithm - IV
- Lecture 23 - Quantum Fourier Transform
- Lecture 24 - Period Finding and QFT
- Lecture 25 - Implementing QFT
- Lecture 26 - Implementing QFT-3 qubits (and more)
- Lecture 27 - Shor's Factorization Algorithm
- Lecture 28 - Shor's Factorization Algorithm-Implementation
- Lecture 29 - Shor's Algorithm-Continued Fraction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quantum Error Correction - I
- Lecture 31 - Quantum Error Correction - II Three Qubit Code
- Lecture 32 - Quantum Error Correction - III Shor's 9 Qubit Code - I
- Lecture 33 - Quantum Error Correction - IV Shor's 9 Qubit Code - II
- Lecture 34 - Classical Information Theory
- Lecture 35 - Shannon Entropy
- Lecture 36 - Shannon's Noiseless Coding Theorem
- Lecture 37 - Von Neumann Entropy
- Lecture 38 - EPR and Bell's Inequalities - I
- Lecture 39 - EPR and Bell's Inequalities - II
- Lecture 40 - EPR and Bell's Inequalities - III
- Lecture 41 - Cryptography-RSA Algorithm - I
- Lecture 42 - Cryptography-RSA Algorithm - II
- Lecture 43 - Quantum Cryptography - I
- Lecture 44 - Quantum Cryptography - II
- Lecture 45 - Experimental Aspects of Quantum Computing - I
- Lecture 46 - Experimental Aspects of Quantum Computing - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Theory of Groups for Physics Applications

Subject Co-ordinator - Prof. Urjit A. Yajnik

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Algebraic Preliminaries
- Lecture 3 - Basic Group Concepts and Low Order Groups - I
- Lecture 4 - Basic Group Concepts and Low Order Groups - II
- Lecture 5 - Lagrange's Theorem and Cayley's Theorem - I
- Lecture 6 - Lagrange's Theorem and Cayley's Theorem - II
- Lecture 7 - Factor Group Conjugacy Classes - I
- Lecture 8 - Factor Group Conjugacy Classes - II
- Lecture 9 - Cycle Structures and Molecular Notation - I
- Lecture 10 - Cycle Structures and Molecular Notation - II
- Lecture 11 - Cycle Structures and Classification - I
- Lecture 12 - Cycle Structures and Classification - II
- Lecture 13 - Point Group Notation and Factor Group - I
- Lecture 14 - Point Group Notation and Factor Group - II
- Lecture 15 - Representation Theory - I
- Lecture 16 - Representation Theory - II
- Lecture 17 - Representation Theory - III
- Lecture 18 - Representation Theory - IV
- Lecture 19 - Schur's Lemma and Orthogonality Theorem - I
- Lecture 20 - Schur's Lemma and Orthogonality Theorem - II
- Lecture 21 - Orthogonality For Characters - I
- Lecture 22 - Orthogonality For Characters - II
- Lecture 23 - Character Tables and Molecular Applications - I
- Lecture 24 - Character Tables and Molecular Applications - II
- Lecture 25 - Preliminaries About The Continuum - I
- Lecture 26 - Preliminaries About The Continuum - II
- Lecture 27 - Classical Groups - I
- Lecture 28 - Classical Groups - II
- Lecture 29 - Classical Groups-Topology - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Classical Groups-Topology - II
- Lecture 31 -  $SO(3)$  And Matrix Exponent - I
- Lecture 32 -  $SO(3)$  And Matrix Exponent - II
- Lecture 33 - Generators, Discussion Of Lie's Theorems - I
- Lecture 34 - Generators, Discussion Of Lie's Theorems - II
- Lecture 35 - Group Algebras;  $SO(3)$ - $SU(2)$  Correspondence - I
- Lecture 36 - Group Algebras;  $SO(3)$ - $SU(2)$  Correspondence - II
- Lecture 37 -  $SO(3)$ ,  $SU(2)$  Representations - I
- Lecture 38 -  $SO(3)$ ,  $SU(2)$  Representations - II
- Lecture 39 - Representation On Function Spaces - I
- Lecture 40 - Representation On Function Spaces - II
- Lecture 41 - Lorentz Boosts,  $SO(3,1)$  Algebra - I
- Lecture 42 - Lorentz Boosts,  $SO(3,1)$  Algebra - II
- Lecture 43 - Representation Of Lorentz Group And Clifford Algebra - I
- Lecture 44 - Representation Of Lorentz Group And Clifford Algebra - II
- Lecture 45 -  $SU(3)$  And Lie's Classification - I
- Lecture 46 -  $SU(3)$  And Lie's Classification - II
- Lecture 47 - Fundamental Symmetries Of Physics - I
- Lecture 48 - Fundamental Symmetries Of Physics - II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Electronics

Subject Co-ordinator - Prof. D.C. Dube

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - p-n diode
- Lecture 2 - p-n Junction/Diode (Continued...)
- Lecture 3 - p-n diode (Continued...)
- Lecture 4 - Diode Application
- Lecture 5 - Transistors
- Lecture 6 - Reverse - bias (Continued...)
- Lecture 7 - Transistors (Continued...)
- Lecture 8 - Transistors (Continued...)
- Lecture 9 - Biasing a transistor unit 2 (Continued...)
- Lecture 10 - Biasing of transistor
- Lecture 11 - H and R Parameters and their use in small amplifiers
- Lecture 12 - Small signal amplifiers analysis using H - Parameters
- Lecture 13 - Small signal amplifiers analysis using R - Parameters
- Lecture 14 - R - analysis (Continued...)
- Lecture 15 - Common Collector(CC) amplifier (Continued...)
- Lecture 16 - Feedback in amplifiers, Feedback Configurations and multi stage amplifiers
- Lecture 17 - Reduction in non-linear distortion
- Lecture 18 - Input/Output impedances in negative feedback amplifiers (Continued...)
- Lecture 19 - RC Coupled Amplifiers
- Lecture 20 - RC Coupled Amplifiers (Continued...)
- Lecture 21 - RC Coupled Amplifiers (Continued...)
- Lecture 22 - FETs ans MOSFET
- Lecture 23 - FETs ans MOSFET (Continued...)
- Lecture 24 - Depletion - MOSFET
- Lecture 25 - Drain and transfer characteristic of E - MOSFET
- Lecture 26 - Self Bias (Continued...) Design Procedure
- Lecture 27 - FET/MOSFET Amplifiers and their Analysis
- Lecture 28 - CMOS Inverter
- Lecture 29 - CMOS Inverter (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Power Amplifier
- Lecture 31 - Power Amplifier (Continued...)
- Lecture 32 - Power Amplifier (Continued...)
- Lecture 33 - Power Amplifier (Continued...)
- Lecture 34 - Differential and Operational Amplifier
- Lecture 35 - Differential and Operational Amplifier (Continued...) dc and ac analysis
- Lecture 36 - Differential and Operational Amplifier dc and ac analysis (Continued...)
- Lecture 37 - Operational Amplifiers
- Lecture 38 - Operational amplifiers in open loop (Continued...)
- Lecture 39 - Summing Amplifiers
- Lecture 40 - Frequency response of an integration
- Lecture 41 - Filters
- Lecture 42 - Specification of OP Amplifiers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Plasma Physics: Fundamentals and Applications

Subject Co-ordinator - Prof. Vijayshri, Prof. V.K. Tripathi

Co-ordinating Institute - IIT - Delhi | IGNOU - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Plasmas
- Lecture 2 - Plasma Response to fields
- Lecture 3 - DC Conductivity and Negative Differential Conductivity
- Lecture 4 - RF Conductivity of Plasma
- Lecture 5 - RF Conductivity of Plasma (Continued...)
- Lecture 6 - Hall Effect, Cowling Effect and Cyclotron Resonance Heating
- Lecture 7 - Electromagnetic Wave Propagation in Plasma
- Lecture 8 - Electromagnetic Wave Propagation in Plasma (Continued...)
- Lecture 9 - Electromagnetic Wave Propagation Inhomogeneous Plasma
- Lecture 10 - Electrostatic Waves in Plasmas
- Lecture 11 - Energy Flow with an Electrostatic Wave
- Lecture 12 - Two Stream Instability
- Lecture 13 - Relativistic electron Beam- Plasma Interaction
- Lecture 14 - Cerenkov Free Electron Laser
- Lecture 15 - Free Electron Laser
- Lecture 16 - Free Electron Laser
- Lecture 17 - Free Electron Laser
- Lecture 18 - Weibel Instability
- Lecture 19 - Rayleigh Taylor Instability
- Lecture 20 - Single Particle Motion in Static Magnetic and Electric Fields
- Lecture 21 - Plasma Physics Grad B and Curvature Drifts
- Lecture 22 - Adiabatic Invariance of Magnetic Moment and Mirror confinement
- Lecture 23 - Mirror machine
- Lecture 24 - Thermonuclear fusion
- Lecture 25 - Tokamak
- Lecture 26 - Tokamak operation
- Lecture 27 - Auxiliary heating and current drive in tokamak
- Lecture 28 - Electromagnetic waves propagation in magnetise plasma
- Lecture 29 - Longitudinal electromagnetic wave propagation cutoffs, resonances and faraday rotation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electromagnetic propagation at oblique angles to magnetic field in a plasma
- Lecture 31 - Low frequency EM waves magnetized plasma
- Lecture 32 - Electrostatic waves in magnetized plasma
- Lecture 33 - Ion acoustic, ion cyclotron and magneto sonic waves in magnetized plasma
- Lecture 34 - Vlasov theory of plasma waves
- Lecture 35 - Landau damping and growth of waves
- Lecture 36 - Landau damping and growth of waves (Continued...)
- Lecture 37 - Anomalous resistivity in a plasma
- Lecture 38 - Diffusion in plasma
- Lecture 39 - Diffusion in magnetized plasma
- Lecture 40 - Surface plasma wave
- Lecture 41 - Laser interaction with plasmas embedded with clusters
- Lecture 42 - Current trends and epilogue

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Quantum Electronics

Subject Co-ordinator - Prof. K. Thyagarajan

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Anisotropic Media  
Lecture 3 - Anisotropic Media (Continued...)  
Lecture 4 - Anisotropic Media (Continued...)  
Lecture 5 - Nonlinear optical effects and nonlinear polarization  
Lecture 6 - Non - Linear Optics (Continued...)  
Lecture 7 - Non - Linear Optics (Continued...)  
Lecture 8 - Non - Linear Optics (Continued...)  
Lecture 9 - Non - Linear Optics (Continued...)  
Lecture 10 - Non - Linear Optics - Quasi Phase Matching  
Lecture 11 - Non - Linear Optics  
Lecture 12 - Non Linear Optics (Continued...)  
Lecture 13 - Non Linear Optics (Continued...)  
Lecture 14 - Non Linear Optics (Continued...)  
Lecture 15 - Non Linear Optics (Continued...)  
Lecture 16 - Non Linear Optics (Continued...)  
Lecture 17 - Non Linear Optics (Continued...)  
Lecture 18 - Non Linear Optics (Continued...)  
Lecture 19 - Non Linear Optics (Continued...)  
Lecture 20 - Third Order Non - Linear Effects  
Lecture 21 - Third Order Non - Linear Effects (Continued...)  
Lecture 22 - Third Order Non - Linear Effects (Continued...)  
Lecture 23 - Third Order Non - Linear Effects (Continued...)  
Lecture 24 - Review of Quantum Mechanics  
Lecture 25 - Review of Quantum Mechanics (Continued...)  
Lecture 26 - Review of Quantum Mechanics (Continued...)  
Lecture 27 - Quantization of EM Field  
Lecture 28 - Quantization of EM Field (Continued...)  
Lecture 29 - Quantization of EM Field (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quantum States of EM Field
- Lecture 31 - Quantum States of EM Field (Continued...)
- Lecture 32 - Quantization of EM Field (Continued...)
- Lecture 33 - Quantization of EM Field (Continued...)
- Lecture 34 - Quantization of EM Field (Continued...)
- Lecture 35 - Quantization of EM Field (Continued...)
- Lecture 36 - Quantization of EM Field (Continued...)
- Lecture 37 - Beam Splitter
- Lecture 38 - Beam Splitter (Continued...)
- Lecture 39 - Beam Splitter and Balanced Homodyning
- Lecture 40 - Balanced Homodyning
- Lecture 41 - Quantum Picture of Parametric Down Conversion
- Lecture 42 - Questions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Quantum Mechanics and Applications

Subject Co-ordinator - Prof. Ajoy Ghatak

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Quantum Mechanics I
- Lecture 2 - Basic Quantum Mechanics II
- Lecture 3 - Dirac Delta Function & Fourier Transforms
- Lecture 4 - The Free Particle
- Lecture 5 - Physical Interpretation of The Wave Function
- Lecture 6 - Expectation Values & The Uncertainty Principle
- Lecture 7 - The Free Particle (Continued...)
- Lecture 8 - Interference Experiment & The Particle in a Box Problem
- Lecture 9 - On Eigen Values and Eigen Functions of the 1 Dimensional Schrodinger Equation
- Lecture 10 - Linear Harmonic Oscillator
- Lecture 11 - Linear Harmonic Oscillator (Continued...1)
- Lecture 12 - Linear Harmonic Oscillator (Continued...2)
- Lecture 13 - Linear Harmonic Oscillator (Continued...3)
- Lecture 14 - Tunneling through a Barrier
- Lecture 15 - The 1-Dimensional Potential Wall & Particle in a Box
- Lecture 16 - Particle in a Box and Density of States
- Lecture 17 - The Angular Momentum Problem
- Lecture 18 - The Angular Momentum Problem (Continued...)
- Lecture 19 - The Hydrogen Atom Problem
- Lecture 20 - The Two Body Problem
- Lecture 21 - TheTwo Body Problem
- Lecture 22 - Two Body Problem
- Lecture 23 - 3d Oscillator & Dirac's Bra and Ket Algebra
- Lecture 24 - Dirac's Bra and Ket Algebra
- Lecture 25 - Dirac's Bra and Ket Algebra
- Lecture 26 - The Linear Harmonic Oscillator using Bra and Ket Algebra (Continued...)
- Lecture 27 - The Linear Harmonic Oscillator
- Lecture 28 - Coherent State and Relationship with the Classical Oscillator
- Lecture 29 - Angular Momentum Problem using Operator Algebra

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Angular Momentum Problem (Continued...)
- Lecture 31 - Pauli Spin Matrices and The Stern Gerlach Experiment
- Lecture 32 - The Larmor Precession and NMR Spherical Harmonics using Operator Algebra
- Lecture 33 - Addition of Angular Momentum
- Lecture 34 - Clebsch Gordon Coefficients
- Lecture 35 - The JWKB Approximation
- Lecture 36 - The JWKB Approximation
- Lecture 37 - The JWKB Approximation
- Lecture 38 - The JWKB Approximation
- Lecture 39 - The JWKB Approximation
- Lecture 40 - Time Independent Perturbation Theory
- Lecture 41 - Time Independent Perturbation Theory (Continued...1)
- Lecture 42 - Time Independent Perturbation Theory (Continued...2)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Semiconductor Optoelectronics

Subject Co-ordinator - Prof. M.R. Shenoy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Context and Scope of the Course

Lecture 2 - Energy Bands in Solids

Lecture 3 - E-K Diagram

Lecture 4 - The Density of States

Lecture 5 - The Density of States (Continued...)

Lecture 6 - The Density of states in a Quantum well Structure

Lecture 7 - Occupation Probability and Carrier Concentration

Lecture 8 - Carrier Concentration and Fermi Level

Lecture 9 - Quasi Fermi Levels

Lecture 10 - Semiconductor Materials

Lecture 11 - Semiconductor Hetrostructures-Lattice-Matched Layers

Lecture 12 - Strained -Layer Epitaxy and Quantum Well Structures

Lecture 13 - Bandgap Engineering

Lecture 14 - Hetrostructure p-n junctions

Lecture 15 - Schottky Junction and Ohmic Contacts

Lecture 16 - Fabrication of Heterostructure Devices

Lecture 17 - Interaction of Photons with Electrons and Holes in a Semiconductor

Lecture 18 - Optical Joint Density of States

Lecture 19 - Rates of Emission and Absorption

Lecture 20 - Amplification by Stimulated Emission

Lecture 21 - The Semiconductor (Laser) Amplifier

Lecture 22 - Absorption Spectrum of Semiconductor

Lecture 23 - Gain and Absorption Spectrum of Quantum Well Structures

Lecture 24 - Electro-absorption Modulator

Lecture 25 - Electro-absorption Modulator - II Device Configuration

Lecture 26 - Mid-Term Revision Question and Discussion

Lecture 27 - Part - III Semiconductor Light Sources

Lecture 28 - Light Emitting Diode-I Device Structure and Parameters

Lecture 29 - Light Emitting Diode-II Device Characteristics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Light Emitting Diode-III Output Characteristics
- Lecture 31 - Light Emitting Diode-IV Modulation Bandwidth
- Lecture 32 - Light Emitting Diode-V materials and Applications
- Lecture 33 - Laser Basics
- Lecture 34 - Semiconductor Laser-I Device Structure
- Lecture 35 - Semiconductor Laser-II Output Characteristics
- Lecture 36 - Semiconductor Laser-III Single Frequency Lasers
- Lecture 37 - Vertical Cavity Surface Emitting Laser (VCSEL)
- Lecture 38 - Quantum Well Laser
- Lecture 39 - Practical Laser Diodes and Handling
- Lecture 40 - General Characteristics of Photodetectors
- Lecture 41 - Responsivity and Impulse Response
- Lecture 42 - Photoconductors
- Lecture 43 - Semiconductor Photo-Diodes
- Lecture 44 - Semiconductor Photo-Diodes-II
- Lecture 45 - Other Photodectors
- Lecture 46 - Photonic Integrated Circuits

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Semiconductor Optoelectronics

Subject Co-ordinator - Prof. M. R. Shenoy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Context, Scope and Contents of the Course
- Lecture 2 - Energy Bands in Solids
- Lecture 3 - E-k Diagram - The Band Structure
- Lecture 4 - The Density of States
- Lecture 5 - The Density of States  $\rho(k)$ ,  $\rho(E)$
- Lecture 6 - Density of States in a Quantum Well Structure
- Lecture 7 - Occupation Probability and Carrier Concentration
- Lecture 8 - Carrier Concentration and Fermi Level
- Lecture 9 - Quasi Fermi Levels
- Lecture 10 - Semiconductor Materials
- Lecture 11 - Semiconductor Heterostructures-Lattice-Matched Layers
- Lecture 12 - Strained-Layer Epitaxy and Quantum Well Structures
- Lecture 13 - Bandgap Engineering
- Lecture 14 - Heterostructure p-n junctions
- Lecture 15 - Schottky Junctions and Ohmic Contacts
- Lecture 16 - Fabrication of Heterostructure Devices
- Lecture 17 - Interaction of Photons with Electrons and Holes in a Semiconductor
- Lecture 18 - Optical Joint Density of States, and Probabilities of Emission and Absorption
- Lecture 19 - Rates of Emission and Absorption
- Lecture 20 - Amplification by Stimulated Emission
- Lecture 21 - The Semiconductor (Laser) Amplifier
- Lecture 22 - Absorption Spectrum of Semiconductors
- Lecture 23 - Gain and Absorption Spectrum of Quantum Well Structures
- Lecture 24 - Electro-absorption Modulator-I Principle of Operation
- Lecture 25 - Electro-absorption Modulator-II Device Configuration
- Lecture 26 - Injection Electroluminescence
- Lecture 27 - Light emitting diode-I Device structure and parameters
- Lecture 28 - Light emitting diode-II Device Characteristics
- Lecture 29 - Light emitting diode-III Output Characteristics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Light emitting diode-IV Modulation Bandwidth
- Lecture 31 - Light emitting diode-V Material and Applications
- Lecture 32 - Laser Basics
- Lecture 33 - Semiconductor Laser-I Device Structure
- Lecture 34 - Semiconductor Laser-II Output Characteristics
- Lecture 35 - Semiconductor Laser-III Single Frequency Lasers
- Lecture 36 - Vertical cavity Surface Emitting Laser (VCSEL)
- Lecture 37 - Quantum Well Laser
- Lecture 38 - Practical Laser Diodes and Handling
- Lecture 39 - General Characteristics of Photodetectors
- Lecture 40 - Responsivity and Impulse Response
- Lecture 41 - Photoconductors
- Lecture 42 - Semiconductor Photo-Diodes-I
- Lecture 43 - Semiconductor Photo-Diodes-II
- Lecture 44 - Other Photodetectors
- Lecture 45 - Photonic Integrated Circuits

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Nuclear and Particle Physics

Subject Co-ordinator - Dr. P. Poullose

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Nuclear Properties  
Lecture 3 - Properties of Nuclear Force  
Lecture 4 - Deuteron  
Lecture 5 - Nucleons Scattering  
Lecture 6 - Nuclear Models - I  
Lecture 7 - Nuclear Models - II  
Lecture 8 - Radioactive Decay - General Properties  
Lecture 9 - Nuclear Alpha Decay  
Lecture 10 - Nuclear Beta decay  
Lecture 11 - Beta-decay details  
Lecture 12 - Gamma decay  
Lecture 13 - Nuclear Scattering - Preliminaries  
Lecture 14 - Types of Reactions  
Lecture 15 - Particle Accelerators - I  
Lecture 16 - Particle Accelerators - II  
Lecture 17 - Detectors  
Lecture 18 - Elementary Particles - Introduction and Overview  
Lecture 19 - Quark Model - I  
Lecture 20 - Quark Model - II  
Lecture 21 - Quark Model - III  
Lecture 22 - Structure of the Hadron - Nucleus  
Lecture 23 - Structure of the Hadron - Proton  
Lecture 24 - Deep Inelastic Scattering  
Lecture 25 - Relativistic Kinematics  
Lecture 26 - Klein-Gordon Equation  
Lecture 27 - Interaction of charged scalar with EM field  
Lecture 28 - Relativistic Electrodynamics  
Lecture 29 - Quantum Electrodynamics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interaction between charged scalars
- Lecture 31 - Dirac Equation - 1
- Lecture 32 - Dirac Equation - 2
- Lecture 33 - Interacting charged fermions - 1
- Lecture 34 - Interacting charged fermions - 2
- Lecture 35 - Interacting charged fermions - 3
- Lecture 36 - Scattering Cross Section Revisited - 1
- Lecture 37 - Scattering Cross Section Revisited - 2
- Lecture 38 - Weak Interactions - 1
- Lecture 39 - Weak Interactions - 2
- Lecture 40 - Lagrangian Framework
- Lecture 41 - Gauge Symmetry - U(1)
- Lecture 42 - Electroweak Theory - 1
- Lecture 43 - Electroweak Theory - 2
- Lecture 44 - SSB and the Higgs Mechanism

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Advanced Condensed Matter Physics

Subject Co-ordinator - Dr. Saurabh Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Propagators - I
- Lecture 2 - Propagators - II
- Lecture 3 - Second quantization - I
- Lecture 4 - Second quantization - II
- Lecture 5 - Second quantized Hamiltonian
- Lecture 6 - Tight Binding Hamiltonian, Hubbard model
- Lecture 7 - Magnetism
- Lecture 8 - Singlet and Triplet State
- Lecture 9 - Antiferromagnetism in Hubbard model
- Lecture 10 - Green's function and representations in quantum mechanics
- Lecture 11 - S matrix and free electron Green's function
- Lecture 12 - Wick's theorem and normal ordering
- Lecture 13 - Green's function and Feynman diagrams
- Lecture 14 - Feynman diagram
- Lecture 15 - phonon Green' function and Hartree Fock approximation
- Lecture 16 - Finite temperature Green's function and Matsubara frequencies
- Lecture 17 - Dyson's equation and disorder in electronic systems
- Lecture 18 - Introduction to electrodynamics, Meissner effect
- Lecture 19 - London penetration depth, Type I and II superconductors
- Lecture 20 - Cooper's problem, BCS gap equation
- Lecture 21 - BCS theory, Transition temperature
- Lecture 22 - Ginzburg Landau Theory, Coherence length and penetration depth
- Lecture 23 - Quantum Hall Effect
- Lecture 24 - Spin Hall effect, 2D topological insulator
- Lecture 25 - Bose-Einstein condensation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Advanced Quantum Mechanics with Applications

Subject Co-ordinator - Dr. Saurabh Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Postulates of Quantum Mechanics
- Lecture 2 - Stern Gerlach Experiment, Spin Quantization, Young's Double Slit Experiment
- Lecture 3 - The Mathematical Formalism of Quantum Mechanics, Uncertainty Principle
- Lecture 4 - The Density Matrix Formalism, Expectation values of Operators
- Lecture 5 - Quantum Harmonic Oscillator, Creation and annihilation Operators
- Lecture 6 - Coherent States and their Properties
- Lecture 7 - Applications of Coherent States, squeezed states
- Lecture 8 - Symmetries and Conservation Principles in Quantum Mechanics
- Lecture 9 - Rotation Operator and Invariance of Angular Momentum, Parity
- Lecture 10 - Spherically Symmetric System and Applications to quantum dots
- Lecture 11 - Spin Angular Momentum, Addition of Angular Momentum, Clebsch gordan coefficients
- Lecture 12 - Magnetic Hamiltonian, Heisenberg Model
- Lecture 13 - Nuclear Magnetic Resonance (NMR)
- Lecture 14 - Applications of NMR, time evolution of Magnetic Moments
- Lecture 15 - Introduction to Quantum Computing
- Lecture 16 - Qubits, EPR Paradox
- Lecture 17 - Quantum Entanglement (QE)
- Lecture 18 - Teleportation, Quantum Teleportation for one spin
- Lecture 19 - Entangled state for two spins
- Lecture 20 - Quantum Gates, Walsh Hadamard Transportation, No cloning theorem
- Lecture 21 - Perturbation Theory
- Lecture 22 - Stark Effect
- Lecture 23 - Stark Effect
- Lecture 24 - Variational method, Variation of constants, Upper bound on ground state energy
- Lecture 25 - Application of Variational method, Hydrogen, Helium atom, Comparison with perturbation theory
- Lecture 26 - WKB Approximation, Bohr Sommerfeld quantization condition
- Lecture 27 - Summary of Approximation methods, Time dependent Perturbation Theory
- Lecture 28 - Time dependent Perturbation Theory, Fermi's Golden rule, Einstein's A and B coefficients
- Lecture 29 - Scattering Theory

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- Lecture 30 - Linear Response Theory
- Lecture 31 - Quantum Dynamics
- Lecture 32 - Examples
- Lecture 33 - Interaction of Radiation with matter, Landau levels

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Nuclear Physics: Fundamentals and Applications

Subject Co-ordinator - Prof. H.C. Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Brief Overview of the course

Lecture 2 - Nuclear Size

Lecture 3 - Nuclear Size (Continued...)

Lecture 4 - Nuclear Size (Continued...)

Lecture 5 - Semi empirical Mass Formula

Lecture 6 - Semi empirical Mass Formula (Continued...)

Lecture 7 - Semi empirical Mass Formula (Continued...)

Lecture 8 - Semi empirical Mass Formula (Continued...)

Lecture 9 - Semi empirical Mass Formula (Continued...)

Lecture 10 - How are Neutron stars bound

Lecture 11 - Deuteron

Lecture 12 - Deuteron (Continued...)

Lecture 13 - Deuteron (Continued...)

Lecture 14 - Scattering of nucleons

Lecture 15 - Low energy n-p scattering

Lecture 16 - Theories of nuclear forces

Lecture 17 - Shell model

Lecture 18 - Shell model (Continued...)

Lecture 19 - Shell model (Continued...)

Lecture 20 - Shell model (Continued...)

Lecture 21 - Shell model (Continued...)

Lecture 22 - Collective models

Lecture 23 - Vibrational and Rotational levels

Lecture 24 - Radioactivity, Alpha Decay

Lecture 25 - Alpha decay (Continued...)

Lecture 26 - Beta decay

Lecture 27 - Beta decay (Continued...)

Lecture 28 - Beta decay (Continued...)

Lecture 29 - Gamma decay

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Nuclear Reactions
- Lecture 31 - Nuclear reaction (Continued...)
- Lecture 32 - Nuclear reaction (Continued...)
- Lecture 33 - Nuclear Fission basics
- Lecture 34 - Nuclear fission of uranium
- Lecture 35 - Nuclear Fission Reactor
- Lecture 36 - Nuclear Energy Programme of India
- Lecture 37 - Nuclear Fusion
- Lecture 38 - Nuclear fusion (Continued...)
- Lecture 39 - Thermonuclear fusion reactors
- Lecture 40 - Fusion reactions in Stars and stellar neutrinos
- Lecture 41 - Nucleosynthesis of elements in Stars
- Lecture 42 - Mossbauer Spectroscopy
- Lecture 43 - RBS, PIXE, NAA, Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to Electromagnetism

Subject Co-ordinator - Prof. Manoj K Harbola

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Coloumb's Law
- Lecture 2 - Coloumb's Force due to several Point charges
- Lecture 3 - Force due to distribution of Charges
- Lecture 4 - What is an Electric Field?
- Lecture 5 - Electric Field due to a Charged Distribution
- Lecture 6 - Helmholtz's Theorem for Electric Field
- Lecture 7 - Divergence of a Field
- Lecture 8 - Divergence of Electric Field & Gauss's Law
- Lecture 9 - Curl Of a Field - I
- Lecture 10 - Curl of a Field - II & Stokes' Theorem
- Lecture 11 - Line surface area & volume elements in Cartesian & Cylindrical Coordinates
- Lecture 12 - Line surface area & volume elements in Spherical Polar Coordinates
- Lecture 13 - Examples of application of the divergence and stokes' theorems
- Lecture 14 - Electrostatic Potential
- Lecture 15 - Electric field as the gradient of electrostatic potential
- Lecture 16 - Laplace's and Poisson's equations for electrostatic potential
- Lecture 17 - Elecrostatic potential due to a charge distribution - I; a line charge of finite length
- Lecture 18 - Elecrostatic potential due to a charge distribution - II;a ring and a spherical shell of charge
- Lecture 19 - Uniqueness of the solution of Laplace's and Poisson's equations
- Lecture 20 - Method of images I
- Lecture 21 - Method of imagesII
- Lecture 22 - Laplaces equations in some other physical phenomena
- Lecture 23 - Energy of a charge distribution - I
- Lecture 24 - Energy of a charge distribution - II An example
- Lecture 25 - Energy of a charge distribution - III Energy density in terms of electric field
- Lecture 26 - Electric field and potential in a conductor
- Lecture 27 - Reciprocity theorem for conductors - I
- Lecture 28 - Reciprocity theorem for conductors - II
- Lecture 29 - Electric polarization and bound charges - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electric polarization and bound charges - II
- Lecture 31 - Electric Displacement
- Lecture 32 - Electrostatics in presence of Dielectric Materials - I
- Lecture 33 - Electrostatics in presence of Dielectric Materials - II
- Lecture 34 - Introduction to Magnetostatics; The BiO-Savart law
- Lecture 35 - Divergence and curl of Magnetic Field
- Lecture 36 - Amperes law for Magnetic Fields
- Lecture 37 - Vector Potential for Magnetic Fields
- Lecture 38 - Calculation of Vector Potential for a given magnetic field
- Lecture 39 - Equation for the Vector Potential in terms of current density
- Lecture 40 - Vector potential from Current Densities - I
- Lecture 41 - Vector potential from Current Densities - II
- Lecture 42 - Magnetic Materials - I
- Lecture 43 - Magnetic Materials - II Bound Current Densities
- Lecture 44 - The Auxiliary Field - H
- Lecture 45 - Solving for Magnetic Field of a magnet - I
- Lecture 46 - Solving for Magnetic Field of a magnet in presence of Magnetic Materials
- Lecture 47 - Faradays Law
- Lecture 48 - Induced Electric field due to changing Magnetic Field
- Lecture 49 - Demonstrations on faradays law, Lenzs law and Nonconservative nature of Induced electric field
- Lecture 50 - Energy stored in a magnetic Field-I
- Lecture 51 - Energy stored in a magnetic Field-I;solved examples
- Lecture 52 - Displacement Current
- Lecture 53 - Quasistatic approximation
- Lecture 54 - Energy transport by electromagnetic fields; The Poynting Vector
- Lecture 55 - The Poynting Vector;solved examples
- Lecture 56 - Linear Momentum and Angular Momentum carried by Electromagnetic Fields
- Lecture 57
- Lecture 58
- Lecture 59
- Lecture 60
- Lecture 61
- Lecture 62
- Lecture 63
- Lecture 64
- Lecture 65
- Lecture 66 - Solution Assignment 1 - Problems 1 to 3
- Lecture 67 - Solution Assignment 1 - Problems 4 to 9
- Lecture 68 - Solution Assignment 2 - Problems 1 to 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Solution Assignment 2 - Problems 5 to 11  
Lecture 70 - Solution Assignment 3 - Problems 1 to 5  
Lecture 71 - Solution Assignment 3 - Problems 6 to 10  
Lecture 72 - Solution Assignment 4- Problems 1 to 5  
Lecture 73 - Solution Assignment 4- Problems 6 to 10  
Lecture 74 - Solution Assignment 5- Problems 6 to 11  
Lecture 75 - Solution Assignment 5- Problems 1to 5  
Lecture 76 - Solution Assignment 6- Problems 1 to 4  
Lecture 77 - Solution Assignment 6- Problems 5 to 8  
Lecture 78 - Solution Problem Set 7

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Engineering Mechanics

Subject Co-ordinator - Prof. Manoj K Harbola

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Vectors
- Lecture 2 - Addition and subtraction of vectors
- Lecture 3 - Multiplying vectors
- Lecture 4 - Introduction to vectors
- Lecture 5 - Transformation of vectors under rotation
- Lecture 6 - Vector products and their geometric interpretation
- Lecture 7 - Vector Product
- Lecture 8 - Vector Product
- Lecture 9 - Introduction to vectors
- Lecture 10 - Equilibrium of rigid bodies & Forces and torques
- Lecture 11 - Calculating torques and couple moments - I
- Lecture 12 - Calculating torques and couple moments - II
- Lecture 13 - Finding a force and a couple equivalent to an applied force
- Lecture 14 - Different elements and associated forces and torques - I
- Lecture 15 - Different elements and associated forces and torques - II
- Lecture 16 - Solved examples; equilibrium of bodies & I
- Lecture 17 - Solved examples; equilibrium of bodies & II
- Lecture 18 - Forces in different geometric configuration
- Lecture 19 - Plane trusses I - building a truss and condition for it to be statically determinate
- Lecture 20 - Plane trusses II - calculating forces in a simple truss and different types of trusses
- Lecture 21 - Plane trusses III - calculating forces in a simple truss by method of joints
- Lecture 22 - Plane trusses IV- Solved examples for calculating forces in a simple truss by method of joints
- Lecture 23 - Plane trusses V - Solved examples for calculating forces in a simple truss by method of joints
- Lecture 24 - Plane trusses VI - method of sections for calculating forces in a simple truss
- Lecture 25 - Dry friction I - introduction with an example
- Lecture 26 - Dry friction II - a solved example
- Lecture 27 - Dry friction III - Dry thrust bearing and belt friction with demonstration
- Lecture 28 - Dry friction IV - Screw friction and rolling friction
- Lecture 29 - Dry friction V - Solved examples

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Properties of plane surfaces I - First moment and centroid of an area
- Lecture 31 - Properties of plane surfaces II - Centroid of an area made by joining several plane surfaces
- Lecture 32 - Properties of plane surfaces III - Centroid of a distributed force and its relation with centre
- Lecture 33 - Properties of plane surfaces IV - solved examples of calculation of first moment and centroid of
- Lecture 34 - Properties of plane surfaces V- Second moment and product of an area and radius of gyration
- Lecture 35 - Properties of plane surfaces VI - Parallel axis transfer theorem for second moment and product of
- Lecture 36 - Properties of plane surfaces VII - transformation of second moment and product of an area under
- Lecture 37 - Properties of plane surfaces VIII - second moment and product of an area, solved examples
- Lecture 38 - Method of virtual work I - degrees of freedom, constraints and constraint forces
- Lecture 39 - Method of virtual work II - virtual displacement, virtual work and equilibrium condition in term
- Lecture 40 - Method of virtual work III - solved examples
- Lecture 41 - Motion of a particle in a plane in terms of planar polar coordinates
- Lecture 42 - Planar polar coordinates
- Lecture 43 - Description of motion in cylindrical and spherical coordinate systems
- Lecture 44 - Using planar polar, cylindrical and spherical coordinate systems
- Lecture 45 - Motion with constraints, constraint forces and free body diagram
- Lecture 46 - Motion with constraints  $\hat{A}$  solved examples
- Lecture 47 - Motion with dry friction  $\hat{A}$  solved examples
- Lecture 48 - Motion with drag  $\hat{A}$  solved examples
- Lecture 49 - Equation of motion in terms of linear momentum and the principle of conservation of linear momen
- Lecture 50 - Linear momentum and centre of mass
- Lecture 51 - Momentum transfer, impulse and force due to a stream of particles hitting an object
- Lecture 52 - Momentum and the variable mass problem
- Lecture 53 - Linear momentum  $\hat{A}$  solved examples
- Lecture 54 - Work and energy I - work energy theorem; conservative and non-conservative force fields
- Lecture 55 - Work and energy II - Definition of potential energy for conservative forces; total mechanical en
- Lecture 56 - Work and energy III - Two solved examples using conservation principles
- Lecture 57 - Work and energy IV  $\hat{A}$  Further discussion on potential energy
- Lecture 58 - Work and energy V - Solved examples
- Lecture 59 - Work and energy VI  $\hat{A}$  Applying conservation principles to solve a collision problem
- Lecture 60 - Work and energy VII - Solved examples
- Lecture 61 - Rigid body motion I - degrees of freedom and number of variables required to describe motion of
- Lecture 62 - Rigid body motion II - Equation of motion for a single particle in terms of angular momentum and
- Lecture 63 - Rigid body motion III - Conservation of angular momentum; angular momentum for a collection of p
- Lecture 64 - Rigid body motion IV - applying angular momentum conservation, a solved example
- Lecture 65 - Rigid body motion V (fixed axis rotation) - some demonstrations of conservation of angular momen
- Lecture 66 - Rigid body motion VI (fixed axis rotation) - Some more demonstrations and related problems
- Lecture 67 - Rigid body motion VII (fixed axis rotation) - Kinetic energy and moment of inertia for fixed axi
- Lecture 68 - Rigid body motion VIII (fixed axis rotation) - solved examples for calculating moment of inertia

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Rigid body motion IX (fixed axis rotation) - solved examples
- Lecture 70 - Rigid body motion X - rotation and translation with axis moving parallel to itself
- Lecture 71 - Rigid body motion XI - solved examples for rotation and translation with axis moving parallel to itself
- Lecture 72 - Rigid-body dynamics XII - Some demonstrations on general motion of rigid bodies
- Lecture 73 - Rigid-body dynamics XIII - Infinitesimal angles as vector quantities and change of a vector when rotated
- Lecture 74 - Rigid-body dynamics XIV - Angular velocity and the rate of change of a rotating vector; relating angular velocity to angular momentum
- Lecture 75 - Rigid-body dynamics XV - Relationship between angular momentum and angular velocity  $\hat{A}$  the moment of inertia
- Lecture 76 - Rigid-body dynamics XVI - Solved examples
- Lecture 77 - Rigid body motion XVII  $\hat{A}$  A review of the relation between angular momentum and angular velocity
- Lecture 78 - Rigid body motion XVIII- Solved examples for calculating rate of change of angular momentum and angular velocity
- Lecture 79 - Rigid body dynamics XIX - understanding demonstrations shown earlier using equation of motion (Euler's equations)
- Lecture 80 - Rigid body dynamics XX - understanding demonstrations shown earlier using equation of motion (Euler's equations)
- Lecture 81 - Rigid body dynamics XXI - Euler equations, solved examples
- Lecture 82 - Simple harmonic motion I - expanding potential energy about the equilibrium point and the corresponding frequency
- Lecture 83 - Simple harmonic motion II - solving the equation of motion with given initial conditions
- Lecture 84 - Simple harmonic motion III - solved examples
- Lecture 85 - Simple harmonic motion IV - representing simple harmonic motion on a phasor diagram; energy of a harmonic oscillator
- Lecture 86 - Simple harmonic motion V - solved examples
- Lecture 87 - Simple harmonic motion VI - solving the equation of motion with constant friction in the system
- Lecture 88 - Simple harmonic motion VII - harmonic oscillator with velocity-dependent damping (heavy damping)
- Lecture 89 - Simple harmonic motion VIII - harmonic oscillator with velocity-dependent damping (critical damping)
- Lecture 90 - Simple harmonic motion IX - solved examples
- Lecture 91 - Simple harmonic motion X - harmonic oscillator with velocity-dependent damping (light damping)
- Lecture 92 - Simple harmonic motion XI - solved examples
- Lecture 93 - Simple harmonic motion XII - oscillations of an un-damped harmonic oscillator subjected to an oscillating force
- Lecture 94 - Simple harmonic motion XIII - oscillations of a forced damped harmonic oscillator - I
- Lecture 95 - Simple harmonic oscillator XIV - oscillations of a forced damped harmonic oscillator - II
- Lecture 96 - Simple harmonic oscillator XV - Energy and power in a forced damped harmonic oscillator
- Lecture 97 - Simple harmonic oscillator XVI - Solved examples
- Lecture 98 - Equation of motion in a uniformly accelerating frame
- Lecture 99 - Motion described in a uniformly accelerating frame; solved examples - I
- Lecture 100 - Motion described in a uniformly accelerating frame; solved examples - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Computational Science and Engineering Using Python

Subject Co-ordinator - Prof. Mahendra Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1 - About Computers  
Lecture 2 - Lecture 2 - Python  
Lecture 3 - Lecture 3 - Python  
Lecture 4 - Lecture 4 - Python  
Lecture 5 - Lecture 5A - Python packages; Programming  
Lecture 6 - Lecture 5B - Some suggestions on programming  
Lecture 7 - Lecture 6 - Plotting in Python  
Lecture 8 - Lecture 7 - Errors and Nondimensionalization  
Lecture 9 - Lecture 8 - Data I/O and Mayavi  
Lecture 10 - Lecture 9 - Lagrange interpolation  
Lecture 11 - Lecture 10 - Interpolation II  
Lecture 12 - Lecture 11 - Integration I  
Lecture 13 - Lecture 12 - Integration II  
Lecture 14 - Lecture 13 - Gaussian quadrature continued  
Lecture 15 - Lecture 14 - Numerical Differentiation  
Lecture 16 - Lecture 15 - ODE solvers  
Lecture 17 - Lecture 16 - ODE solvers continued  
Lecture 18 - Lecture 17 - Fourier transform  
Lecture 19 - Lecture 18 - PDE solver  
Lecture 20 - Lecture 19A - PDE solver  
Lecture 21 - Lecture 19B - PDE solver  
Lecture 22 - Lecture 20 - Linear algebra  
Lecture 23 - Lecture 21 - Summary

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC: Introductory Quantum Mechanics

Subject Co-ordinator - Prof. Manoj K Harbola

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Black Body Radiation I - Relevant Definitions and Black Body as cavity
- Lecture 2 - Black Body Radiation II - Intensity of radiation in terms of energy density
- Lecture 3 - Black Body Radiation III - Spectral energy density and radiation pressure inside a black body rad
- Lecture 4 - Black Body Radiation IV - Stephen's Boltzman law
- Lecture 5 - Black Body Radiation V - Wein's Displacement law and analysis for spectral density
- Lecture 6 - Black Body Radiation VI - Wein's distribution law and rayleigh - Jeans distribution law
- Lecture 7 - Black Body Radiation VII - Quantum Hypothesis and plank's distribution Formula
- Lecture 8 - Radiation as a collection of particles called photons
- Lecture 9 - Quantum Hypothesis and specific heat of solids
- Lecture 10 - Bohr's Model of hydrogen spectrum
- Lecture 11 - Wilson Sommerfeld quantum condition I - Harmonic oscillator and particle in a box
- Lecture 12 - Wilson Sommerfeld quantum condition II - Particle moving in a coulomb potential in a plane and r
- Lecture 13 - Wilson Sommerfeld quantum condition III - Particle moving in a coulomb potential in 3D and relat
- Lecture 14 - Quantum conditions and atomic structure, electron spin and Pauli exclusion principle
- Lecture 15 - Interaction of atoms with radiation
- Lecture 16 - Stimulated emission and amplification of light in a LASER
- Lecture 17 - Brief description of a LASER
- Lecture 18 - Introduction to the correspondence principle
- Lecture 19 - General nature of the correspondence principle
- Lecture 20 - Selection rules (for transitions) through the correspondence principle
- Lecture 21 - Applications of the correspondence principle
- Lecture 22 - Heisenberg's formulations of quantum mechanics
- Lecture 23 - Heisenberg's formulation of quantum mechanics
- Lecture 24 - Heisenberg's formulation of the quantum mechanics
- Lecture 25 - Brief introduction to matrix mechanics and the quantum condition in matrix form
- Lecture 26 - Introduction to waves and wave equation
- Lecture 27 - Stationary waves eigen values and eigen functions
- Lecture 28 - Matter waves and their experimental detection
- Lecture 29 - Representing a moving particle by a wave packet

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Stationary-state Schrodinger equation and its solution for a particle in a box
- Lecture 31 - Solution of the stationary-state Schrodinger equation for a simple harmonic oscillator
- Lecture 32 - Equivalence of Heisenberg and the Schrodinger formulations
- Lecture 33 - Equivalence of Heisenberg and Schrodinger formulations
- Lecture 34 - Born interpretation of the wavefunction and expectation values of x and p operators
- Lecture 35 - Uncertainty principle and its simple applications
- Lecture 36 - Time dependent Schrodinger equation the probability current density and the continuity equation
- Lecture 37 - Ehrenfest theorem for the expectation values of x and p operators
- Lecture 38 - Solution of Schrodinger equation for a particle in one and two delta function potentials
- Lecture 39 - Solution of Schrodinger equation for a particle in a finite well
- Lecture 40 - Numerical solution of a one dimensional Schrodinger equation for bound states - I
- Lecture 41 - Numerical solution of a one dimensional Schrodinger equation for bound states - II
- Lecture 42 - Reflection and transmission of particles across a potential barrier
- Lecture 43 - Quantum-tunneling and its examples
- Lecture 44 - Solution of the Schrodinger for free particles and periodic boundary conditions
- Lecture 45 - Electrons in a metal
- Lecture 46 - Schrodinger equation for particles in spherically symmetric potential, angular momentum operator
- Lecture 47 - Angular momentum operator and its eigenfunctions
- Lecture 48 - Equation for radial component of the wavefunction in spherically symmetric potentials and general
- Lecture 49 - Solution for radial component of the wavefunction for the hydrogen atom
- Lecture 50 - Numerical solution for the radial component of wavefunction for spherically symmetric potentials
- Lecture 51 - Solution of the Schrodinger equation for one dimensional periodic potential
- Lecture 52 - Kroning-Penny model and energy bands
- Lecture 53 - Kroning-Penny model with periodic Dirac delta function and energy bands
- Lecture 54 - Discussion on bands
- Lecture 55 - Summary of the course

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Astrophysics and Cosmology

Subject Co-ordinator - Prof. S. Bharadwaj

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Keplers Law  
Lecture 3 - The Solar System  
Lecture 4 - The Solar System (Continued...)  
Lecture 5 - Binary Systems  
Lecture 6 - Binary Systems (Continued...)  
Lecture 7 - Tidal Forces and the Earth Moon System  
Lecture 8 - Fluid Mechanics  
Lecture 9 - Hydrostatics and the Solar Wind  
Lecture 10 - Radiative Transfer  
Lecture 11 - Radiative Transfer (Continued...)  
Lecture 12 - Thermal Radiation  
Lecture 13 - Thermal Radiation and the Sun  
Lecture 14 - Virial Theorem and Its Application to Stars  
Lecture 15 - Stars  
Lecture 16 - Stellar Physics - I  
Lecture 17 - Stellar Physics - II  
Lecture 18 - Stellar Physics - III  
Lecture 19 - Stellar Physics - IV  
Lecture 20 - Stellar Physics - V  
Lecture 21 - White Dwarfs  
Lecture 22 - White Dwarfs and Neutron Stars  
Lecture 23 - Galaxies  
Lecture 24 - Galaxies and the Expanding Universe  
Lecture 25 - The Expanding Universe  
Lecture 26 - Dynamics of the Expanding Universe  
Lecture 27 - Dynamics of the Expanding Universe (Continued...)  
Lecture 28 - The Expanding Universe and the Cosmological Metric  
Lecture 29 - The Cosmological Space - Time

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- Lecture 30 - Distances
- Lecture 31 - Distances (Continued...)
- Lecture 32 - Distances and the Hubble Parameter
- Lecture 33 - Distances, the Hubble Parameter and Dark Energy (Continued...)
- Lecture 34 - CMBR and Thermal History
- Lecture 35 - CMBR and Thermal History (Continued...1)
- Lecture 36 - CMBR and Thermal History (Continued...2)
- Lecture 37 - Thermal History, Expansion Rate and Neutrino Mass
- Lecture 38 - Thermal History
- Lecture 39 - Big Bang Nucleosynthesis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Mathematics Methods in Physics - I

Subject Co-ordinator - Prof. Samudra Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Set, Group, Field, Ring

Lecture 2 - Vector Space

Lecture 3 - Span, Linear combination of vectors

Lecture 4 - Linearly dependent and independent vector, Basis

Lecture 5 - Dual Space

Lecture 6 - Inner Product

Lecture 7 - Schwarz Inequality

Lecture 8 - Inner product space, Gram-Schmidt Ortho-normalization

Lecture 9 - Projection operator

Lecture 10 - Transformation of Basis

Lecture 11 - Transformation of Basis (Continued...)

Lecture 12 - Unitary transformation, Similarity Transformation

Lecture 13 - Eigen Value, Eigen Vectors

Lecture 14 - Normal Matrix

Lecture 15 - Diagonalization of a Matrix

Lecture 16 - Hermitian Matrix

Lecture 17 - Rank of a Matrix

Lecture 18 - Cayley - Hamilton Theorem, Function space

Lecture 19 - Metric Space, Linearly dependent - independent functions

Lecture 20 - Linearly dependent & independent functions (Continued...), Inner Product of functions

Lecture 21 - Orthogonal functions

Lecture 22 - Delta Function, Completeness

Lecture 23 - Fourier

Lecture 24 - Fourier Series (Continued...)

Lecture 25 - Parseval Theorem, Fourier Transform

Lecture 26 - Parseval Relation, Convolution Theorem

Lecture 27 - Polynomial space, Legendre Polynomial

Lecture 28 - Monomial Basis, Factorial Basis, Legendre Basis

Lecture 29 - Complex Numbers

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- Lecture 30 - Geometrical interpretation of complex numbers
- Lecture 31 - de Moivre's Theorem
- Lecture 32 - Roots of a complex number
- Lecture 33 - Set of complex no, Stereographic projection
- Lecture 34 - Complex Function, Concept of Limit
- Lecture 35 - Derivative of Complex Function, Cauchy-Riemann Equation
- Lecture 36 - Analytic Function
- Lecture 37 - Harmonic Conjugate
- Lecture 38 - Polar form of Cauchy-Riemann Equation
- Lecture 39 - Multi-valued function and Branches
- Lecture 40 - Complex Line Integration, Contour, Regions
- Lecture 41 - Complex Line Integration (Continued...)
- Lecture 42 - Cauchy-Goursat Theorem
- Lecture 43 - Application of Cauchy-Goursat Theorem
- Lecture 44 - Cauchy's Integral Formula
- Lecture 45 - Cauchy's Integral Formula (Continued...)
- Lecture 46 - Series and Sequence
- Lecture 47 - Series and Sequence (Continued...)
- Lecture 48 - Circle and radius of convergence
- Lecture 49 - Taylor Series
- Lecture 50 - Classification of singularity
- Lecture 51 - Laurent Series, Singularity
- Lecture 52 - Laurent series expansion
- Lecture 53 - Laurent series expansion (Continued...), Concept of Residue
- Lecture 54 - Classification of Residue
- Lecture 55 - Calculation of Residue for quotient from
- Lecture 56 - Cauchy's Residue Theorem
- Lecture 57 - Cauchy's Residue Theorem (Continued...)
- Lecture 58 - Real Integration using Cauchy's Residue Theorem
- Lecture 59 - Real Integration using Cauchy's Residue Theorem (Continued...)
- Lecture 60 - Real Integration using Cauchy's Residue Theorem (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Classical Mechanics - from Newtonian to Lagrangian Formulation

Subject Co-ordinator - Prof. Debamalya Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6 - Systems with variable mass - 3  
Lecture 7 - Systems with variable mass - 4  
Lecture 8 - Central force - 1  
Lecture 9 - Central force - 2  
Lecture 10 - Central force - 3  
Lecture 11 - Central force - 4  
Lecture 12 - Central force - 5  
Lecture 13 - Central force - 6  
Lecture 14 - Central force - 7  
Lecture 15 - Central force - 8  
Lecture 16 - Central force - 9  
Lecture 17 - Central force - 10  
Lecture 18 - Central force - 11  
Lecture 19 - Central force - 12  
Lecture 20 - Central force - 13  
Lecture 21 - Central force - 14  
Lecture 22 - Central force - 15  
Lecture 23 - Mooring Co-ordinate Systems - 1  
Lecture 24 - Mooring Co-ordinate Systems - 2  
Lecture 25 - Mooring Co-ordinate Systems - 3  
Lecture 26 - Mooring Co-ordinate Systems - 4  
Lecture 27 - Rigid body dynamics - 1  
Lecture 28 - Rigid body dynamics - 2  
Lecture 29 - Rigid body dynamics - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30	- Rigid body dynamics	- 4
Lecture 31	- Rigid body dynamics	- 5
Lecture 32	- Rigid body dynamics	- 6
Lecture 33	- Rigid body dynamics	- 7
Lecture 34	- Rigid body dynamics	- 8
Lecture 35	- Rigid body dynamics	- 9
Lecture 36	- Rigid body dynamics	- 10
Lecture 37	- Rigid body dynamics	- 11
Lecture 38	- Rigid body dynamics	- 12
Lecture 39	- Rigid body dynamics	- 13
Lecture 40	- Rigid body dynamics	- 14
Lecture 41	- Rigid body dynamics	- 15
Lecture 42	- Rigid body dynamics	- 16
Lecture 43	- Lagrangian Formulation	- 1
Lecture 44	- Lagrangian Formulation	- 2
Lecture 45	- Lagrangian Formulation	- 3
Lecture 46	- Lagrangian Formulation	- 4
Lecture 47	- Lagrangian Formulation	- 5
Lecture 48	- Lagrangian Formulation	- 6
Lecture 49	- Lagrangian Formulation	- 7
Lecture 50	- Lagrangian Formulation	- 8
Lecture 51	- Lagrangian Formulation	- 9
Lecture 52	- Lagrangian Formulation	- 10
Lecture 53	- Small oscillation	- 1
Lecture 54	- Small oscillation	- 2
Lecture 55	- Small oscillation	- 3
Lecture 56	- Small oscillation	- 4
Lecture 57	- Small oscillation	- 5
Lecture 58	- Small oscillation	- 6
Lecture 59	- Small oscillation	- 7
Lecture 60	- Small oscillation	- 8

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Solid State Physics

Subject Co-ordinator - Prof. Amal Kumar Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Atom to Solid Structure  
Lecture 2 - Atom to Solid Structure (Continued...)  
Lecture 3 - Structure of Solid  
Lecture 4 - Structure of Solid (Continued...)  
Lecture 5 - Crystal Structure  
Lecture 6 - Crystal Structure (Continued...)  
Lecture 7 - Crystal Structure (Continued...)  
Lecture 8 - Crystal Structure (Continued...)  
Lecture 9 - Crystal Structure (Continued...)  
Lecture 10 - Crystal Structure (Continued...)  
Lecture 11 - Crystal Structure (Continued...)  
Lecture 12 - Crystal Structure (Continued...)  
Lecture 13 - Crystal Structure (Continued...)  
Lecture 14 - Crystal Structure (Continued...)  
Lecture 15 - Crystal Structure (Continued...)  
Lecture 16 - Crystal Structure (Continued...)  
Lecture 17 - Crystal Structure (Continued...)  
Lecture 18 - X-ray Diffraction from Crystal  
Lecture 19 - X-ray Diffraction from Crystal (Continued...)  
Lecture 20 - X-ray Diffraction from Crystal (Continued...)  
Lecture 21 - X-ray Diffraction from Crystal (Continued...)  
Lecture 22 - X-ray Diffraction from Crystal (Continued...)  
Lecture 23 - X-ray Diffraction from Crystal (Continued...)  
Lecture 24 - X-ray Diffraction from Crystal (Continued...)  
Lecture 25 - Reciprocal Lattice  
Lecture 26 - Reciprocal Lattice (Continued...)  
Lecture 27 - Reciprocal Lattice (Continued...)  
Lecture 28 - Reciprocal Lattice (Continued...)  
Lecture 29 - Reciprocal Lattice (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Intensity of Bragg Diffraction
- Lecture 31 - Intensity of Bragg Diffraction (Continued...)
- Lecture 32 - Electrical Properties of Metal
- Lecture 33 - Electrical Properties of Metal (Continued...)
- Lecture 34 - Electrical Properties of Metal (Continued...)
- Lecture 35 - Electrical Properties of Metal (Continued...)
- Lecture 36 - Electrical Properties of Metal (Continued...)
- Lecture 37 - Electrical Properties of Metal (Continued...)
- Lecture 38 - Electrical Properties of Metal (Continued...)
- Lecture 39 - Electrical Properties of Metal (Continued...)
- Lecture 40 - Band Theory of Solids
- Lecture 41 - Band Theory of Solids (Continued...)
- Lecture 42 - Band Theory of Solids (Continued...)
- Lecture 43 - Band Theory of Solids (Continued...)
- Lecture 44 - Band Theory of Solids (Continued...)
- Lecture 45 - Band Theory of Solids (Continued...)
- Lecture 46 - Band Theory of Solids (Continued...)
- Lecture 47 - Physics of Semiconductor
- Lecture 48 - Physics of Semiconductor (Continued...)
- Lecture 49 - Physics of Semiconductor
- Lecture 50 - Electrical Conduction
- Lecture 51 - Electrical Conduction
- Lecture 52
- Lecture 53
- Lecture 54 - Thermal Properties of Solid (Continued...)
- Lecture 55 - Thermal Properties of Solid (Continued...)
- Lecture 56 - Thermal Properties of Solid (Continued...)
- Lecture 57 - Thermal Properties of Solid (Continued...)
- Lecture 58 - Magnetic Property of Solid
- Lecture 59 - Magnetic Property of Solid (Continued...)
- Lecture 60 - Magnetic Property of Solid (Continued...)
- Lecture 61 - Magnetic Property of Solid (Continued...)
- Lecture 62 - Magnetic Property of Solid (Continued...)
- Lecture 63 - Magnetic Property of Solid (Continued...)
- Lecture 64 - Magnetic Property of Solid (Continued...)
- Lecture 65 - Magnetic Property of Solid (Continued...)
- Lecture 66 - Magnetic Property of Solid (Continued...)
- Lecture 67 - Magnetic Property of Solid (Continued...)
- Lecture 68 - Magnetic Property of Solid (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Magnetic Property of Solid (Continued...)
- Lecture 70 - Magnetic Property of Solid (Continued...)
- Lecture 71 - Magnetic Property of Solids (Continued...)
- Lecture 72 - Dielectric Properties of Solid
- Lecture 73 - Dielectric Properties of Solid (Continued...)
- Lecture 74 - Dielectric Properties of Solid (Continued...)
- Lecture 75 - Superconductivity

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Atomic and Molecular Physics

Subject Co-ordinator - Prof. Amal Kumar Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Experimental observations and theoretical development in discovery of constituents of an atom  
Lecture 2 - Experimental observations and theoretical development in discovery of constituents of an atom (C  
Lecture 3 - Experimental observations and theoretical development in discovery of constituents of an atom (C  
Lecture 4 - Experimental observations and theoretical development in discovery of constituents of an atom (C  
Lecture 5 - Experimental observations and theoretical development in discovery of constituents of an atom (C  
Lecture 6 - Structure of an atom  
Lecture 7 - Structure of an atom  
Lecture 8 - Structure of an atom (Continued...)  
Lecture 9 - Atomic structure of an atom  
Lecture 10 - Atomic structure of an atom  
Lecture 11 - Structure of an atom  
Lecture 12 - Atomic structure of an atom  
Lecture 13 - Atomic structure of an atom  
Lecture 14 - Structure of an atom  
Lecture 15 - Structure of an atom  
Lecture 16 - Structure of an atom  
Lecture 17 - Structure of an atom  
Lecture 18 - Structure of an atom  
Lecture 19 - Structure of an atom  
Lecture 20 - Structure of an atom  
Lecture 21 - Atomic spectra  
Lecture 22 - Atomic spectra  
Lecture 23 - Multielectron atoms  
Lecture 24 - Multielectron atoms (Continued...)  
Lecture 25 - Multielectron atoms (Continued...)  
Lecture 26 - Multielectron atoms (Continued...)  
Lecture 27 - Quantum mechanical treatment  
Lecture 28 - Quantum mechanical treatment (Continued...)  
Lecture 29 - Quantum mechanical treatment of H-like atom

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quantum mechanical treatment of H-like atom (Continued...)
- Lecture 31 - Quantum mechanical treatment of Hydrogen like atom
- Lecture 32 - Quantum mechanical treatment of Hydrogen like atom (Continued...)
- Lecture 33 - Quantum mechanical treatment of hydrogen like atom (Continued...)
- Lecture 34 - Quantum mechanical treatment of hydrogen like atom (Continued...)
- Lecture 35 - Quantum mechanical treatment of hydrogen like atom (Continued...)
- Lecture 36 - Quantum Mechanical treatment of Hydrogen like atom (Continued...)
- Lecture 37 - Quantum Mechanical treatment of Hydrogen like atom (Continued...)
- Lecture 38 - Hydrogen like atom in magnetic field
- Lecture 39 - Hydrogen like atom in magnetic field (Continued...)
- Lecture 40 - Hydrogen like atom in electric field
- Lecture 41 - Physics of molecules
- Lecture 42 - Rotation of a molecule
- Lecture 43 - Rotation of a molecule (Continued...)
- Lecture 44 - Rotation of a molecule (Continued...)
- Lecture 45 - Rotation of a molecule (Continued...)
- Lecture 46 - Vibration of a molecule
- Lecture 47 - Vibration of a molecule (Continued...)
- Lecture 48 - Vibration of a molecule (Continued...)
- Lecture 49 - Vibration of a molecule (Continued...)
- Lecture 50 - Vibration of a molecule (Continued...)
- Lecture 51 - Electronic spectra of a molecule
- Lecture 52 - Electronic spectra of a molecule (Continued...)
- Lecture 53 - Electronic structure of molecules
- Lecture 54 - Electronic structure of molecules (Continued...)
- Lecture 55 - Electronic structure of a molecule
- Lecture 56 - Atomic and Molecular Spectroscopy
- Lecture 57 - Raman Spectroscopy
- Lecture 58 - Raman Spectroscopy (Continued...)
- Lecture 59 - Raman Spectroscopy (Continued...)
- Lecture 60 - Resonance spectroscopy

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Modern Optics

Subject Co-ordinator - Prof. Partha Roy Choudhuri

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Maxwells equations and electromagnetic waves
- Lecture 2 - Maxwells equations and electromagnetic waves (Continued...)
- Lecture 3 - Maxwells equations and electromagnetic waves (Continued...)
- Lecture 4 - Maxwells equations and electromagnetic waves (Continued...)
- Lecture 5 - Maxwells equations and electromagnetic waves (Continued...)
- Lecture 6 - Maxwells equations and electromagnetic waves (Continued...)
- Lecture 7 - Maxwells equations and electromagnetic waves (Continued...)
- Lecture 8 - Wave propagation in anisotropic media
- Lecture 9 - Wave propagation in anisotropic media (Continued...)
- Lecture 10 - Wave propagation in anisotropic media (Continued...)
- Lecture 11 - Wave propagation in anisotropic media (Continued...)
- Lecture 12 - Wave propagation in anisotropic media (Continued...)
- Lecture 13 - Wave propagation in layered structures
- Lecture 14 - Wave propagation in layered structures (Continued...)
- Lecture 15 - Wave propagation in layered structures (Continued...)
- Lecture 16 - Wave propagation in layered structures (Continued...)
- Lecture 17 - Wave propagation in layered structures (Continued...)
- Lecture 18 - Waves in guided structures and modes
- Lecture 19 - Waves in guided structures and modes (Continued...)
- Lecture 20 - Waves in guided structures and modes (Continued...)
- Lecture 21 - Waves in guided structures and modes (Continued...)
- Lecture 22 - Waves in guided structures and modes (Continued...)
- Lecture 23 - Waves in guided structures and modes (Continued...)
- Lecture 24 - Coupling of waves and optical couplers
- Lecture 25 - Coupling of waves and optical couplers (Continued...)
- Lecture 26 - Coupling of waves and optical couplers (Continued...)
- Lecture 27 - Coupling of waves and optical couplers (Continued...)
- Lecture 28 - Coupling of waves and optical couplers (Continued...)
- Lecture 29 - Electro-optic Effect

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electro-optic Effect (Continued...)
- Lecture 31 - Electro-optic Effect (Continued...)
- Lecture 32 - Electro-optic Effect (Continued...)
- Lecture 33 - Electro-optic Effect (Continued...)
- Lecture 34 - Electro-optic Modulators and Devices
- Lecture 35 - Electro-optic Modulators and Devices (Continued...)
- Lecture 36 - Electro-optic Modulators and Devices (Continued...)
- Lecture 37 - Electro-optic Modulators and Devices (Continued...)
- Lecture 38 - Electro-optic Modulators and Devices (Continued...)
- Lecture 39 - Electro-optic Modulators and Devices (Continued...)
- Lecture 40 - Electro-optic Modulators and Devices (Continued...)
- Lecture 41 - Acousto-optic Effect
- Lecture 42 - Acousto-optic Effect (Continued...)
- Lecture 43 - Acousto-optic Effect (Continued...)
- Lecture 44 - Acousto-optic Effect (Continued...)
- Lecture 45 - Acousto-optic Effect (Continued...)
- Lecture 46 - Acousto-optic Effect (Continued...)
- Lecture 47 - Acousto-optic Effect (Continued...)
- Lecture 48 - Acousto-optic Effect (Continued...)
- Lecture 49 - Acousto-optic Effect (Continued...)
- Lecture 50 - Acousto-optic Effect (Continued...)
- Lecture 51 - Acousto-optic Effect (Continued...)
- Lecture 52 - Acousto-optic Effect (Continued...)
- Lecture 53 - Acousto-optic Effect (Continued...)
- Lecture 54 - Acousto-optic Modulators and Devices
- Lecture 55 - Acousto-optic Modulators and Devices (Continued...)
- Lecture 56 - Acousto-optic Modulators and Devices (Continued...)
- Lecture 57 - Acousto-optic Modulators and Devices (Continued...)
- Lecture 58 - Magneto-optic Effect
- Lecture 59 - Magneto-optic Effect (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to Non-linear Optics and its Applications

Subject Co-ordinator - Prof. Samudra Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Linear Optics
- Lecture 2 - Basic Linear Optics (Continued...)
- Lecture 3 - Basic Linear Optics (Continued...)
- Lecture 4 - Basic Linear Optics (Continued...)
- Lecture 5 - Basic Linear Optics (Continued...)
- Lecture 6 - Basic Linear Optics (Continued...)
- Lecture 7 - Basic Linear Optics (Continued...)
- Lecture 8 - Basic Linear Optics (Continued...)
- Lecture 9 - Basic Linear Optics (Continued...)
- Lecture 10 - Nonlinear Optics
- Lecture 11 - Classical origin of optical nonlinearity
- Lecture 12 - Miller's Rule
- Lecture 13 - Second Harmonic Generation (SHG)
- Lecture 14 - Optical Rectification, Linear electro-optic effect
- Lecture 15 - Sum and Difference frequency generation
- Lecture 16 - Nonlinear Maxwell's equation
- Lecture 17 - Theory of SHG
- Lecture 18 - Phase matching
- Lecture 19 - Phase matching of SHG, Gain band width calculation
- Lecture 20 - Manley-Rowe Relation, Energy conservation in SHG,
- Lecture 21 - Birefringence phase-matching (BPM), Type I and Type II phase matching
- Lecture 22 - Type II phase matching, Symmetry in nonlinear susceptibility
- Lecture 23 - Kleinman's Symmetry, Neumann's Principle
- Lecture 24 - Neumann's Principle (Continued...) Centrosymmetric system
- Lecture 25 - Matrix form
- Lecture 26 - SHG in KDP crystal, Calculation of  $d_{eff}$
- Lecture 27 - SHG in LiNbO<sub>3</sub>
- Lecture 28 - Quasi phase matching (QPM)
- Lecture 29 - Quasi phase matching (QPM) (Continued...), Periodic  $d$  function

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - 1st, 2nd, 3rd order QPM, SHG under depleted pump
- Lecture 31 - Realistic calculation of SHG, 3 wave interaction
- Lecture 32 - 3 wave interaction, Equation for pump, signal and idler wave, Non-collinear phase matching
- Lecture 33 - Manley-Rowe Relation (3 wave mixing), Parametric down conversion
- Lecture 34 - Parametric down conversion (Continued...), Optical Parametric Amplification (OPA)
- Lecture 35 - Optical Parametric Amplification (OPA), Difference frequency generation under OPA
- Lecture 36 - Sum frequency generation under OPA
- Lecture 37 - OPA under non-phase matching condition, Expression of gain
- Lecture 38 - Optical parametric Oscillator (OPO), Singly resonant oscillator
- Lecture 39 - Doubly Resonant Oscillator (DRO)
- Lecture 40 - Doubly Resonant Oscillator (DRO) (Continued...)
- Lecture 41 - 3rd order nonlinear effect
- Lecture 42 - Optical Kerr effect and Self-focusing, Symmetry in 3rd order susceptibility
- Lecture 43 - Symmetry in 3rd order susceptibility (Continued...), Self Phase Modulation (SPM)
- Lecture 44 - Self Phase Modulation (Continued...), Frequency Shift
- Lecture 45 - Third Harmonic Generation(3HG), Energy conservation
- Lecture 46 - Third Harmonic Generation (Continued...)
- Lecture 47 - Third Harmonic Generation (Continued...), Cross Phase Modulation (XPM)
- Lecture 48 - Cross Phase Modulation (Continued...), Nonlinear Absorption
- Lecture 49 - Four Wave Mixing
- Lecture 50 - Four Wave mixing (Continued...)
- Lecture 51 - Parametric Amplification under FWM
- Lecture 52 - Parametric Amplification under FWM (Continued...)
- Lecture 53 - Optical Phase Conjugation
- Lecture 54 - Raman Scattering
- Lecture 55 - Stimulated Raman Scattering
- Lecture 56 - Raman Amplification
- Lecture 57 - Raman Amplification (Continued...)
- Lecture 58 - Linear pulse propagation
- Lecture 59 - Nonlinear Pulse propagation
- Lecture 60 - Optical Soliton

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Upstream LNG Technology

Subject Co-ordinator - Prof. Pavitra Sandilya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Concentration
- Lecture 3 - Sources and Process Overview of Natural Gas
- Lecture 4 - Pure Component Phase Behavior
- Lecture 5 - Mixture Phase Behavior
- Lecture 6 - Phase Behaviour of Natural Gas
- Lecture 7 - Dew Point and Bubble Point Calculations
- Lecture 8 - Vapor Liquid Equilibrium
- Lecture 9 - Problems on Vapor Pressure, Gibb's Phase Rule, Dew Point Bubble Point Temperatures
- Lecture 10 - Thermophysical Properties of Natural Gas - I
- Lecture 11 - Thermophysical Properties of Natural Gas - II
- Lecture 12 - Thermodynamic and Chemical Properties
- Lecture 13 - Combustion Properties
- Lecture 14 - Flow in Natural Gas Systems
- Lecture 15 - Flow Measurement In Natural Gas - I
- Lecture 16 - Flow Measurement In Natural Gas - II
- Lecture 17 - Temperature and Quality Measurement in Natural Gas Systems
- Lecture 18 - Pressure measurement in natural gas systems
- Lecture 19 - Tutorial on the estimation of thermophysical properties
- Lecture 20 - Tutorial on the combustion and thermodynamic properties of natural gas
- Lecture 21 - Tutorial on fluid mechanics
- Lecture 22 - Tutorial on flow and pressure measurement in natural gas systems
- Lecture 23 - Tutorial on temperature and quality measurement in natural gas
- Lecture 24 - Heat transfer in natural gas systems
- Lecture 25 - Tutorial on heat transfer in natural gas systems
- Lecture 26 - Heat exchangers in natural gas systems
- Lecture 27 - Analysis of heat exchangers in natural gas systems
- Lecture 28 - Tutorial on heat exchanger analysis
- Lecture 29 - Equilibrium vapour-liquid separation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equilibrium in multicomponent systems
- Lecture 31 - Separation by distillation
- Lecture 32 - Design of distillation column
- Lecture 33 - Equilibrium fluid solid separation
- Lecture 34 - Membrane separation in natural gas systems
- Lecture 35 - Estimation of water content in natural gas
- Lecture 36 - Multistage single component equilibrium separation
- Lecture 37 - Tutorial on vapour liquid separation
- Lecture 38 - Tutorial on ideal binary distillation
- Lecture 39 - Tutorial on equilibrium gas- solid separation
- Lecture 40 - Tutorial on membrane gas separation
- Lecture 41 - Dehydration of natural gas
- Lecture 42 - Natural gas Processing - hydrate removal
- Lecture 43 - Acid gas removal in natural gas system - I
- Lecture 44 - Acid gas removal in natural gas system - II
- Lecture 45 - Nitrogen removal in natural gas system - I
- Lecture 46 - Nitrogen removal in natural gas system - II
- Lecture 47 - Compression in natural gas systems
- Lecture 48 - Compressors used in natural gas systems
- Lecture 49 - Tutorial on hydrate removal
- Lecture 50 - Multicomponent distillation column design
- Lecture 51 - Sulfur recovery in natural gas systems - I
- Lecture 52 - Tutorial on compression
- Lecture 53 - Pigging
- Lecture 54 - Sulfur recovery in natural gas systems - II
- Lecture 55 - Trace components in natural gas
- Lecture 56 - Helium recovery, upgradation and purification
- Lecture 57 - Fundamentals of absorption and stripping for natural gas processing
- Lecture 58 - Tutorial on absorption and stripping
- Lecture 59 - Gas liquid separation in natural gas systems - I
- Lecture 60 - Gas liquid separation in natural gas systems - II
- Lecture 61 - Tutorial on equilibrium in multicomponent systems
- Lecture 62 - Tutorial on multicomponent distillation - I
- Lecture 63 - Tutorial on multicomponent distillation - II
- Lecture 64 - Pumps in natural gas systems - I
- Lecture 65 - Pumps in natural gas systems - II
- Lecture 66 - Pumps in natural gas systems - III
- Lecture 67 - Tutorial on pumps - I
- Lecture 68 - Tutorial on pumps - II

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- Lecture 69 - Cryogenic refrigeration and liquefaction in natural gas systems - I
- Lecture 70 - Cryogenic refrigeration and liquefaction in natural gas systems - II
- Lecture 71 - Tutorial on refrigeration - I
- Lecture 72 - Tutorial on refrigeration - II
- Lecture 73 - Cryogenic refrigeration and liquefaction in natural gas systems - III
- Lecture 74 - Cryogenic refrigeration and liquefaction in natural gas systems - IV
- Lecture 75 - Cryogenic refrigeration and liquefaction in natural gas systems - V
- Lecture 76 - Tutorial on refrigeration - III
- Lecture 77 - Tutorial on refrigeration and liquefaction - IV
- Lecture 78 - Tutorial on refrigeration and liquefaction - V
- Lecture 79 - Hydrocarbon recovery in natural gas system - I
- Lecture 80 - Hydrocarbon recovery in natural gas system - II
- Lecture 81 - Hydrocarbon recovery in natural gas system - III
- Lecture 82 - Tutorial on hydrocarbon recovery in natural gas
- Lecture 83 - Piping in natural gas systems - I
- Lecture 84 - Piping in natural gas systems - II
- Lecture 85 - Tutorial on piping in natural gas systems - I
- Lecture 86 - Tutorial on piping in natural gas systems - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Special Topics in Atomic Physics

Subject Co-ordinator - Prof. P.C. Deshmukh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introductory lecture about this course
- Lecture 2 - Quantum Mechanics and Symmetry of the Hydrogen Atom
- Lecture 3 - Hydrogen atom
- Lecture 4 - Hydrogen atom
- Lecture 5 - Degeneracy of the Hydrogen Atom
- Lecture 6 - Wavefunctions of the Hydrogen Atom
- Lecture 7 - Angular Momentum in Quantum Mechanics
- Lecture 8 - Angular Momentum in Quantum Mechanics
- Lecture 9 - Angular Momentum in Quantum Mechanics
- Lecture 10 - Angular Momentum in Quantum Mechanics Dimensionality of the Direct-Product (Composite) Vector Sp
- Lecture 11 - Angular Momentum in Quantum Mechanics CGC matrix, Wigner D Rotation Matrix, Irreducible Tensor C
- Lecture 12 - Angular Momentum in Quantum Mechanics - more on ITO, and the Wigner-Eckart Theorem
- Lecture 13 - Angular Momentum in Quantum Mechanics Wigner-Eckart Theorem - 2
- Lecture 14 - Relativistic Quantum Mechanics of the Hydrogen Atom - 1
- Lecture 15 - Relativistic Quantum Mechanics of the Hydrogen Atom - 2
- Lecture 16 - Relativistic Quantum Mechanics of the Hydrogen Atom - PAULI Equation - Foldy - Wouthysen Transfo
- Lecture 17 - Relativistic Quantum Mechanics of the Hydrogen Atom - Foldy - Wouthysen Transformations - 2
- Lecture 18 - Relativistic Quantum Mechanics of the Hydrogen Atom - Foldy - Wouthysen Transformations - 3
- Lecture 19 - Relativistic Quantum Mechanics of the Hydrogen Atom - Spherical Symmetry of the Coulomb Potentia
- Lecture 20 - Hartree-Fock Self-Consistent Field formalism - 1
- Lecture 21 - Hartree-Fock Self-Consistent Field formalism - 2
- Lecture 22 - Hartree-Fock Self-Consistent Field formalism - 3
- Lecture 23 - Hartree-Fock Self-Consistent Field formalism - 4
- Lecture 24 - Hartree-Fock Self-Consistent Field formalism - 5
- Lecture 25 - Perturbative treatment of relativistic effectsâ | Schrodinger's and Dirac QM
- Lecture 26 - Perturbative treatment of relativistic effectsâ | Schrodinger's and Dirac QM
- Lecture 27 - Probing the atom - Collisions and Spectroscopy - boundary conditions - 1
- Lecture 28 - Atomic Probes - Collisions and Spectroscopy - boundary conditions - 2
- Lecture 29 - Atomic Probes - Collisions and Spectroscopy - Scattering phase shifts and boundary conditions

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- Lecture 30 - Atomic Probes - Time reversal symmetry - applications in atomic collisions and photoionization p
- Lecture 31 - Atomic Photoionization cross sections, angular distributions of photoelectrons - 1
- Lecture 32 - Atomic Photoionization cross sections, angular distributions of photoelectrons - 2
- Lecture 33 - Atomic Photoionization cross sections, angular distributions of photoelectrons - 3
- Lecture 34 - Atomic Photoionization cross sections, angular distributions of photoelectrons - 4
- Lecture 35 - Atomic Photoionization cross sections, angular distributions of photoelectrons Cooper Zare Formu
- Lecture 36 - Stark- Zeeman Spectroscopy - Stark effect
- Lecture 37 - Stark- Zeeman Spectroscopy - Stark effect on n=2 excited state of the H atom Zeeman effect
- Lecture 38 - Stark- Zeeman Spectroscopy - Normal, Anomalous Zeeman effect; Paschen- Back effect
- Lecture 39 - Stark- Zeeman Spectroscopy - Anomalous Zeeman effect
- Lecture 40 - Zeeman effect Fine structure, Hyperfine structure - Elemental, rudimentary introduction to Laser



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Classical Field Theory

Subject Co-ordinator - Prof. Suresh Govindarajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is Classical Field Theory?  
Lecture 2 - Symmetries and Invariances - I  
Lecture 3 - Symmetries and Invariances - II  
Lecture 4 - Group Theory in Physics - I  
Lecture 5 - Group Theory in Physics - II  
Lecture 6 - Finite Groups - I  
Lecture 7 - Finite Groups - II  
Lecture 8 - Basics of CFT - I  
Lecture 9 - Basics of CFT - II  
Lecture 10 - Basics of CFT - III  
Lecture 11 - Green Functions - I  
Lecture 12 - Green Functions - II  
Lecture 13 - Noether's Theorem - I  
Lecture 14 - Noether's Theorem - II  
Lecture 15 - Kink Soliton  
Lecture 16 - Hidden Symmetry  
Lecture 17 - Local Symmetries  
Lecture 18 - The Abelian Higgs model  
Lecture 19 - Lie Algebras - I  
Lecture 20 - Lie Algebras - II  
Lecture 21 - Magnetic Vortices - I  
Lecture 22 - Magnetic Vortices - II  
Lecture 23 - Non-abelian gauge theories - I  
Lecture 24 - Non-abelian gauge theories - II  
Lecture 25 - Irreps of Lie algebras - I  
Lecture 26 - Irreps of Lie algebras - II  
Lecture 27 - The Standard Model - I  
Lecture 28 - The Standard Model - II  
Lecture 29 - Irreps of the Lorentz/Poincare algebras

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Dirac monopole
- Lecture 31 - The 't Hooft-Polyakov monopole
- Lecture 32 - Revisiting Derrick's Theorem
- Lecture 33 - The Julia-Zee dyon
- Lecture 34 - Instantons - I
- Lecture 35 - Instantons - II
- Lecture 36 - Instantons - III
- Lecture 37 - Instantons - IV
- Lecture 38 - Dualities
- Lecture 39 - Geometrization of Field Theory

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Topics in Nonlinear Dynamics

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview
- Lecture 2 - Critical points of a dynamical system
- Lecture 3 - Two-dimensional flows
- Lecture 4 - Stable and unstable manifolds
- Lecture 5 - Hamiltonian dynamics - Part I
- Lecture 6 - Hamiltonian dynamics - Part II
- Lecture 7 - Hamiltonian dynamics - Part III
- Lecture 8 - Hamiltonian dynamics - Part IV
- Lecture 9 - Hamiltonian dynamics - Part V
- Lecture 10 - Elementary bifurcations
- Lecture 11 - Limit cycles
- Lecture 12 - Poincaré index
- Lecture 13 - Illustrative examples
- Lecture 14 - Quiz 1. Questions and answers
- Lecture 15 - Bead on a rotating hoop
- Lecture 16 - Types of dynamical behaviour
- Lecture 17 - Discrete time dynamics - Part I
- Lecture 18 - Discrete time dynamics - Part II
- Lecture 19 - Discrete time dynamics - Part III
- Lecture 20 - Discrete time dynamics - Part IV
- Lecture 21 - Coarse-grained dynamics in phase space - Part I
- Lecture 22 - Coarse-grained dynamics in phase space - Part II & Stochastic dynamics - Part I
- Lecture 23 - Stochastic dynamics - Part II
- Lecture 24 - Stochastic dynamics - Part III
- Lecture 25 - Coarse-grained dynamics in phase space - Part IV & Stochastic dynamics - Part IV
- Lecture 26 - Discrete time dynamics - Part V
- Lecture 27 - Quiz 2. Questions and answers
- Lecture 28 - Stochastic dynamics - Part V
- Lecture 29 - Stochastic dynamics - Part VI

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Condensed Matter Physics

Subject Co-ordinator - Prof. G. Rangarajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Principles of Condensed Matter Physics
- Lecture 2 - Symmetry in Perfect Solids
- Lecture 3 - Symmetry in Perfect Solids (Continued...)
- Lecture 4 - Symmetry in Perfect Solids - Worked Examples
- Lecture 5 - Diffraction Methods For Crystal Structures
- Lecture 6 - Diffraction Methods For Crystal Structures (Continued...)
- Lecture 7 - Diffraction Methods For Crystal Structures - Worked Examples
- Lecture 8 - Physical Properties of Crystals
- Lecture 9 - Physical Properties of Crystals (Continued...)
- Lecture 10 - Physical Properties of Crystals - Worked Examples
- Lecture 11 - Cohesion in Solids
- Lecture 12 - Cohesion in Solids - Worked Examples
- Lecture 13 - The Free Electron Theory of Metals
- Lecture 14 - The Free Electron Theory of Metals - Worked Examples
- Lecture 15 - The Free Electron Theory of Metals - Electrical Conductivity
- Lecture 16 - The Free Electron Theory of Metals - Electrical Conductivity - Worked Examples
- Lecture 17 - Thermal Conductivity of Metals
- Lecture 18 - Thermal Conductivity of Metals - Worked Examples
- Lecture 19 - The Concept of Phonons
- Lecture 20 - Debye Theory of Specific Heat, Lattice Vibrations
- Lecture 21 - Debye Theory of Specific Heat, Lattice Vibrations - Worked Examples
- Lecture 22 - Lattice Vibrations (Continued) Phonon thermal conductivity
- Lecture 23 - Lattice Vibrations (Continued) Phonon Thermal Conductivity - Worked Examples
- Lecture 24 - Anharmonicity and Thermal Expansion
- Lecture 25 - Dielectric (Insulating) Solids
- Lecture 26 - Dispersion and Absorption of Electromagnetic Waves in Dielectric Media, Ferro-and Antiferroelect
- Lecture 27 - Optical Properties of Metals; Ionic Polarization in Alkali Halides; Piezoelectricity
- Lecture 28 - Dielectric Solids - Worked Examples
- Lecture 29 - Dia - and Paramagnetism

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Paramagnetism of Transition Metal and Rare Earth Ions
- Lecture 31 - Quenching of Orbital Angular Momentum; Ferromagnetism
- Lecture 32 - Exchange Interactions, Magnetic Order, Neutron Diffraction
- Lecture 33 - Hysteresis and Magnetic Domains; Spin Waves and Magnons
- Lecture 34 - Magnetic Resonance
- Lecture 35 - Magnetism and Magnetic Resonance - Worked Examples
- Lecture 36 - Magnetism - Worked Examples (Continued...)
- Lecture 37 - Pauli Paramagnetism and Landau Diamagnetism
- Lecture 38 - Band Magnetism; Itinerant Electrons; Stoner Model
- Lecture 39 - Superconductivity - Perfect Electrical Conductivity and Perfect Diamagnetism
- Lecture 40 - Type I and Type II Superconductors
- Lecture 41 - Ginsburg - Landau Theory, Flux Quantization
- Lecture 42 - Cooper Pairs
- Lecture 43 - Microscopic (BCS) Theory of Superconductivity
- Lecture 44 - BCS Theory (Continued...)
- Lecture 45 - Josephson Effect (Continued...); High Temperature Superconductors
- Lecture 46 - Superconductors - Worked Examples
- Lecture 47 - Energy Bands in Solids
- Lecture 48 - Electron Dynamics in a Periodic Solid
- Lecture 49 - Semiconductors
- Lecture 50 - Semiconductors (Continued...)
- Lecture 51 - Semiconductors - Worked Examples
- Lecture 52 - Defects in Solids - Point Defects
- Lecture 53 - Point Defects in Solids - Worked Examples
- Lecture 54 - Defects in Solids - Line and Surface Defects
- Lecture 55 - Dislocations in Solids - Worked Examples
- Lecture 56 - Quantum Fluids and Quantum Solids
- Lecture 57 - Quantum Liquids and Quantum Solids - Worked Examples
- Lecture 58 - Epilogue

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Quantum Field Theory

Subject Co-ordinator - Dr. Prasanta Tripathy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction to Classical Field Theory  
Lecture 3 - Quantization of Real Scalar Field - I  
Lecture 4 - Quantization of Real Scalar Field - II  
Lecture 5 - Quantization of Real Scalar Field - III  
Lecture 6 - Quantization of Real Scalar Field - IV  
Lecture 7 - Quantization of Complex Scalar Field  
Lecture 8 - Interacting Field Theory - I  
Lecture 9 - Interacting Field Theory - II  
Lecture 10 - Interacting Field Theory - III  
Lecture 11 - Interacting Field Theory - IV  
Lecture 12 - Interacting Field Theory - V  
Lecture 13 - Interacting Field Theory - VI  
Lecture 14 - Interacting Field Theory - VII  
Lecture 15 - Quantization of Electromagnetic Field - I  
Lecture 16 - Quantization of Electromagnetic Field - II  
Lecture 17 - Fermion Quantization - I  
Lecture 18 - Fermion Quantization - II  
Lecture 19 - Fermion Quantization - III  
Lecture 20 - Fermion Quantization - IV  
Lecture 21 - Fermion Quantization - V  
Lecture 22 - Fermion Quantization - VI  
Lecture 23 - The S-Matrix Expansion in QED - I  
Lecture 24 - The S-Matrix Expansion in QED - II  
Lecture 25 - Feynman Rules in QED - I  
Lecture 26 - Feynman Rules in QED - II  
Lecture 27 - Compton Scattering - I  
Lecture 28 - Compton Scattering - II  
Lecture 29 - Compton Scattering - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Moller Scattering - I
- Lecture 31 - Moller Scattering - II
- Lecture 32 - Vertex Correction - I
- Lecture 33 - Vertex Correction - II
- Lecture 34 - Vertex Correction - III
- Lecture 35 - Vertex Correction - IV
- Lecture 36 - Electron Selfenergy
- Lecture 37 - Photon Selfenergy - I
- Lecture 38 - Photon Selfenergy - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Quantum Mechanics I

Subject Co-ordinator - Prof. S. Lakshmi Bala

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Quantum Mechanics â An Introduction  
Lecture 2 - Linear Vector Spaces - I  
Lecture 3 - Linear Vector Spaces - II  
Lecture 4 - Linear Vector Spaces - III  
Lecture 5 - Postulates of Quantum Mechanics - I  
Lecture 6 - Postulates of Quantum Mechanics - II  
Lecture 7 - The Uncertainty Principle  
Lecture 8 - The Linear Harmonic Oscillator  
Lecture 9 - Introducing Quantum Optics  
Lecture 10 - An Interesting Quantum Superposition  
Lecture 11 - The Displacement and Squeezing Operators  
Lecture 12 - Exercises in Finite Dimensional Linear Vector Spaces  
Lecture 13 - Exercises on Angular Momentum Operators and their algebra  
Lecture 14 - Exercises on Quantum Expectation Values  
Lecture 15 - Composite Systems  
Lecture 16 - The Quantum Beam Splitter  
Lecture 17 - Addition of Angular Momenta - I  
Lecture 18 - Addition of Angular Momenta - II  
Lecture 19 - Addition of Angular Momenta - III  
Lecture 20 - Infinite Dimensional Linear Vector Spaces  
Lecture 21 - Square-Integrable Functions  
Lecture 22 - Ingredients of Wave Mechanics  
Lecture 23 - The Schrodinger equation  
Lecture 24 - Wave Mechanics of the Simple Harmonic Oscillator  
Lecture 25 - One-Dimensional Square Well Potential  
Lecture 26 - The Square Well and the Square Potential Barrier  
Lecture 27 - The Particle in a one-dimensional Box  
Lecture 28 - A Charged Particle in a Uniform Magnetic Field  
Lecture 29 - The Wavefunction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Central Potential
- Lecture 31 - The Spherical Harmonics
- Lecture 32 - Central Potential
- Lecture 33 - Illustrative Exercises - I
- Lecture 34 - Illustrative Exercises - II
- Lecture 35 - Ehrenfest's Theorem
- Lecture 36 - Perturbation Theory - I
- Lecture 37 - Perturbation Theory - II
- Lecture 38 - Perturbation Theory - III
- Lecture 39 - Perturbation Theory - IV
- Lecture 40 - Time-dependent Hamiltonians
- Lecture 41 - The Jaynes-Cummings model

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Special Topics in Classical Mechanics

Subject Co-ordinator - Prof. P.C. Deshmukh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Overview
- Lecture 2 - Equations of Motion (i)
- Lecture 3 - Equations of Motion (ii)
- Lecture 4 - Equations of Motion (iii)
- Lecture 5 - Equations of Motion (iv)
- Lecture 6 - Equations of Motion (v)
- Lecture 7 - Oscillators, Resonances, Waves (i)
- Lecture 8 - Oscillators, Resonances, Waves (ii)
- Lecture 9 - Oscillators, Resonances, Waves (iii)
- Lecture 10 - Oscillators, Resonances, Waves (iv)
- Lecture 11 - Polar Coordinates (i)
- Lecture 12 - Polar Coordinates (ii)
- Lecture 13 - Dynamical Symmetry in the Kepler Problem (i)
- Lecture 14 - Dynamical Symmetry in the Kepler Problem (ii)
- Lecture 15 - Real Effects of Pseudo-Forces (i)
- Lecture 16 - Real Effects of Pseudo-Forces (ii)
- Lecture 17 - Real Effects of Pseudo-Forces (iii)
- Lecture 18 - Real Effects of Pseudo-Forces (iv)
- Lecture 19 - Special Theory of Relativity (i)
- Lecture 20 - Special Theory of Relativity (ii)
- Lecture 21 - Special Theory of Relativity (iii)
- Lecture 22 - Special Theory of Relativity (iv)
- Lecture 23 - Potentials Gradients Fields (i)
- Lecture 24 - Potentials Gradients Fields (ii)
- Lecture 25 - Potentials Gradients Fields (iii)
- Lecture 26 - Gauss Law Eq of continuity (i)
- Lecture 27 - Gauss Law Eq of continuity (ii)
- Lecture 28 - Gauss Law Eq of continuity (iii)
- Lecture 29 - Fluid Flow Bernoulli Principle (i)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fluid Flow Bernoulli Principle (ii)
- Lecture 31 - Classical Electrodynamics (i)
- Lecture 32 - Classical Electrodynamics (ii)
- Lecture 33 - Classical Electrodynamics (iii)
- Lecture 34 - Classical Electrodynamics (iv)
- Lecture 35 - Chaotic Dynamical Systems (i)
- Lecture 36 - Chaotic Dynamical Systems (ii)
- Lecture 37 - Chaotic Dynamical Systems (iii)
- Lecture 38 - Chaotic Dynamical Systems (iv)
- Lecture 39 - Chaotic Dynamical Systems (v)
- Lecture 40 - The Scope and Limitations of Classical Mechanics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Special, Select Topics in the Theory of Atomic Collisions and Spectroscopy

Subject Co-ordinator - Prof. P.C. Deshmukh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the STiTACS course
- Lecture 2 - Quantum Theory of collisions
- Lecture 3 - Quantum Theory of collisions
- Lecture 4 - Quantum Theory of collisions
- Lecture 5 - Quantum Theory of collisions
- Lecture 6 - Quantum Theory of collisions
- Lecture 7 - Quantum Theory of collisions
- Lecture 8 - Quantum Theory of collisions
- Lecture 9 - Quantum Theory of collisions
- Lecture 10 - Quantum Theory of collisions
- Lecture 11 - Quantum Theory of collisions
- Lecture 12 - Quantum Theory of collisions
- Lecture 13 - Many body theory, electron correlations
- Lecture 14 - Second Quantization Creation, Destruction and Number operators
- Lecture 15 - Many-particle Hamiltonian & Schrodinger Equation in 2nd Quantization
- Lecture 16 - Many-electron problem in quantum mechanics
- Lecture 17 - Hartree-Fock Self-Consistent-Field
- Lecture 18 - Exchange, Statistical, Fermi-Dirac correlations
- Lecture 19 - Limitations of the Hartree-Fock Self-Consistent-Field formalism
- Lecture 20 - Many-Body formalism, II Quantization
- Lecture 21 - Density fluctuations in an electron gas
- Lecture 22 - Bohm-Pines approach to Random Phase Approximation
- Lecture 23 - Bohm-Pines approach to Random Phase Approximation (Continued...)
- Lecture 24 - Bohm-Pines approach to Random Phase Approximation (Continued...)
- Lecture 25 - Schrodinger, Heisenberg and Dirac's pictures of QM
- Lecture 26 - Dyson's chronological operator
- Lecture 27 - Gell-Mann-Low Theorem
- Lecture 28 - Reyleigh-Schrodinger perturbation methods and adiabatic switching
- Lecture 29 - Feynman Diagrams

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - I Order Feynman Diagrams
- Lecture 31 - II and higher order Feynman Diagrams
- Lecture 32 - Linear response of electron correlations
- Lecture 33 - Lippman Schwinger equation of potential scattering
- Lecture 34 - Born Approximation
- Lecture 35 - Coulomb scattering
- Lecture 36 - Scattering of partial waves
- Lecture 37 - Scattering at high energy
- Lecture 38 - Resonances in Quantum Collisions
- Lecture 39 - Breit-Wigner Resonances
- Lecture 40 - Fano parameterization of Breit-Wigner formula
- Lecture 41 - Discrete state embedded in the continuum
- Lecture 42 - Resonance life times
- Lecture 43 - Wigner-Eisenbud formalism of time-delay in scattering
- Lecture 44 - Photoionization and Photoelectron Angular Distributions
- Lecture 45 - Ionization and Excitation of Atoms by Fast Charged Particles
- Lecture 46 - Photo-absorption by Free and Confined Atoms and Ions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Selected Topics in Mathematical Physics

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Analytic functions of a complex variable - Part I
- Lecture 2 - Analytic functions of a complex variable - Part II
- Lecture 3 - Calculus of residues - Part I
- Lecture 4 - Calculus of residues - Part II
- Lecture 5 - Calculus of residues - Part III
- Lecture 6 - Calculus of residues - Part IV
- Lecture 7 - Linear response; dispersion relations - Part I
- Lecture 8 - Linear response; dispersion relations - Part II
- Lecture 9 - Analytic continuation and the gamma function - Part I
- Lecture 10 - Analytic continuation and the gamma function - Part II
- Lecture 11 - Möbius transformations - Part I
- Lecture 12 - Möbius transformations - Part II
- Lecture 13 - Möbius transformations - Part III
- Lecture 14 - Multivalued functions; integral representations - Part I
- Lecture 15 - Multivalued functions; integral representations - Part II
- Lecture 16 - Multivalued functions; integral representations - Part III
- Lecture 17 - Multivalued functions; integral representations - Part IV
- Lecture 18 - Laplace transforms - Part I
- Lecture 19 - Laplace transforms - Part II
- Lecture 20 - Fourier transforms - Part I
- Lecture 21 - Fourier transforms - Part II
- Lecture 22 - Fourier transforms - Part III
- Lecture 23 - Fundamental Green function for  $\hat{1}^2$  - Part I
- Lecture 24 - Fundamental Green function for  $\hat{1}^2$  - Part II
- Lecture 25 - The diffusion equation - Part I
- Lecture 26 - The diffusion equation - Part II
- Lecture 27 - The diffusion equation - Part III
- Lecture 28 - The diffusion equation - Part IV
- Lecture 29 - Green function for  $(\hat{1}^2 + k^2)$ ; nonrelativistic scattering - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Green function for  $(\hat{I}^2 + k^2)$ ; nonrelativistic scattering - Part II
- Lecture 31 - Green function for  $(\hat{I}^2 + k^2)$ ; nonrelativistic scattering - Part III
- Lecture 32 - The wave equation - Part I
- Lecture 33 - The wave equation - Part II
- Lecture 34 - The rotation group and all that - Part I
- Lecture 35 - The rotation group and all that - Part II
- Lecture 36 - The rotation group and all that - Part III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Nuclear Reactors and Safety - An Introduction

Subject Co-ordinator - Dr.G.Vaidyanathan

Co-ordinating Institute - SRM University

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Energy Sources
- Lecture 2 - Nuclear Power Production Cycle
- Lecture 3 - Basic Physics of Nuclear Fission
- Lecture 4 - Basic Physics of Nuclear Fission (Continued...)
- Lecture 5 - Nuclear Reactors
- Lecture 6 - Reactors Generation
- Lecture 7 - Radiation Sources and Protection
- Lecture 8 - Biological Effects of Radiation
- Lecture 9 - Safety Principles
- Lecture 10 - Safety Principles (Continued...)
- Lecture 11 - Safety Approach
- Lecture 12 - Risk and Probabilistic safety analysis (PSA)
- Lecture 13 - History of Events in Nuclear Power Plants and Radiation facilities
- Lecture 14 - Other Events
- Lecture 15 - Validation and Dynamic Analysis
- Lecture 16 - Validation and Dynamic Analysis (Continued...)
- Lecture 17 - Quality Assurance
- Lecture 18 - Siting of Nuclear Plants
- Lecture 19 - Siting of Nuclear Plants (Continued...)
- Lecture 20 - Engineered Safety Systems
- Lecture 21 - Engineered Safety Systems (Continued...)
- Lecture 22 - Assessment of Radiological Consequences of Incidents
- Lecture 23 - Safety Regulation in India
- Lecture 24 - Safety Regulation in India (Continued...)
- Lecture 25 - Safety Regulation in India (Continued...)
- Lecture 26 - Safety Practices in Indian NPPs
- Lecture 27 - Safety Practices in Indian NPPs (Continued...)
- Lecture 28 - Safety Practices in Indian NPPs (Continued...)
- Lecture 29 - Passive Safety

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Passive Safety (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Physical Applications of Stochastic Processes

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Discrete probability distributions - Part 1
- Lecture 2 - Discrete probability distributions - Part 2
- Lecture 3 - Continuous random variables
- Lecture 4 - Central Limit Theorem
- Lecture 5 - Stable distributions
- Lecture 6 - Stochastic processes
- Lecture 7 - Markov processes - Part 1
- Lecture 8 - Markov processes - Part 2
- Lecture 9 - Markov processes - Part 3
- Lecture 10 - Birth-and-death processes
- Lecture 11 - Continuous Markov processes
- Lecture 12 - Langevin dynamics - Part 1
- Lecture 13 - Langevin dynamics - Part 2
- Lecture 14 - Langevin dynamics - Part 3
- Lecture 15 - Langevin dynamics - Part 4
- Lecture 16 - Itô and Fokker-Planck equations for diffusion processes
- Lecture 17 - Level-crossing statistics of a continuous random process
- Lecture 18 - Diffusion of a charged particle in a magnetic field
- Lecture 19 - Power spectrum of noise
- Lecture 20 - Elements of linear response theory
- Lecture 21 - Random pulse sequences
- Lecture 22 - Dichotomous diffusion
- Lecture 23 - First passage time - Part 1
- Lecture 24 - First passage time - Part 2
- Lecture 25 - First passage and recurrence in Markov chains
- Lecture 26 - Recurrent and transient random walks
- Lecture 27 - Non-Markovian random walks
- Lecture 28 - Statistical aspects of deterministic dynamics - Part 1
- Lecture 29 - Statistical aspects of deterministic dynamics - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Mechanics, Heat Oscillations and Waves

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Nature of Physical Laws
- Lecture 2 - Fundamental Constants and Dimensional Analysis
- Lecture 3 - Dimensional analysis and scaling
- Lecture 4 - sketching Elementary Functions
- Lecture 5 - The fundamental forces of nature
- Lecture 6 - Scalars, Vectors and All That
- Lecture 7 - Plane Polar Coordinates
- Lecture 8 - Vectors In a Plane, Scalars and Pseudoscalars
- Lecture 9 - Kinematics In a Plane
- Lecture 10 - Vectors in 3-Dimensional Space
- Lecture 11 - Vectors in 3-Dimensional space (Continued...)
- Lecture 12 - The Finite Rotation Formula, Polar Coordinates in 3-dimensions
- Lecture 13 - Cylindrical and Spherical polar coordinates
- Lecture 14 - Motion in a circle - Acceleration
- Lecture 15 - Newtons laws of motion
- Lecture 16 - Conservation Laws and Newtons Equations
- Lecture 17 - Conservation of Angular Momentum
- Lecture 18 - Two-Body Scattering
- Lecture 19 - Two-Body Collision Kinematics
- Lecture 20 - Conservative Forces - The Concept of a Potential
- Lecture 21 - Central Potential and Central Force
- Lecture 22 - The 2-Body Central Force Problem
- Lecture 23 - Keplers Laws of Planetary Motion
- Lecture 24 - Non-Inertial Forces (Pseudo-forces)
- Lecture 25 - More on the Kepler problem; Satellite motion
- Lecture 26 - Linear Elasticity of Solids
- Lecture 27 - Simple Harmonic Motion
- Lecture 28 - Some Physical Examples of Simple Harmonic Motion
- Lecture 29 - More on Simple Harmonic Motion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Damped Simple Harmonic Motion
- Lecture 31 - Wave Motion - Travelling and Standing Waves
- Lecture 32 - Wave Motion - Wave Equation, General Solution
- Lecture 33 - Fluid Dynamics - Hydrostatic Equilibrium
- Lecture 34 - Fluid Dynamics - Equation of Continuity
- Lecture 35 - Fluid Flow - Bernoullis Principle
- Lecture 36 - Circulation and Vorticity
- Lecture 37 - What is Thermodynamics?
- Lecture 38 - The Classical Ideal Gas
- Lecture 39 - The Laws of Thermodynamics
- Lecture 40 - Specific Heat of an Ideal Gas
- Lecture 41 - Van der Waals Equation
- Lecture 42 - Phase Transitions
- Lecture 43 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Nonequilibrium Statistical Mechanics

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Recapitulation of equilibrium statistical mechanics
- Lecture 2 - The Langevin model (Part 1)
- Lecture 3 - The Langevin model (Part 2)
- Lecture 4 - The Langevin model (Part 3)
- Lecture 5 - The Langevin model (Part 4)
- Lecture 6 - Linear response theory (Part 1)
- Lecture 7 - Linear response theory (Part 2)
- Lecture 8 - Linear response (Part 3)
- Lecture 9 - Linear response (Part 4)
- Lecture 10 - Linear response (Part 5)
- Lecture 11 - Linear response (Part 6)
- Lecture 12 - Linear response theory (Part 7)
- Lecture 13 - Quiz 1 - Questions and answers
- Lecture 14 - Linear response theory (Part 8)
- Lecture 15 - Linear response theory (Part 9)
- Lecture 16 - The dynamic mobility
- Lecture 17 - Fokker-Planck equations (Part 1)
- Lecture 18 - Fokker-Planck equations (Part 2)
- Lecture 19 - Fokker-Planck equations (Part 3)
- Lecture 20 - The generalized Langevin equation (Part 1)
- Lecture 21 - The generalized Langevin equation (Part 2)
- Lecture 22 - Diffusion in a magnetic field
- Lecture 23 - The Boltzmann equation for a dilute gas (Part 1)
- Lecture 24 - The Boltzmann equation for a dilute gas (Part 2)
- Lecture 25 - The Boltzmann equation for a dilute gas (Part 3)
- Lecture 26 - The Boltzmann equation for a dilute gas (Part 4)
- Lecture 27 - The Boltzmann equation for a dilute gas (Part 5)
- Lecture 28 - Quiz 2 - Questions and answers
- Lecture 29 - Critical phenomena (Part 1)

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- Lecture 30 - Critical phenomena (Part 2)
- Lecture 31 - Critical phenomena (Part 3)
- Lecture 32 - Critical phenomena (Part 4)
- Lecture 33 - Critical phenomena (Part 5)
- Lecture 34 - Critical phenomena (Part 6)
- Lecture 35 - Critical phenomena (Part 7)
- Lecture 36 - The Wiener process (standard Brownian motion)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Fiber Optics

Subject Co-ordinator - Prof. Vipul Rastogi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Need for Optical Communication
- Lecture 3 - Salient Features of Optical Fiber - I
- Lecture 4 - Salient Features of Optical Fiber - II
- Lecture 5 - Optical Fiber Fabrication
- Lecture 6 - Transmission Characteristics - I
- Lecture 7 - Transmission Characteristics - II
- Lecture 8 - Transmission Characteristics - III
- Lecture 9 - Propagation in Infinitely Extended Dielectric
- Lecture 10 - EM Waves in Dielectrics
- Lecture 11 - Electromagnetic Analysis of Waveguides - I
- Lecture 12 - Electromagnetic Analysis of Waveguides - II
- Lecture 13 - Electromagnetic Analysis of Waveguides - III
- Lecture 14 - Electromagnetic Analysis of Waveguides - IV
- Lecture 15 - Electromagnetic Analysis of Waveguides - V
- Lecture 16 - Electromagnetic Analysis of Waveguides - VI
- Lecture 17 - Electromagnetic Analysis of Waveguides - VII
- Lecture 18 - Electromagnetic Analysis of Waveguides - VIII
- Lecture 19 - Optical Fiber Waveguide - I
- Lecture 20 - Optical Fiber Waveguide - II
- Lecture 21 - Optical Fiber Waveguide - III
- Lecture 22 - Optical Fiber Waveguide - IV
- Lecture 23 - Optical Fiber Waveguide - V
- Lecture 24 - Splice Loss
- Lecture 25 - Waveguide Dispersion - I
- Lecture 26 - Waveguide Dispersion - II
- Lecture 27 - Recap
- Lecture 28 - Optical Fiber Components and Devices - I
- Lecture 29 - Optical Fiber Components and Devices - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Optical Fiber Components and Devices - III
- Lecture 31 - Optical Fiber Components and Devices - IV
- Lecture 32 - Optical Fiber Components and Devices - V
- Lecture 33 - Optical Sources and Detectors - I
- Lecture 34 - Optical Sources and Detectors - II
- Lecture 35 - Optical Sources and Detectors - III
- Lecture 36 - Optical Sources and Detectors - IV
- Lecture 37 - Optical Sources and Detectors - V
- Lecture 38 - System Design Aspects
- Lecture 39 - Optical Fiber Measurements
- Lecture 40 - Summary and Recent Advances



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Relativistic Quantum Mechanics

Subject Co-ordinator - Prof. Apoorva D Patel

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, The Klein-Gordon equation
- Lecture 2 - Particles and antiparticles, Two component framework
- Lecture 3 - Coupling to electromagnetism, Solution of the Coulomb problem
- Lecture 4 - Bohr-Sommerfeld semiclassical solution of the Coulomb problem, The Dirac equation and the Clifford
- Lecture 5 - Dirac matrices, Covariant form of the Dirac equation, Equations of motion, Spin, Free particle so
- Lecture 6 - Electromagnetic interactions, Gyromagnetic ratio
- Lecture 7 - The Hydrogen atom problem, Symmetries, Parity, Separation of variables
- Lecture 8 - The Frobenius method solution, Energy levels and wavefunctions
- Lecture 9 - Non-relativistic reduction, The Foldy-Wouthuysen transformation
- Lecture 10 - Interpretation of relativistic corrections, Reflection from a potential barrier
- Lecture 11 - The Klein paradox, Pair creation process and examples
- Lecture 12 - Zitterbewegung, Hole theory and antiparticles
- Lecture 13 - Charge conjugation symmetry, Chirality, Projection operators, The Weyl equation
- Lecture 14 - Weyl and Majorana representations of the Dirac equation, Unitary and antiunitary symmetries
- Lecture 15 - Time reversal symmetry, The PCT invariance
- Lecture 16 - Arrow of time and particle-antiparticle asymmetry, Band theory for graphene
- Lecture 17 - Dirac equation structure of low energy graphene states, Relativistic signatures in graphene prop
- Lecture 18 - Groups and symmetries, The Lorentz and Poincare groups
- Lecture 19 - Group representations, generators and algebra, Translations, rotations and boosts
- Lecture 20 - The spinor representation of  $SL(2,C)$ , The spin-statistics theorem
- Lecture 21 - Finite dimensional representations of the Lorentz group, Euclidean and Galilean groups
- Lecture 22 - Classification of one particle states, The little group, Mass, spin and helicity
- Lecture 23 - Massive and massless one particle states
- Lecture 24 - P and T transformations, Lorentz covariance of spinors
- Lecture 25 - Lorentz group classification of Dirac operators, Orthogonality and completeness of Dirac spinors
- Lecture 26 - Propagator theory, Non-relativistic case and causality
- Lecture 27 - Relativistic case, Particle and antiparticle contributions, Feynman prescription and the propaga
- Lecture 28 - Interactions and formal perturbative theory, The S-matrix and Feynman diagrams
- Lecture 29 - Trace theorems for products of Dirac matrices

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Photons and the gauge symmetry
- Lecture 31 - Abelian local gauge symmetry, The covariant derivative and invariants
- Lecture 32 - Charge quantisation, Photon propagator, Current conservation and polarisations
- Lecture 33 - Feynman rules for Quantum Electrodynamics, Nature of perturbative expansion
- Lecture 34 - Dyson's analysis of the perturbation series, Singularities of the S-matrix, Elementary QED processes
- Lecture 35 - The T-matrix, Coulomb scattering
- Lecture 36 - Mott cross-section, Compton scattering
- Lecture 37 - Klein-Nishina result for cross-section
- Lecture 38 - Photon polarisation sums, Pair production through annihilation
- Lecture 39 - Unpolarised and polarised cross-sections
- Lecture 40 - Helicity properties, Bound state formation
- Lecture 41 - Bound state decay, Non-relativistic potentials
- Lecture 42 - Lagrangian formulation of QED, Divergences in Green's functions, Superficially divergent 1-loop
- Lecture 43 - Infrared divergences due to massless particles, Renormalisation and finite physical results
- Lecture 44 - Symmetry constraints on Green's functions, Furry's theorem, Ward-Takahashi identity, Spontaneous
- Lecture 45 - Status of QED, Organisation of perturbative expansion, Precision tests

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Control System Design

Subject Co-ordinator - Prof. G R Jayanth

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Linear Systems

Lecture 3 - Homogeneous linear time invariant ordinary differential equations

Lecture 4 - In-homogeneous linear time invariant ordinary differential equations

Lecture 5 - Fourier transforms - Part 1

Lecture 6 - Fourier transforms - Part 2

Lecture 7 - Laplace transforms - Part 1

Lecture 8 - Laplace transforms - Part 2

Lecture 9 - Introduction to feedback control - Part 1

Lecture 10 - Introduction to feedback control - Part 2

Lecture 11 - Nyquist stability theory - Part 1

Lecture 12 - Nyquist stability theory - Part 2

Lecture 13 - Nyquist stability theory - Part 3

Lecture 14 - Bode plots

Lecture 15 - Steps for performing control design - Part 1

Lecture 16 - Steps for performing control design - Part 2

Lecture 17 - General controllers - Part 1

Lecture 18 - General controllers - Part 2

Lecture 19 - General controllers - Part 3

Lecture 20 - Bode plot-based control design - Part 1

Lecture 21 - Bode plot-based control design - Part 2

Lecture 22 - Introduction to root-locus

Lecture 23 - Control system design using root-locus

Lecture 24 - Control of systems with some known parameters - Part 1

Lecture 25 - Control of systems with some known parameters - Part 2

Lecture 26 - Limitations of 1-degree of freedom control

Lecture 27 - Introduction to 2-degree of freedom control

Lecture 28 - 2-Degree of freedom robust control design for plants with gain uncertainty - Part 1

Lecture 29 - 2-Degree of freedom robust control design for plants with uncertain gain - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - 2-Degree of freedom robust control design for plants with uncertain pole
- Lecture 31 - 2-Degree of freedom robust control design for plants with multiple uncertainties in their structure
- Lecture 32 - Issues connected with 2-Degree of freedom control design using root-locus
- Lecture 33 - Introduction to Nichols plot
- Lecture 34 - Feedback control design using Nichols plot
- Lecture 35 - Robust control design using Quantitative feedback theory - Part 1
- Lecture 36 - Robust control design using Quantitative feedback theory - Part 2
- Lecture 37 - Tutorial on QFT Toolbox software - Part 1
- Lecture 38 - Tutorial on QFT Toolbox software - Part 2
- Lecture 39 - Tutorial on QFT Toolbox software - Part 3
- Lecture 40 - Fundamental properties of the loop gain - Part 1
- Lecture 41 - Fundamental properties of the loop gain - Part 2
- Lecture 42 - Ideal Bode Characteristic - Part 1
- Lecture 43 - Ideal Bode Characteristic - Part 2
- Lecture 44 - Introduction to nonminimum phase systems
- Lecture 45 - Fundamental properties of nonminimum phase systems - Part 1
- Lecture 46 - Fundamental properties of nonminimum phase systems - Part 2
- Lecture 47 - Fundamental properties of unstable systems
- Lecture 48 - Consequences of actuator bandwidth limitations while controlling unstable systems
- Lecture 49 - Describing functions - Part 1
- Lecture 50 - Describing functions - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - Theory of Yarn Structures

Subject Co-ordinator - Prof. Bohuslav Neckar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Fibers and Yarns

Lecture 2 - Fibers and Yarns

Lecture 3 - Compression of Fibrous Assemblies

Lecture 4 - Compression of Fibrous Assemblies (Continued...)

Lecture 5 - Pores Among Fibers

Lecture 6 - Pores Among Fibers (Continued...)

Lecture 7 - Orientation of Fibers

Lecture 8 - Orientation of Fibers (Continued...)

Lecture 9 - Mechanics of Parallel Fiber Bundles

Lecture 10 - Mechanics of Parallel Fiber Bundles (Continued...)

Lecture 11 - Modelling of Internal Yarn Geometry

Lecture 12 - Modelling of Internal Yarn Geometry

Lecture 13 - Relations Among Yarn Count T, Twist Z, Packing Density, And Diameter D

Lecture 14 - Relations Among Yarn Count T, Twist Z, Packing Density, And Diameter D (Continued...)

Lecture 15 - Relations Among Yarn Count T, Twist Z, Packing Density, And Diameter D (Continued...)

Lecture 16 - Relations Among Yarn Count T, Twist Z, Packing Density, And Diameter D (Continued...)

Lecture 17 - Bundle Theory of Yarn Unevenness

Lecture 18 - Bundle Theory of Yarn Unevenness (Continued...)

Lecture 19 - Yarn Strength as a Stochastic Process

Lecture 20 - Yarn Strength as a Stochastic Process (Continued...)

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Science of Clothing Comfort

Subject Co-ordinator - Dr. Apurba Das

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Science of Clothing Comfort-Outline
- Lecture 2 - Understanding Clothing and Clothing Comfort
- Lecture 3 - Understanding Clothing and Clothing Comfort (Continued...)
- Lecture 4 - Understanding Clothing and Clothing Comfort (Continued...)
- Lecture 5 - Psychology and Comfort
- Lecture 6 - Psychology and Comfort (Continued...)
- Lecture 7 - Psychology and Comfort (Continued...)
- Lecture 8 - Psychology and Comfort (Continued...)
- Lecture 9 - Neurophysiological Processes in Clothing Comfort
- Lecture 10 - Neurophysiological Processes in Clothing Comfort (Continued...)
- Lecture 11 - Neurophysiological Processes in Clothing Comfort (Continued...)
- Lecture 12 - Neurophysiological Processes in Clothing Comfort (Continued...)
- Lecture 13 - Neurophysiological Processes in Clothing Comfort (Continued...)
- Lecture 14 - Neurophysiological Processes in Clothing Comfort (Continued...)
- Lecture 15 - Tactile Aspects of Clothing Comfort
- Lecture 16 - Tactile Aspects of Clothing Comfort (Continued...)
- Lecture 17 - Tactile Aspects of Clothing Comfort (Continued...)
- Lecture 18 - Tactile Aspects of Clothing Comfort (Continued...)
- Lecture 19 - Understanding Clothing and Clothing Comfort (Continued...)
- Lecture 20 - Tactile Aspects of Clothing Comfort (Continued...)
- Lecture 21 - Tactile Aspects of Clothing Comfort (Continued...)
- Lecture 22 - Clothing Comfort Related to Thermal Transmission
- Lecture 23 - Clothing Comfort Related to Thermal Transmission (Continued...)
- Lecture 24 - Clothing Comfort Related to Thermal Transmission (Continued...)
- Lecture 25 - Clothing Comfort Related to Thermal Transmission (Continued...)
- Lecture 26 - Clothing Comfort Related to Thermal Transmission (Continued...)
- Lecture 27 - Clothing Comfort Related to Thermal Transmission (Continued...)
- Lecture 28 - Clothing Comfort Related to Thermal Transmission (Continued...)
- Lecture 29 - Moisture Transmission and Clothing Comfort

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Moisture Transmission and Clothing Comfort (Continued...)
- Lecture 31 - Moisture Transmission and Clothing Comfort (Continued...)
- Lecture 32 - Moisture Transmission and Clothing Comfort (Continued...)
- Lecture 33 - Moisture Transmission and Clothing Comfort (Continued...)
- Lecture 34 - Moisture Transmission and Clothing Comfort (Continued...)
- Lecture 35 - Moisture Transmission and Clothing Comfort (Continued...)
- Lecture 36 - Combined Heat and Mass Transmission and Clothing Comfort
- Lecture 37 - Combined Heat and Mass Transmission and Clothing Comfort (Continued...)
- Lecture 38 - Thermo-Physiological Comfort of Functional Clothing
- Lecture 39 - Garment Fit and Comfort
- Lecture 40 - Garment Fit and Comfort (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Yarn Manufacture-I: Principle of Carding and Drawing

Subject Co-ordinator - Prof. Ravi Chattopadhyay

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Card Feed Zone
- Lecture 3 - Carding Zone
- Lecture 4 - Analysis of flat action
- Lecture 5 - Sliver Formation
- Lecture 6 - Package Formation
- Lecture 7 - Card Clothing
- Lecture 8 - Card Setting, Draft, Production
- Lecture 9 - Fibre Configuration and Neps in Card sliver
- Lecture 10 - Carding Process
- Lecture 11 - Numerical Problems and Solution
- Lecture 12 - Introduction and Drafting principle
- Lecture 13 - Design Features and operating principle of drawframe
- Lecture 14 - Drafting Rolles, Web Condensation and Packaging
- Lecture 15 - Drafting Roller Arranegement
- Lecture 16 - Drafting Theory, Wave Fromation and Control
- Lecture 17 - Drafting Force and Roller Slip
- Lecture 18 - Significance of Process Parameters
- Lecture 19 - Draft and production Calculation
- Lecture 20 - Blending on Drawframe
- Lecture 21 - Process Monitoring and Control
- Lecture 22 - Drawframe Autoleveller
- Lecture 23 - Card Autoleveller
- Lecture 24 - Numericals on Drawing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - Natural Dyes

Subject Co-ordinator - Dr. Padma S Vankar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Natural Dyes  
Lecture 2 - Natural Dyes  
Lecture 3 - Natural Dyes  
Lecture 4 - Natural Dyes  
Lecture 5 - Natural Dyes  
Lecture 6 - Natural Dyes  
Lecture 7 - Natural Dyes  
Lecture 8 - Natural Dyes  
Lecture 9 - Natural Dyes  
Lecture 10 - Natural Dyes  
Lecture 11 - Natural Dyes  
Lecture 12 - Natural Dyes  
Lecture 13 - Natural Dyes  
Lecture 14 - Natural Dyes  
Lecture 15 - Natural Dyes  
Lecture 16 - Natural Dyes  
Lecture 17 - Natural Dyes  
Lecture 18 - Natural Dyes  
Lecture 19 - Natural Dyes  
Lecture 20 - Natural Dyes  
Lecture 21 - Natural Dyes  
Lecture 22 - Natural Dyes  
Lecture 23 - Natural Dyes  
Lecture 24 - Natural Dyes  
Lecture 25 - Natural Dyes  
Lecture 26 - Natural Dyes  
Lecture 27 - Natural Dyes  
Lecture 28 - Natural Dyes  
Lecture 29 - Natural Dyes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Natural Dyes
- Lecture 31 - Natural Dyes
- Lecture 32 - Natural Dyes
- Lecture 33 - Natural Dyes
- Lecture 34 - Natural Dyes
- Lecture 35 - Natural Dyes
- Lecture 36 - Natural Dyes
- Lecture 37 - Natural Dyes
- Lecture 38 - Natural Dyes
- Lecture 39 - Natural Dyes
- Lecture 40 - Natural Dyes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Adv. Digital Signal Processing - Multirate a

Subject Co-ordinator - Prof. V.M. Gadre

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - The Haar Wavelet

Lecture 3 - The Haar Multiresolution Analysis

Lecture 4 - Wavelets And Multirate Digital Signal Processing

Lecture 5 - Equivalence - Functions And Sequences

Lecture 6 - The Haar Filter Bank

Lecture 7 - Haar Filter Bank Analysis And Synthesis

Lecture 8 - Relating  $\psi$ ,  $\phi$  and the Filters

Lecture 9 - Iterating the filter bank from  $\psi$ ,  $\phi$

Lecture 10 - Z-Domain Analysis Of Multirate Filter Bank

Lecture 11 - Two Channel Filter Bank

Lecture 12 - Perfect Reconstruction - Conjugate Quadrature

Lecture 13 - Conjugate Quadrature Filters - Daubechies Family of MRA

Lecture 14 - Daubechies' Filter Banks - Conjugate Quadrature Filters

Lecture 15 - Time And Frequency Joint Perspective

Lecture 16 - Ideal Time Frequency Behaviour

Lecture 17 - The Uncertainty Principle

Lecture 18 - Time Bandwidth Product Uncertainty

Lecture 19 - Evaluating and Bounding  $\sqrt{t} \cdot \sqrt{\omega}$

Lecture 20 - The Time Frequency Plane & its Tilings

Lecture 21 - Short time Fourier Transform & Wavelet Transform in General

Lecture 22 - Reconstruction & Admissibility

Lecture 23 - Admissibility in Detail Discretization of Scale

Lecture 24 - Logarithmic Scale Discretization, Dyadic Discretization

Lecture 25 - The Theorem of (DYADIC) Multiresolution Analysis

Lecture 26 - Proof of the Theorem of (DYADIC) Multiresolution Analysis

Lecture 27 - Introducing Variants of The Multiresolution Analysis Concept

Lecture 28 - JPEG 2000 5/3 FilterBank & Spline MRA

Lecture 29 - Orthogonal Multiresolution Analysis with Splines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Building Piecewise Linear Scaling Function, Wavelet
- Lecture 31 - The Wave Packet Transform
- Lecture 32 - Nobel Identities & The Haar Wave Packet Transform
- Lecture 33 - The Lattice Structure for Orthogonal Filter Banks
- Lecture 34 - Constructing the Lattice & its Variants
- Lecture 35 - The Lifting Structure & Polyphase Matrices
- Lecture 36 - The Polyphase Approach - The Modulation Approach
- Lecture 37 - Modulation Analysis and The 3-Band Filter Bank, Applications
- Lecture 38 - The Applications \*Data Mining, \*Face Recognition
- Lecture 39 - Proof that a non-zero function can not be both time and band-limited
- Lecture 40 - M-Band Filter Banks and Looking Ahead
- Lecture 41 - Tutorial -Session 1
- Lecture 42 - Student's Presentation
- Lecture 43 - Tutorial on Uncertainty Product
- Lecture 44 - Tutorial on Two band Filter Bank
- Lecture 45 - Tutorial -Frequency Domain Analysis of Two band Filter Bank
- Lecture 46 - Zoom in and Zoom out using Wavelet Transform
- Lecture 47 - More Thoughts on Wavelets
- Lecture 48 - Towards selecting Wavelets through vanishing moments
- Lecture 49 - In Search of Scaling Coefficients
- Lecture 50 - Wavelet Applications

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Advanced Optical Communication

Subject Co-ordinator - Prof. R.K. Shevgaonkar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Basics of Light  
Lecture 3 - Ray Model - I  
Lecture 4 - Ray Model - II  
Lecture 5 - Wave Model - I  
Lecture 6 - Wave Model - II  
Lecture 7 - Wave Model - III  
Lecture 8 - Signal Distortion - I  
Lecture 9 - Signal Distortion - II  
Lecture 10 - Signal Distortion - III  
Lecture 11 - Practical issues in Implementation of Fiber link  
Lecture 12 - Optical Sources  
Lecture 13 - Light Emitting Diodes - I  
Lecture 14 - Light Emitting Diodes - II  
Lecture 15 - Laser - I  
Lecture 16 - Laser - II  
Lecture 17 - Laser - III  
Lecture 18 - Laser - IV  
Lecture 19 - Laser - V + Photon Detector  
Lecture 20 - Photo Diodes and Detector Noise  
Lecture 21 - Photo Detector  
Lecture 22 - Optical Receivers - I  
Lecture 23 - Optical Receivers - II  
Lecture 24 - Receiver Sensitivity Degradation  
Lecture 25 - Fiber Optic Link Design  
Lecture 26 - Wavelength Division Multiplexed Systems  
Lecture 27 - EDFA  
Lecture 28 - Integrated Optics - I  
Lecture 29 - Integrated Optics - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorials - I
- Lecture 31 - Tutorials - II
- Lecture 32 - Introduction to Non-Linear Fiber Optics
- Lecture 33 - Non-linear Schrodinger Equation
- Lecture 34 - Group Velocity Dispersion (GVD)
- Lecture 35 - Self Phase Modulation (SPM)
- Lecture 36 - Solitonic Communication
- Lecture 37 - Raman Amplifier
- Lecture 38 - Cross Phase Modulation and four wave mixing
- Lecture 39 - Laboratory Experiments - I
- Lecture 40 - Laboratory Experiments - II
- Lecture 41 - Laboratory Experiments - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Advanced VLSI Design

Subject Co-ordinator - Prof. A.N. Chandorkar, Prof. D.K. Sharma, Prof. Sachin Patkar, Prof. Virendra Singh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Historical Perspective and Future Trends in CMOS VLSI Circuit and System Design - Part I
- Lecture 2 - Historical Perspective and Future Trends in CMOS VLSI Circuit and System Design - Part II
- Lecture 3 - Logical Effort - A way of Designing Fast CMOS Circuits - Part I
- Lecture 4 - Logical Effort - A way of Designing Fast CMOS Circuits - Part II
- Lecture 5 - Logical Effort - A way of Designing Fast CMOS Circuits - Part III
- Lecture 6 - Power Estimation and Control in CMOS VLSI circuits - Part I
- Lecture 7 - Power Estimation and Control in CMOS VLSI circuits - Part II
- Lecture 8 - Low Power Design Techniques - Part I
- Lecture 9 - Low Power Design Techniques - Part II
- Lecture 10 - Arithmetic Implementation Strategies for VLSI - Part I
- Lecture 11 - Arithmetic Implementation Strategies for VLSI - Part II
- Lecture 12 - Arithmetic Implementation Strategies for VLSI - Part III
- Lecture 13 - Arithmetic Implementation Strategies for VLSI - Part IV
- Lecture 14 - Interconnect aware design
- Lecture 15 - Interconnect aware design
- Lecture 16 - Interconnect aware design
- Lecture 17 - Introduction to Hardware Description Languages
- Lecture 18 - Managing concurrency and time in Hardware Description Languages
- Lecture 19 - Introduction to VHDL
- Lecture 20 - Basic Components in VHDL
- Lecture 21 - Structural Description in VHDL
- Lecture 22 - Behavioral Description in VHDL
- Lecture 23 - Introduction to Verilog
- Lecture 24 - FSM + datapath (GCD example)
- Lecture 25 - FSM + datapath (Continued...)
- Lecture 26 - Single Cycle MMIPS
- Lecture 27 - Multicycle MMIPS
- Lecture 28 - Multicycle MMIPS  $\hat{A}$  FSM
- Lecture 29 - Brief Overview of Basic VLSI Design Automation Concepts

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Netlist and System Partitioning
- Lecture 31 - Timing Analysis in the context of Physical Design Automation
- Lecture 32 - Placement algorithm
- Lecture 33 - Introduction to VLSI Testing
- Lecture 34 - VLSI Test Basics - I
- Lecture 35 - VLSI Test Basics - II
- Lecture 36 - VLSI Testing
- Lecture 37 - VLSI Testing
- Lecture 38 - VLSI Testing
- Lecture 39 - VLSI Design Verification
- Lecture 40 - VLSI Design Verification
- Lecture 41 - VLSI Design Verification
- Lecture 42 - VLSI Design Verification



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Broadband Networks: Concepts and Technology

Subject Co-ordinator - Prof. Abhay Karandikar

Co-ordinating Institute - IIT - Bombay

- Lecture 1 - Introduction to Broadband Networks
- Lecture 2 - Qos in Packet Switching and ATM
- Lecture 3 - ATM Networks
- Lecture 4 - Effective Bandwidth - I
- Lecture 5 - Effective Bandwidth - II
- Lecture 6 - Traffic Descriptor in ATM
- Lecture 7 - Calculus for QOS - I
- Lecture 8 - Calculus For Qos - II
- Lecture 9 - Packet Scheduling Algorithm Introduction
- Lecture 10 - Fluid Fair Queueing and Weighted Fair Queueing
- Lecture 11 - Virtual Time In Scheduling
- Lecture 12 - Fairness of WFO and SCFO Scheduling Algorithms
- Lecture 13 - Rate Proportional Servers
- Lecture 14 - Latency Rate Servers - I
- Lecture 15 - Latency Rate Servers - II And Delay Bounds
- Lecture 16 - QOS In Best Effort Internet
- Lecture 17 - TCP Congestion Control
- Lecture 18 - Analysis of TCP
- Lecture 19 - TCP Throughput
- Lecture 20 - Buffer Management
- Lecture 21 - IP Addressing Scheme
- Lecture 22 - IP Addressing Lookup And Packet Classification
- Lecture 23 - IP Over ATM
- Lecture 24 - Multiple Label Switching (MPLS)
- Lecture 25 - MPLS and Traffic Engineering
- Lecture 26 - Optical Network and MPLS
- Lecture 27 - Integrated Service Internet (IntServ) and RSVP
- Lecture 28 - Differentiated Services Internet
- Lecture 29 - Voice over IP
- Lecture 30 - RTP
- Lecture 31 - Metro Ethernet Access Networks
- Lecture 32 - Metro Ethernet Access Networks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Communication

Subject Co-ordinator - Prof. Bikash Kumar Dey

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Digital Communication
- Lecture 2 - Sampling
- Lecture 3 - Quantization, PCM and Delta Modulation
- Lecture 4 - Probability and Random Processes (Part-1)
- Lecture 5 - Probability and Random Processes (Part-2)
- Lecture 6 - Channels and their Models (Part-1)
- Lecture 7 - Channels and their Models (Part-2)
- Lecture 8 - Information Theory (Part-1)
- Lecture 9 - Information Theory (Part-2)
- Lecture 10 - Bandpass Signal Representation (Part-1)
- Lecture 11 - Bandpass Signal Representation (Part-2)
- Lecture 12 - Digital Modulation Techniques (Part-1)
- Lecture 13 - Digital Modulation Techniques (Part-2)
- Lecture 14 - Digital Modulation Techniques (Part-3)
- Lecture 15 - Digital Modulation Techniques (Part-4)
- Lecture 16 - Digital Modulation Techniques (Part-5)
- Lecture 17 - Digital Modulation Techniques (Part-6)
- Lecture 18 - Digital Modulation Techniques (Part-7)
- Lecture 19 - Digital Modulation Techniques (Part-8)
- Lecture 20 - Digital Modulation Techniques (Part-9)
- Lecture 21 - Digital Modulation Techniques (Part-10)
- Lecture 22 - Probability of Error Calculation
- Lecture 23 - Calculation of Probability of Error
- Lecture 24 - Calculation of Probability of Error
- Lecture 25 - Equalizers
- Lecture 26 - Source Coding (Part-1)
- Lecture 27 - Source Coding (Part-2)
- Lecture 28 - Source Coding (Part-3)
- Lecture 29 - Source Coding (Part-4)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Channel Coding
- Lecture 31 - Fundamentals of OFDM
- Lecture 32 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Information Theory and Coding

Subject Co-ordinator - Prof. S.N. Merchant

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Information Theory and Coding

Lecture 2 - Definition of Information Measure and Entropy

Lecture 3 - Extension of An Information Source and Markov Source

Lecture 4 - Adjoint of An Information Source, Joint and Conditional Information Measure

Lecture 5 - Properties of Joint and Conditional Information Measures and A Markov Source

Lecture 6 - Asymptotic Properties of Entropy and Problem Solving in Entropy

Lecture 7 - Block Code and its Properties

Lecture 8 - Instantaneous Code and Its Properties

Lecture 9 - Kraft-McMillan Equality and Compact Codes

Lecture 10 - Shannon's First Theorem

Lecture 11 - Coding Strategies and Introduction to Huffman Coding

Lecture 12 - Huffman Coding and Proof of Its Optimality

Lecture 13 - Competitive Optimality of The Shannon Code

Lecture 14 - Non-Binary Huffman Code and Other Codes

Lecture 15 - Adaptive Huffman Coding - Part-I

Lecture 16 - Adaptive Huffman Coding - Part-II

Lecture 17 - Shannon-Fano-Elias Coding and Introduction to Arithmetic Coding

Lecture 18 - Arithmetic Coding - Part-I

Lecture 19 - Arithmetic Coding - Part-II

Lecture 20 - Introduction to Information Channels

Lecture 21 - Equivocation and Mutual Information

Lecture 22 - Properties of Different Information Channels

Lecture 23 - Reduction of Information Channels

Lecture 24 - Properties of Mutual Information and Introduction to Channel Capacity

Lecture 25 - Calculation of Channel Capacity for Different Information Channels

Lecture 26 - Shannon's Second Theorem

Lecture 27 - Discussion On Error Free Communication Over Noisy Channel

Lecture 28 - Error Free Communication Over A Binary Symmetric Channel and Introduction to Continuous Sources and Channels

Lecture 29 - Differential Entropy and Evaluation of Mutual Information for Continuous Sources and Channels

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Channel Capacity of A BandLimited Continuous Channel
- Lecture 31 - Introduction to Rate-Distortion Theory
- Lecture 32 - Definition and Properties of Rate-Distortion Functions
- Lecture 33 - Calculation of Rate-Distortion Functions
- Lecture 34 - Computational Approach for Calculation of Rate-Distortion Functions
- Lecture 35 - Introduction to Quantization
- Lecture 36 - Lloyd-Max Quantizer
- Lecture 37 - Companded Quantization
- Lecture 38 - Variable Length Coding and Problem Solving in Quantizer Design
- Lecture 39 - Vector Quantization
- Lecture 40 - Transform Coding - Part-I
- Lecture 41 - Transform Coding - Part-II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Transmission Lines and EM Waves

Subject Co-ordinator - Prof. R.K. Shevgaonkar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to EM waves and various techniques of communication

Lecture 2 - Equations of Voltage and Current on TX line

Lecture 3 - Propagation constant, Characteristic impedance and reflection coefficient

Lecture 4 - Impedance Transformation

Lecture 5 - Loss-less and Low loss Transmission line and VSWR

Lecture 6 - Power transfer on TX line

Lecture 7 - Smith Chart

Lecture 8 - Admittance Smith Chart

Lecture 9 - Experimental setup for transmission line measurements

Lecture 10 - Applications of transmission lines

Lecture 11 - Applications of transmission lines-II

Lecture 12 - Impedance Matching

Lecture 13 - Lossy Transmission Line

Lecture 14 - Problems on Transmission line

Lecture 15 - Types of transmission line

Lecture 16 - Basics of Vectors

Lecture 17 - Vector calculus

Lecture 18 - Basic laws of Electromagnetics

Lecture 19 - Maxwell's Equations

Lecture 20 - Boundary conditions at Media Interface

Lecture 21 - Uniform plane wave

Lecture 22 - Propagation of wave

Lecture 23 - Wave polarization

Lecture 24 - Pioncere's Sphere

Lecture 25 - Wave propagation in conducting medium

Lecture 26 - Wave propagation and phase velocity

Lecture 27 - Power flow and Poynting vector

Lecture 28 - Surface current and power loss in a conductor

Lecture 29 - Plane wave in arbitrary direction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Plane wave at dielectric interface
- Lecture 31 - Reflection and refraction at media interface
- Lecture 32 - Total internal reflection
- Lecture 33 - Polarization at media interface
- Lecture 34 - Reflection from a conducting boundary
- Lecture 35 - Parallel plane waveguide
- Lecture 36 - Wave propagation in parallel plane waveguide
- Lecture 37 - Analysis of waveguide general approach
- Lecture 38 - Rectangular waveguide
- Lecture 39 - Modal propagation in rectangular waveguide
- Lecture 40 - Surface currents on the waveguide walls
- Lecture 41 - Field visualization and Attenuation in waveguide
- Lecture 42 - Attenuation in waveguide continued
- Lecture 43 - Radiation (Antenna)
- Lecture 44 - Solution for potential function
- Lecture 45 - Radiation from the Hertz dipole
- Lecture 46 - Power radiated by hertz dipole
- Lecture 47 - Thin linear antenna
- Lecture 48 - Radiation Parameters of antenna
- Lecture 49 - Receiving antenna
- Lecture 50 - Monopole and Dipole antenna
- Lecture 51 - Fourier transform relation between current and radiation pattern
- Lecture 52 - Antenna arrays
- Lecture 53 - Uniform Linear array
- Lecture 54 - Uniform Linear array continued
- Lecture 55 - Synthesis of array
- Lecture 56 - Binomial array and general array synthesis
- Lecture 57 - Problems on uniform plane wave
- Lecture 58 - Problems on uniform plane wave in a medium
- Lecture 59 - Problems on waveguides
- Lecture 60 - Problems on Antennas and radiation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - CMOS Analog VLSI Design

Subject Co-ordinator - Prof. A.N. Chandorkar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to CMOS Analog VLSI Design
- Lecture 2 - Introduction to CMOS Analog VLSI Design (Continued...)
- Lecture 3 - MOS Fundamentals
- Lecture 4 - MOS Fundamentals (Continued...)
- Lecture 5 - Basic of MOS Amplifier (Part-1)
- Lecture 6 - Basic of MOS Amplifier (Part-2)
- Lecture 7 - Basic of MOS Amplifier (Part-3)
- Lecture 8 - Cascode Amplifier
- Lecture 9 - Types of MOSFET Amplifier
- Lecture 10 - Types of MOSFET Amplifier
- Lecture 11 - Differential Amplifier
- Lecture 12 - Differential Amplifier
- Lecture 13 - Current Sources
- Lecture 14 - Current Sources
- Lecture 15 - Current Sources
- Lecture 16 - Frequency Response of Amplifier
- Lecture 17 - Basic of CMOS OPAMP
- Lecture 18 - OPAMP Design Issues
- Lecture 19 - OPAMP Design
- Lecture 20 - OPAMP Design
- Lecture 21 - Operational Transconductance Amplifier
- Lecture 22 - OTA Operation Transconductance Amplifier and Application
- Lecture 23 - Fully Differential Amplifier and Noise
- Lecture 24 - Noise
- Lecture 25 - Noise (Continued...)
- Lecture 26 - Layout of Analog Circuit
- Lecture 27 - Oscillators
- Lecture 28 - Oscillators (Continued...)
- Lecture 29 - Oscillators (Continued...)

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Analog Circuits

Subject Co-ordinator - Prof. A.N. Chandorkar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Analog Circuits - An Overview
- Lecture 2 - Two Parts of Review of Analog Filter Approximation
- Lecture 3 - BJT Small Signal Model
- Lecture 4 - BJT Small Signal Model [Continuation from Lecture 3]
- Lecture 5 - MOS Circuit Model
- Lecture 6 - Biasing of Circuits
- Lecture 7 - Amplifiers
- Lecture 8 - MOS Amplifiers
- Lecture 9 - Cascode Amplifier
- Lecture 10 - Frequency Response of Amplifier
- Lecture 11 - Frequency Response of Amplifier
- Lecture 12 - Frequency Response of Amplifier
- Lecture 13 - Frequency Response of Amplifier
- Lecture 14 - Differential Amplifier
- Lecture 15 - Differential Amplifier
- Lecture 16 - Differential Amplifier
- Lecture 17 - Feedback Theory
- Lecture 18 - Feedback Theory
- Lecture 19 - OPAMP Circuits
- Lecture 20 - OPAMP Circuits
- Lecture 21 - Active RC Filters
- Lecture 22 - Active Filters
- Lecture 23 - Oscillators
- Lecture 24 - Oscillators
- Lecture 25 - DAC/ADC

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC: Microwave Integrated Circuits

Subject Co-ordinator - Prof. Jayanta Mukherjee

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Reflection Coefficient, VSWR, Smith Chart
- Lecture 3 - Reflection Coefficient, VSWR
- Lecture 4 - Smith Chart
- Lecture 5 - Application of the Smith Chart
- Lecture 6 - Microwave Components
- Lecture 7 - Broadband Impedance Matching
- Lecture 8 - Multi-section transformer
- Lecture 9 - Maximally flat (binomial) transformer, Chebyshev transformer
- Lecture 10 - Non-uniform transmission line (Tapers)
- Lecture 11 - Scattering Parameters
- Lecture 12 - Properties of Scattering Parameters
- Lecture 13 - Properties of Scattering Parameters (Continued...)
- Lecture 14 - Signal flow graph, ABCD parameters
- Lecture 15 - 1 and 2 Port passive Components
- Lecture 16 - 3 Port Microwave Components
- Lecture 17 - Couplers
- Lecture 18 - Coupled Line Couplers
- Lecture 19 - Resonators and narrow band filters
- Lecture 20 - Narrow-band filters
- Lecture 21 - Filter design
- Lecture 22 - Filter synthesis, Kuroda's Identity
- Lecture 23 - Impedance Matching Circuits for Amplifiers
- Lecture 24 - Microstrip Matching (Continued...), Masons Rule, Power Gain Equations
- Lecture 25 - Amplifier Gain Stability
- Lecture 26 - Amplifier Gain Stability (Continued...)
- Lecture 27 - Gain Circles
- Lecture 28 - Gain Circles (Continued...)
- Lecture 29 - Noise

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Noise Figure Circles (Continued...)
- Lecture 31 - DC Bias
- Lecture 32 - Amplifier Classes, Frequency Compensation
- Lecture 33 - Linearity
- Lecture 34 - Oscillator Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Foundations of Wavelets and Multirate Di

Subject Co-ordinator - Prof. V.M. Gadre

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Origin of wavelets
- Lecture 3 - Haar wavelet
- Lecture 4 - Dyadic wavelet
- Lecture 5 - Dilates and translates of Haar wavelet
- Lecture 6 - L2 norm of a function
- Lecture 7 - Piecewise constant representation of a function
- Lecture 8 - Ladder of subspaces
- Lecture 9 - Scaling function of Haar wavelet
- Lecture 10 - Demonstration
- Lecture 11 - Vector representation of sequences
- Lecture 12 - Properties of norm
- Lecture 13 - Parsevals theorem
- Lecture 14 - Equivalence of functions and sequences
- Lecture 15 - Angle between Functions and their Decomposition
- Lecture 16 - Additional Information on Direct-Sum
- Lecture 17 - Introduction to filter banks
- Lecture 18 - Haar Analysis filter bank in Z-domain
- Lecture 19 - Haar Synthesis filter bank in Z-domain
- Lecture 20 - Moving from Z-domain to frequency domain
- Lecture 21 - Frequency Response of Haar Analysis Low pass Filter bank
- Lecture 22 - Frequency Response of Haar Analysis High pass Filter bank
- Lecture 23 - Ideal Two-band Filter bank
- Lecture 24 - Disqualification of Ideal Filter bank
- Lecture 25 - Realizable Two-band Filter bank
- Lecture 26 - Demonstration
- Lecture 27 - Relating Fourier transform of scaling function to filter bank
- Lecture 28 - Fourier transform of scaling function
- Lecture 29 - Construction of scaling and wavelet functions from filter bank

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Demonstration

Lecture 31 - Conclusive Remarks and Future Prospects

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - RF Integrated Circuits

Subject Co-ordinator - Dr. Shouribrata Chatterjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - RF system basic architectures
- Lecture 2 - Transmission media reflection
- Lecture 3 - Maximum power transfer
- Lecture 4 - Parallel RLC tank
- Lecture 5 - Matching
- Lecture 6 - Other matching networks
- Lecture 7 - Resistors capacitors
- Lecture 8 - Inductors
- Lecture 9 - Inductors and wires
- Lecture 10 - Wires
- Lecture 11 - Transmission lines
- Lecture 12 - Device review
- Lecture 13 - MOS capacitances
- Lecture 14 - Bandwidth estimation constants
- Lecture 15 - Bandwidth estimation constants (Continued.)
- Lecture 16 - Bandwidth estimation using short circuit
- Lecture 17 - Bandwidth groupdelay and peaking
- Lecture 18 - Shunt series amplifier
- Lecture 19 - Shunt series amplifier (Continued.)
- Lecture 20 - Various noise sources
- Lecture 21 - Noise in a mosfet
- Lecture 22 - Motivation first cut design
- Lecture 23 - Motivation first cut design (Continued.)
- Lecture 24 - Noise other possible topologies
- Lecture 25 - Multiplier Fundamentals
- Lecture 26 - Mixer non idealties
- Lecture 27 - Mixer non idealties (Continued.)
- Lecture 28 - A tank based oscillators
- Lecture 29 - Phase noise in oscillators

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Other oscillators topologies
- Lecture 31 - Phase locked loop basics
- Lecture 32 - Charge pump
- Lecture 33 - Pll dynamics integer
- Lecture 34 - Spurious frequencies fractional and synthesis
- Lecture 35 - Fractional spurs
- Lecture 36 - Delta and sigma modulation
- Lecture 37 - Class abc power amplifiers
- Lecture 38 - Class bcd power amplifiers
- Lecture 39 - Class cd pwm amplifiers
- Lecture 40 - Course summary and conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Communication Engineering

Subject Co-ordinator - Prof. Surendra Prasad

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Communication Engineering
- Lecture 2 - Communication channel
- Lecture 3 - Brief Review of Signal and Systems
- Lecture 4 - The Hilbert Transform
- Lecture 5 - Analytic Representation of band pass Signals
- Lecture 6 - Fundamentals of Analog Signal Transmission
- Lecture 7 - Analog Modulation of Carriers
- Lecture 8 - Amplitude Modulation
- Lecture 9 - Amplitude Modulation
- Lecture 10 - Single Sideband Modulation
- Lecture 11 - Suppressed Sideband Modulation
- Lecture 12 - VSB Modulation - Superhet Receiver
- Lecture 13 - Superhet Receiver etc
- Lecture 14 - Practical Mixers-Effects of Tonal
- Lecture 15 - Angle Modulation
- Lecture 16 - Angle Modulation
- Lecture 17 - Generation of FM Signals
- Lecture 18 - FM Generation and Detection
- Lecture 19 - Demodulation of Angle Modulated Signals
- Lecture 20 - Demodulation of Angle Modulated Signals
- Lecture 21 - Demodulation of Angle Modulated Signals
- Lecture 22 - Feedback Demodulators - phase locked loop
- Lecture 23 - The Phase Locked Loop
- Lecture 24 - Frequency Compressive Feedback Demodulator
- Lecture 25 - FM Receivers
- Lecture 26 - TV Transmission
- Lecture 27 - Review of Probability Theory and Random Process
- Lecture 28 - Review of Probability Theory and Random Variables
- Lecture 29 - Random Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Random Processes
- Lecture 31 - Random Processes
- Lecture 32 - Gaussian Random Processes
- Lecture 33 - Behaviour of Communication System
- Lecture 34 - Performance of AM Systems in Noise
- Lecture 35 - Noise in AM and Angle Modulation Systems
- Lecture 36 - Noise in Phase and Frequency Modulation systems
- Lecture 37 - Noise in Angle Modulation
- Lecture 38 - Pre emphasis - De emphasis
- Lecture 39 - Pulse Modulation Schemes - PWM and PPM
- Lecture 40 - Data Modulation
- Lecture 41 - Pulse Code Modulation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Signal Processing

Subject Co-ordinator - Prof. S.C. Dutta Roy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Digital Signal Processing Introduction
- Lecture 2 - Digital Signal Processing Introduction (Continued.)
- Lecture 3 - Digital Systems
- Lecture 4 - Characterization Description, Testing of Digital Systems
- Lecture 5 - LTI Systems Step & Impulse Responses, Convolution
- Lecture 6 - Inverse Systems, Stability, FIR & IIR
- Lecture 7 - FIR & IIR; Recursive & Non Recursive
- Lecture 8 - Discrete Time Fourier Transform
- Lecture 9 - Discrete Fourier Transform (DFT)
- Lecture 10 - DFT (Continued.)
- Lecture 11 - DFT (Continued.) Introduction to Z Transform
- Lecture 12 - Z Transform
- Lecture 13 - Z Transform (Continued.)
- Lecture 14 - Discrete Time Systems in the Frequency Domain
- Lecture 15 - Simple Digital Filters
- Lecture 16 - All Pass Filters, Com.Filters
- Lecture 17 - Linear Phase filters, Complementary Transfer Fn
- Lecture 18 - Compensatory Transfer Functions, (Continued.)
- Lecture 19 - Test for Stability using All Pass Functions
- Lecture 20 - Digital Processing of Continuous Time Signals
- Lecture 21 - Problem Solving Session
- Lecture 22 - Problem Solving Session
- Lecture 23 - Analog Filter Design
- Lecture 24 - Analog Chebyshev LPF Design
- Lecture 25 - Analog Filter Design (Continued.)
- Lecture 26 - Analog frequency Transformation
- Lecture 27 - Problem Solving Session on Discrete Time System
- Lecture 28 - Digital Filter Structures
- Lecture 29 - IIR Realizations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - All Pass Realizations
- Lecture 31 - Lattice Synthesis (Continued.)
- Lecture 32 - FIR Lattice Synthesis
- Lecture 33 - FIR Lattice (Continued.) and Digital Filter Design
- Lecture 34 - IIR Filter Design
- Lecture 35 - IIR Design by Bilinear Transformation
- Lecture 36 - IIR Design Examples
- Lecture 37 - Digital to Digital Frequency Transformation
- Lecture 38 - FIR Design
- Lecture 39 - FIR Digital Filter Design by Windowing
- Lecture 40 - FIR Design by Windowing & Frequency Sampling
- Lecture 41 - Solving Problems on DSP Structures
- Lecture 42 - FIR Design by Frequency Sampling
- Lecture 43 - FIR Design by Frequency Sampling (Continued.)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Wireless Communication

Subject Co-ordinator - Prof. Ranjan Bose

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation and Introduction
- Lecture 2 - Types of Wireless communication
- Lecture 3 - The modern wireless Communication Systems
- Lecture 4 - The cellular concept - System Design issues
- Lecture 5 - Cell capacity and reuse
- Lecture 6 - Interference and System capacity
- Lecture 7 - Improving coverage and system capacity
- Lecture 8 - Mobile Radio Propagation
- Lecture 9 - Mobile Radio Propagation (Continued.)
- Lecture 10 - Mobile Radio Propagation (Continued.)
- Lecture 11 - Mobile Radio Propagation (Continued.)
- Lecture 12 - Mobile Radio Propagation (Continued.)
- Lecture 13 - Mobile Radio Propagation (Continued.)
- Lecture 14 - Mobile Radio Propagation II
- Lecture 15 - Mobile Radio Propagation II (Continued.)
- Lecture 16 - Mobile Radio Propagation II (Continued.)
- Lecture 17 - Mobile Radio Propagation II (Continued.)
- Lecture 18 - Mobile Radio Propagation II (Continued.)
- Lecture 19 - Mobile Radio Propagation II (Continued.)
- Lecture 20 - Mobile Radio Propagation II (Continued.)
- Lecture 21 - Modulation Techniques for Mobile Communication
- Lecture 22 - Modulation Techniques (Continued.)
- Lecture 23 - Modulation Techniques (Continued.)
- Lecture 24 - Modulation Techniques (Continued.)
- Lecture 25 - Modulation Techniques (Continued.)
- Lecture 26 - Modulation Techniques (Continued.)
- Lecture 27 - Modulation Techniques (Continued.)
- Lecture 28 - Equalization and Diversity Techniques
- Lecture 29 - Equalization and Diversity Techniques (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equalization and Diversity Techniques (Continued.)
- Lecture 31 - Equalization and Diversity Techniques (Continued.)
- Lecture 32 - Coding Techniques for Mobile Communications
- Lecture 33 - Coding Techniques for Mobile Communications (Continued.)
- Lecture 34 - Coding Techniques for Mobile Communications (Continued.)
- Lecture 35 - Coding Techniques for Mobile Communications (Continued.)
- Lecture 36 - Wireless Networks
- Lecture 37 - GSM and CDMA
- Lecture 38 - GSM and CDMA (Continued.)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Basic Electronics

Subject Co-ordinator - Prof. Chitralkha Mahanta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Semiconductor materials
- Lecture 2 - PN Junction Diodes
- Lecture 3 - Diode Equivalent Circuits
- Lecture 4 - Diode Rectifier Circuits
- Lecture 5 - Zener Diode and Applications
- Lecture 6 - Clipping and Clamping Circuits
- Lecture 7 - Transistor Operation - Part-1
- Lecture 8 - Transistor Operation - Part-2
- Lecture 9 - Biasing the BJT - Part-1
- Lecture 10 - Biasing the BJT - Part-2
- Lecture 11 - BJT Small Signal Analysis
- Lecture 12 - BJT Amplifier - Part-1
- Lecture 13 - BJT Amplifier - Part-2
- Lecture 14 - Frequency Response of BJT Analysis - Part-1
- Lecture 15 - Bipolar Junction Transistors
- Lecture 16 - Transistor as a Switch
- Lecture 17 - MOSFET - Part-1
- Lecture 18 - MOSFET - Part-2
- Lecture 19 - MOSFET under dc operation
- Lecture 20 - Mosfet as an Amplifier
- Lecture 21 - Small signal model of MOSFET - Part-1
- Lecture 22 - Small signal model of MOSFET - Part-2
- Lecture 23 - High Frequency model of mosfet
- Lecture 24 - Junction Field Effect Transistor
- Lecture 25 - Operational Amplifier Introduction
- Lecture 26 - Ideal Op-Amp
- Lecture 27 - Op-Amp applications Part-1
- Lecture 28 - Op-Amp Applications Part-2
- Lecture 29 - Op-Amp Applications Part-3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The practical Op-Amp
- Lecture 31 - Positive feedback and oscillation
- Lecture 32 - Comparator
- Lecture 33 - Large Signal Amplifiers
- Lecture 34 - Transformer Couple Power Amplifier
- Lecture 35 - Class AB Operations of Power Amplifier
- Lecture 36 - Power BJTs
- Lecture 37 - Regulated Power Supply
- Lecture 38 - Four Layered Diode
- Lecture 39 - Silicon Control Rectifier
- Lecture 40 - SCR Applications

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:VLSI Design Verification and Test

Subject Co-ordinator - Dr. Santosh Biswas, Jatindra Kumar Deka, Prof. Arnab Sarkar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Part 1  
Lecture 2 - Introduction - Part 2  
Lecture 3 - Overview of VLSI Design Flow  
Lecture 4 - High Level Synthesis Overview - Part 1  
Lecture 5 - High Level Synthesis Overview - Part 2  
Lecture 6 - Scheduling in HLS - Part 1  
Lecture 7 - Scheduling in HLS - Part 2  
Lecture 8 - Scheduling in HLS - Part 3  
Lecture 9 - Scheduling in HLS - Part 4  
Lecture 10 - Scheduling in HLS - Part 5  
Lecture 11 - Scheduling in HLS - Part 6  
Lecture 12 - Scheduling in HLS - Part 7  
Lecture 13 - Resource Sharing and Binding in HLS - Part 1  
Lecture 14 - Resource Sharing and Binding in HLS - Part 2  
Lecture 15 - Resource Sharing and Binding in HLS - Part 3  
Lecture 16 - Resource Sharing and Binding in HLS - Part 4  
Lecture 17 - Resource Sharing and Binding in HLS - Part 5  
Lecture 18 - Resource Sharing and Binding in HLS - Part 6  
Lecture 19 - Resource Sharing and Binding in HLS - Part 7  
Lecture 20 - Logic Synthesis - Part 1  
Lecture 21 - Logic Synthesis - Part 2  
Lecture 22 - Logic Synthesis - Part 3  
Lecture 23 - Physical Design - Part 1  
Lecture 24 - Physical Design - Part 2  
Lecture 25 - Physical Design - Part 3  
Lecture 26 - Introduction to formal methods for design verification  
Lecture 27 - Temporal Logic  
Lecture 28 - Syntax and Semantics of CLT  
Lecture 29 - Syntax and semantics of CTL (Continued...)

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- Lecture 30 - Equivalences between CTL Formulas
- Lecture 31 - Introduction to Model Checking
- Lecture 32 - Model checking Algorithms
- Lecture 33 - Model checking Algorithms (Continued...)
- Lecture 34 - Model Checking with Fairness
- Lecture 35 - Binary Decision Diagram
- Lecture 36 - Ordered Binary Decision Diagram (OBDD)
- Lecture 37 - Operation On OBDD
- Lecture 38 - OBDD for State Transition Systems E
- Lecture 39 - Symbolic Model Checking
- Lecture 40 - Introduction to Digital VLSI Testing
- Lecture 41 - Functional and Structural Testing
- Lecture 42 - Fault Equivalence
- Lecture 43 - Fault Simulation - I
- Lecture 44 - Fault Simulation - II
- Lecture 45 - Fault Simulation - III
- Lecture 46 - Testability Measures (SCOAP)
- Lecture 47 - Introduction to Automatic Test Pattern Generation (ATPG) and ATPG Algebras
- Lecture 48 - D-Algorithm - I
- Lecture 49 - D-Algorithm - II
- Lecture 50 - ATPG for Synchronous Sequential Circuits
- Lecture 51 - Scan Chain based Sequential Circuit Testing - I
- Lecture 52 - Scan Chain based Sequential Circuit Testing - II
- Lecture 53 - BIST - I
- Lecture 54 - BIST - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Signals and Systems

Subject Co-ordinator - Prof. K.S. Venkatesh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
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Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44  
Lecture 45

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Advanced 3G and 4G Wireless Mobile Communication

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to 3G/4G Standards
- Lecture 2 - Wireless Channel and Fading
- Lecture 3 - Rayleigh Fading and BER of Wired Communication
- Lecture 4 - BER for Wireless Communication
- Lecture 5 - Introduction to Diversity
- Lecture 6 - Multi-antenna Maximal Ratio Combiner
- Lecture 7 - BER with Diversity
- Lecture 8 - Spatial Diversity and Diversity Order
- Lecture 9 - Wireless Channel and Delay Spread
- Lecture 10 - Coherence Bandwidth of the Wireless Channel
- Lecture 11 - ISI and Doppler in Wireless Communications
- Lecture 12 - Doppler Spectrum and Jakes Model
- Lecture 13 - Introduction to CDMA, Spread Spectrum and LFSR
- Lecture 14 - Generation and Properties of PN Sequences
- Lecture 15 - Correlation of PN Sequences and Jammer Margin
- Lecture 16 - CDMA Advantages and RAKE Receiver
- Lecture 17 - Multi-User CDMA Downlink Part I
- Lecture 18 - Multi-User CDMA Downlink Part II
- Lecture 19 - Multi-User CDMA Uplink and Asynchronous CDMA
- Lecture 20 - CDMA Near-Far Problem and Introduction to MIMO
- Lecture 21 - MIMO System Model and Zero-Forcing Receiver
- Lecture 22 - MIMO MMSE Receiver and Introduction to SVD
- Lecture 23 - SVD Based Optimal MIMO Transmission and Capacity
- Lecture 24 - SVD Based Optimal MIMO Transmission and Capacity
- Lecture 25 - OSTBCs and Introduction to V-BLAST Receiver
- Lecture 26 - V-BLAST (Continued) and MIMO Beamforming
- Lecture 27 - Introduction to OFDM and Multi-Carrier Modulation
- Lecture 28 - IFFT Sampling for OFDM
- Lecture 29 - OFDM Schematic and Cyclic Prefix

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- Lecture 30 - OFDM Based Parallelization and OFDM Example
- Lecture 31 - OFDM Example (Continued) and Introduction to MIMO-OFDM
- Lecture 32 - MIMO-OFDM (Continued)
- Lecture 33 - Impact of Carrier Frequency Offset (CFO) in OFDM
- Lecture 34 - PAPR in OFDM Systems and Introduction to SC-FDMA
- Lecture 35 - SC-FDMA (Continued) and Introduction of Wireless Propagation Models
- Lecture 36 - Ground Reflection and Okumura Models
- Lecture 37 - Hata Model and Log Normal Shadowing
- Lecture 38 - Link Budget Analysis
- Lecture 39 - Introduction to Teletraffic Theory
- Lecture 40 - Cellular Traffic Modeling and Blocking Probability

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Switching

Subject Co-ordinator - Prof. Yatindra N Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Digital Switching  
Lecture 2 - Digital Switching  
Lecture 3 - Digital Switching  
Lecture 4 - Digital Switching  
Lecture 5 - Digital Switching  
Lecture 6 - Digital Switching  
Lecture 7 - Digital Switching  
Lecture 8 - Digital Switching  
Lecture 9 - Digital Switching  
Lecture 10 - Digital Switching  
Lecture 11 - Digital Switching  
Lecture 12 - Digital Switching  
Lecture 13 - Digital Switching  
Lecture 14 - Digital Switching  
Lecture 15 - Digital Switching  
Lecture 16 - Digital Switching  
Lecture 17 - Digital Switching  
Lecture 18 - Digital Switching  
Lecture 19 - Digital Switching  
Lecture 20 - Digital Switching  
Lecture 21 - Digital Switching  
Lecture 22 - Digital Switching  
Lecture 23 - Digital Switching  
Lecture 24 - Digital Switching  
Lecture 25 - Digital Switching  
Lecture 26 - Digital Switching  
Lecture 27 - Digital Switching  
Lecture 28 - Digital Switching  
Lecture 29 - Digital Switching

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Lecture 30 - Digital Switching  
Lecture 31 - Digital Switching  
Lecture 32 - Digital Switching  
Lecture 33 - Digital Switching  
Lecture 34 - Digital Switching  
Lecture 35 - Digital Switching  
Lecture 36 - Digital Switching  
Lecture 37 - Digital Switching

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Principles of Modern CDMA-MIMO-OFDM Wire

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Evolution of Wireless Communication Technologies
- Lecture 2 - Modeling Wireless Channel
- Lecture 3 - Wireless Fading Channel Model
- Lecture 4 - Fading Channel Distribution
- Lecture 5 - Rayleigh Fading Channel
- Lecture 6 - Bit Error Rate (BER) Performance
- Lecture 7 - Bit Error Rate (BER) of AWGN Channels
- Lecture 8 - Bit Error Rate of Rayleigh Fading Wireless Channel
- Lecture 9 - Exact BER Expression for Rayleigh Fading Wireless Channel
- Lecture 10 - Deep Fade Analysis of Wireless Communication
- Lecture 11 - Principle of Diversity
- Lecture 12 - Multiple Antenna Diversity
- Lecture 13 - Maximal-Ratio Combining
- Lecture 14 - BER of Multiple Antenna Wireless Systems
- Lecture 15 - Approximate BER for Multiple Antenna Wireless System
- Lecture 16 - Examples for BER of Wireless Communication
- Lecture 17 - Deep Fade in Multi Antenna Systems
- Lecture 18 - Intuition for Deep Fade in Multi-Antenna System
- Lecture 19 - Definition of Diversity Order
- Lecture 20 - Max Delay Spread
- Lecture 21 - RMS Delay Spread
- Lecture 22 - Delay Spread and Inter Symbol Interference
- Lecture 23 - Coherence Bandwidth of Wireless Channel
- Lecture 24 - Mobility and Doppler Effect in Wireless Channels
- Lecture 25 - Impact of Doppler Effect on Wireless Channel
- Lecture 26 - Introduction to Code Division Multiple Access (CDMA)
- Lecture 27 - Chip Time and Bandwidth Expansion in CDMA
- Lecture 28 - Code Generation for CDMA
- Lecture 29 - CDMA Codes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - BER of CDMA Systems
- Lecture 31 - Analysis of Multi-user CDMA
- Lecture 32 - Multipath Diversity in CDMA Systems
- Lecture 33 - Near-Far Problem in CDMA
- Lecture 34 - Multiple Input Multiple Output (MIMO) Systems
- Lecture 35 - Examples of MIMO Systems
- Lecture 36 - MIMO Receivers
- Lecture 37 - BER Performance of ZF Receiver
- Lecture 38 - Transmit Beamforming in MISO Systems
- Lecture 39 - Alamouti Code and Space-Time Block Codes
- Lecture 40 - BER of Alamouti Coded System
- Lecture 41 - Singular Value Decomposition (SVD)
- Lecture 42 - SVD in MIMO
- Lecture 43 - Capacity of MIMO Wireless Systems
- Lecture 44 - SVD based MIMO Transmission
- Lecture 45 - Orthogonal Frequency Division Multiplexing (OFDM)
- Lecture 46 - Transmission in Multicarrier Systems
- Lecture 47 - FFT/IFFT Processing in OFDM
- Lecture 48 - Cyclic Prefix in OFDM Systems
- Lecture 49 - Schematic Representation of OFDM Transmitter and Receiver
- Lecture 50 - BER Performance of OFDM Systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Probability and Random Variables, Processes

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basics - Sample Space and Events

Lecture 2 - Axioms of Probability

Lecture 3 - Conditional Probability - Mary-PAM Example

Lecture 4 - Independent Events - Mary-PAM Example

Lecture 5 - Independent Events - Block Transmission Example

Lecture 6 - Independent Events - Multiantenna Fading Example

Lecture 7 - Bayes Theorem and A posteriori Probabilities

Lecture 8 - Maximum A posteriori Probability (MAP) Receiver

Lecture 9 - Random Variables, Probability Density Function (PDF)

Lecture 10 - Application

Lecture 11 - Mean, Variance of Random Variables

Lecture 12 - Application

Lecture 13 - Transformation of Random Variables and Rayleigh Fading Wireless Channel

Lecture 14 - Gaussian Random Variable and Linear Transformation

Lecture 15 - Special Case

Lecture 16 - Application

Lecture 17 - Random Processes and Wide Sense Stationarity (WSS)

Lecture 18 - WSS Example Narrowband Wireless Signal with Random Phase

Lecture 19 - Power Spectral Density (PSD) for WSS Random Process

Lecture 20 - PSD Application in Wireless Bandwidth Required for Signal Transmission

Lecture 21 - Transmission of WSS Random Process Through LTI System

Lecture 22 - Special Random Processes Gaussian Process and White Noise AWGN Communication Channel

Lecture 23 - Gaussian Process Through LTI System Example

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC: Estimation for Wireless Communications,

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics - Sensor Network and Noisy Observation Model
- Lecture 2 - Likelihood Function and Maximum Likelihood (ML) Estimate
- Lecture 3 - Properties of Maximum Likelihood (ML) Estimate  $\hat{\theta}$  Mean and Unbiasedness
- Lecture 4 - Properties of Maximum Likelihood (ML) Estimate  $\hat{\theta}$  Variance and Spread Around Mean
- Lecture 5 - Reliability of the Maximum Likelihood (ML) Estimate  $\hat{\theta}$  Number of Samples Required
- Lecture 6 - Estimation of Complex Parameters  $\hat{\theta}$  Symmetric Zero Mean Complex Gaussian Noise
- Lecture 7 - Wireless Fading Channel Estimation  $\hat{\theta}$  Pilot Symbols and Likelihood Function
- Lecture 8 - Wireless Fading Channel Estimation  $\hat{\theta}$  Pilot Training based Maximum Likelihood ML Estimate
- Lecture 9 - Wireless Fading Channel Estimation  $\hat{\theta}$  Mean and Variance of Pilot Training Based Maximum Likelihood ML Estimate
- Lecture 10 - Example  $\hat{\theta}$  Wireless Fading Channel Estimation for Downlink Mobile Communication
- Lecture 11 - Cramer Rao Bound (CRB) for Parameter Estimation
- Lecture 12 - Cramer Rao Bound CRB Example  $\hat{\theta}$  Wireless Sensor Network
- Lecture 13 - Vector Parameter Estimation  $\hat{\theta}$  System Model for Multi Antenna Downlink Channel Estimation
- Lecture 14 - Likelihood Function and Least Squares Cost Function for Vector Parameter Estimation
- Lecture 15 - Least Squares Cost Function for Vector Parameter Estimation Vector Derivative Gradient
- Lecture 16 - Least Squares Solution Maximum Likelihood ML Estimate Pseudo Inverse
- Lecture 17 - Properties of Least Squares Estimate  $\hat{\theta}$  Mean Covariance and Distribution
- Lecture 18 - Least Squares Multi Antenna Downlink Maximum Likelihood Channel Estimation
- Lecture 19 - Multiple Input Multiple Output MIMO Channel Estimation  $\hat{\theta}$  Least Squares Maximum Likelihood ML Estimate
- Lecture 20 - Example  $\hat{\theta}$  Least Squares Multiple Input Multiple Output MIMO Channel Estimation
- Lecture 21 - Channel Equalization and Inter Symbol Interference ISI Model
- Lecture 22 - Least Squares based Zero Forcing Channel Equalizer
- Lecture 23 - Example of ISI Channel and Least Squares based Zero Forcing
- Lecture 24 - Equalization and Approximation Error for Zero Forcing Channel Equalizer
- Lecture 25 - Example Equalization and Approximation Error for Zero Forcing Channel Equalizer
- Lecture 26 - Introduction to Orthogonal Frequency Division Multiplexing OFDM  $\hat{\theta}$  Cyclic Prefix CP and Circular Convolution
- Lecture 27 - Introduction to Orthogonal Frequency Division Multiplexing OFDM  $\hat{\theta}$  FFT at Receiver and Flat Fading
- Lecture 28 - Channel Estimation Across Each Subcarrier in Orthogonal Frequency Division Multiplexing OFDM
- Lecture 29 - Example Orthogonal Frequency Division Multiplexing OFDM  $\hat{\theta}$  Transmission of Samples with Cyclic Prefix

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Example Orthogonal Frequency Division Multiplexing OFDM  $\hat{A}$  FFT at Receiver and Channel Estimation
- Lecture 31 - Comb Type Pilot CTP Based Orthogonal Frequency Division Multiplexing OFDM Channel Estimation
- Lecture 32 - Comb Type Pilot CTP Based Orthogonal Frequency Division Multiplexing OFDM Channel Estimation
- Lecture 33 - Example Comb Type Pilot CTP Based Orthogonal Frequency Division Multiplexing OFDM Channel
- Lecture 34 - Frequency Domain Equalization FDE for Inter Symbol Interference ISI Removal in Wireless System
- Lecture 35 - Example Frequency Domain Equalization FDE for Inter Symbol Interference ISI Removal in Wireless
- Lecture 36 - Example Frequency Domain Equalization FDE for Inter Symbol Interference ISI Removal in Wireless
- Lecture 37 - Introduction to Sequential Estimation  $\hat{A}$  Application in Wireless Channel Estimation
- Lecture 38 - Sequential Estimation of Wireless Channel Coefficient  $\hat{A}$  Estimate and Variance Update Equation
- Lecture 39 - Example Sequential Estimation of Wireless Channel Coefficient

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Error Control Coding - An Introduction to

Subject Co-ordinator - Dr. Adrish Banerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Error Coding - I
- Lecture 2 - Introduction to Error Coding - II
- Lecture 3 - Introduction to Error Control Coding - III
- Lecture 4 - Introduction to Convolutional Codes - I
- Lecture 5 - Introduction to Convolutional Codes - II
- Lecture 6 - Convolutional Codes
- Lecture 7 - Convolutional Codes
- Lecture 8 - Decoding of Convolutional Codes - I
- Lecture 9 - Decoding of Convolutional Codes - II
- Lecture 10 - Problem Solving Session - I
- Lecture 11 - Problem Solving Session - II
- Lecture 12 - Performance Bounds for Convolutional Codes
- Lecture 13 - Turbo Codes
- Lecture 14 - Turbo Decoding
- Lecture 15 - Convergence of Turbo Codes
- Lecture 16 - Applications of Convolutional Codes
- Lecture 17 - Problem Solving Sessions - III

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NPTEL Video Course - Electronics and Communication Engineering - NOC:Error Control Coding: An Introduction to

Subject Co-ordinator - Dr. Adrish Banerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Error Control Coding - I
- Lecture 2 - Introduction to Error Control Coding - II
- Lecture 3 - Introduction to Error Control Coding - III
- Lecture 4 - Introduction to Linear Block Codes, Generator Matrix and Parity Check Matrix
- Lecture 5 - Syndrome, Error Correction and Error Detection
- Lecture 6 - Problem Solving Session - I
- Lecture 7 - Decoding of Linear Block Codes
- Lecture 8 - Distance Properties of Linear Block Codes - I
- Lecture 9 - Distance Properties of Linear Block Codes - II
- Lecture 10 - Problem Solving Session - II
- Lecture 11 - Some Simple Linear Block Codes - I
- Lecture 12 - Some Simple Linear Block Codes - II
- Lecture 13 - Bounds on the Size of a Code
- Lecture 14 - Problem Solving Session - III
- Lecture 15 - Low Density Parity Check Codes
- Lecture 16 - Decoding of Low Density Parity Check Codes - I
- Lecture 17 - Decoding of Low Density Parity Check Codes - II
- Lecture 18 - Applications of Linear Block Codes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Bayesian, MMSE Estimation for Wireless C

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics  $\hat{\Lambda}$  Introduction to Bayesian Minimum Mean Squared Error
- Lecture 2 - Optimal Bayesian Minimum Mean Squared Error (MMSE) Estimate
- Lecture 3 - Derivation of Minimum Mean Squared Error MMSE Estimate for Gaussian Parameter  $\hat{\Lambda}$  Part I
- Lecture 4 - Derivation of Minimum Mean Squared Error MMSE Estimate for Gaussian Parameter  $\hat{\Lambda}$  Part II
- Lecture 5 - Derivation of Minimum Mean Squared Error (MMSE) Estimate for Gaussian Parameter  $\hat{\Lambda}$  Non-Zero Mean
- Lecture 6 - Minimum Mean Squared Error MMSE Estimation Application  $\hat{\Lambda}$  Wireless Sensor Network
- Lecture 7 - Simplification and Example of Minimum Mean Squared Error MMSE Estimate for Wireless Sensor Network
- Lecture 8 - Minimum Mean Squared Error MMSE Estimation Application  $\hat{\Lambda}$  Wireless Fading Channel Estimation
- Lecture 9 - Simplification and Example of Minimum Mean Squared Error MMSE Estimate for Wireless Fading Channel
- Lecture 10 - Minimum Mean Squared Error MMSE for Wireless Sensor Network WSN  $\hat{\Lambda}$  Derivation and Example
- Lecture 11 - Reliability of Minimum Mean Squared Error MMSE Estimate  $\hat{\Lambda}$  Part I
- Lecture 12 - Reliability of Minimum Mean Squared Error MMSE Estimate  $\hat{\Lambda}$  Part II
- Lecture 13 - Minimum Mean Squared Error MMSE for Wireless Fading Channel Estimation  $\hat{\Lambda}$  Derivation
- Lecture 14 - Minimum Mean Squared Error (MMSE) for Wireless Fading Channel Estimation  $\hat{\Lambda}$  Example and Properties
- Lecture 15 - Linear Minimum Mean Squared Error LMMSE Estimate Derivation  $\hat{\Lambda}$  Part I
- Lecture 16 - Linear Minimum Mean Squared Error LMMSE Estimate Derivation  $\hat{\Lambda}$  Part II
- Lecture 17 - Vector Parameter Estimation  $\hat{\Lambda}$  System Model for Multi-Antenna Downlink Channel Estimation
- Lecture 18 - Linear Minimum Mean Squared Error LMMSE Estimate for Multi Antenna Downlink Wireless Channel - P
- Lecture 19 - Linear Minimum Mean Squared Error LMMSE Estimate for Multi Antenna Downlink Wireless Channel - P
- Lecture 20 - Example of Linear Minimum Mean Squared Error LMMSE Estimation for Multi Antenna Downlink Wireless Channel
- Lecture 21 - Derivation and Example of Error Covariance of Multi Antenna LMMSE Channel Estimation
- Lecture 22 - System Model for Multiple Input Multiple Output MIMO Downlink Wireless Channel Estimation
- Lecture 23 - Channel/ Noise Statistics for Multiple-Input Multiple-Output (MIMO) Downlink Wireless Channel Es
- Lecture 24 - LMMSE/ MMSE Estimation for Multiple-Input Multiple-Output(MIMO) Downlink Wireless Channel Estima
- Lecture 25 - Example of LMMSE/ MMSE Estimation for Multiple-Input Multiple-Output (MIMO) Downlink Wireless Ch
- Lecture 26 - Introduction and system model for equalization
- Lecture 27 - Linear Minimum Mean Square Error (LMMSE) Channel Equalization
- Lecture 28 - Error for LMMSE Channel Equalizer and Example of LMMSE Channel Equalization
- Lecture 29 - Example of Linear Minimum Mean Square Error (LMMSE) Channel Equalization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction and system model for OFDM
- Lecture 31 - System model for OFDM, IFFT/ FFT Operations
- Lecture 32 - LMMSE Estimation for OFDM
- Lecture 33 - Estimate and Error variance of LMMSE Estimate
- Lecture 34 - Example of OFDM
- Lecture 35 - Example of LMMSE estimate and Error variance for OFDM



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Optical communications

Subject Co-ordinator - Dr. Pradeep Kumar K

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview of Fiber-optic communications  
Lecture 2 - Optical Transmitter - I  
Lecture 3 - Optical Transmitter - I (Continued...)  
Lecture 4 - Optical Transmitter - II  
Lecture 5 - Optical Transmitter - II (Continued...)  
Lecture 6 - Intensity modulation  
Lecture 7 - Review of Signals and Representations - I  
Lecture 8 - Review of Signals and Representations - II  
Lecture 9 - Digital Modulation - I  
Lecture 10 - Review of Signals and Representations - III  
Lecture 11 - Review of Signals and Representations - IV  
Lecture 12 - Digital Modulation - II  
Lecture 13 - Digital Modulation - II (Continued...)  
Lecture 14 - Digital Modulation - III  
Lecture 15 - Optical receivers - I  
Lecture 16 - Optical receivers - II  
Lecture 17 - Optical Modulator  
Lecture 18 - Propagation of Electromagnetic wave  
Lecture 19 - Review of EM Theory  
Lecture 20 - Reflection of Waves  
Lecture 21 - Optical fiber - I  
Lecture 22 - Optical fiber - II  
Lecture 23 - Modes in Optical fiber - I  
Lecture 24 - Modes in Optical fiber - I (Continued...)  
Lecture 25 - Modes in Optical fiber - II  
Lecture 26 - Dispersion in Fibers  
Lecture 27 - Dispersion in Fibers (Continued...)  
Lecture 28 - Wrapping up fiber parameters  
Lecture 29 - System Design - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Passive WDM components - I
- Lecture 31 - Passive WDM components - II
- Lecture 32 - Detection of light
- Lecture 33 - Detection of light (Continued...)
- Lecture 34 - Response time and Noise in Detectors
- Lecture 35 - Noise in photodiodes - I Edit Lesson
- Lecture 36 - Noise in photodiodes - II
- Lecture 37 - Light sources - I
- Lecture 38 - Light sources - II Edit Lesson
- Lecture 39 - Semiconductor laser diodes
- Lecture 40 - Optical communication
- Lecture 41 - Power spectral density
- Lecture 42 - Power spectral density (Continued...)
- Lecture 43 - Advantage of coherent receiver
- Lecture 44 - Dispersion induced limitations
- Lecture 45 - Optical amplifiers - I
- Lecture 46 - Optical amplifiers - II
- Lecture 47 - Noise in optical amplifiers
- Lecture 48 - Noise in optical amplifiers (Continued...)
- Lecture 49 - ASE induced limitations
- Lecture 50 - Determining BER in OOK system
- Lecture 51 - BER determination
- Lecture 52 - Eye diagram and Higher modulation techniques Edit Lesson
- Lecture 53 - Higher modulation techniques (Continued...)
- Lecture 54 - Optical OFDM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Digital Switching-I

Subject Co-ordinator - Prof. Yatindra N Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Telephony and Networks

Lecture 2 - Strowger Automatic Exchange

Lecture 3 - Crossbar Switching

Lecture 4 - Logic Circuit for Crosspoint Operation

Lecture 5 - Introduction to Multistage Interconnection Networks

Lecture 6 - Blocking probability of crossbar switches

Lecture 7 - Call congestion and time congestio

Lecture 8 - Clos network

Lecture 9 - Lee's approximation

Lecture 10 - Karnaugh's approximation

Lecture 11 - Time switch

Lecture 12 - Time switch and Clos network

Lecture 13 - TST switch, Strictly Non-blocking network, Rearrangeably non-blocking network

Lecture 14 - Paull's Matrix

Lecture 15 - f-way multicasting

Lecture 16 - Strictly sense non blocking multicasting switch

Lecture 17 - Rearrangeably non blocking networks

Lecture 18 - Slepian Duguid theorem, Paull's theorem

Lecture 19 - Paull's matrix for rearrangeably non blocking networks

Lecture 20 - Recursive construction; Crosspoint complexity for rearrangeably and strictly non-blocking network

Lecture 21 - Cantor network

Lecture 22 - Wide-sense non blocking network

Lecture 23 - Example of wide -sense non-blocking switch

Lecture 24 - Packet Switching

Lecture 25 - Buffering strategies

Lecture 26 - Output Queued Switch

Lecture 27 - Input Queued Switch

Lecture 28 - Banyan Network, Delta Network

Lecture 29 - Shufflenet as Delta network

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Performance analysis of crossbar and delta network
- Lecture 31 - Properties of Delta Network
- Lecture 32 - Buffered and Unbuffered Delta network
- Lecture 33 - Analysis of Buffered Delta Network - 1 of 3
- Lecture 34 - Analysis of Buffered Delta Network - 2 of 3
- Lecture 35 - Analysis of Buffered Delta Network - 3 of 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:An Introduction to Information Theory

Subject Co-ordinator - Dr. Adrish Banerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Measure of Information
- Lecture 3 - Information Inequalities
- Lecture 4 - Problem solving session - I
- Lecture 5 - Block to Variable Length Coding - I
- Lecture 6 - Block to Variable Length Coding - II
- Lecture 7 - Block to Variable Length Coding - III
- Lecture 8 - Variable to block length coding
- Lecture 9 - The asymptotic equipartition property
- Lecture 10 - Block to block coding of DMS
- Lecture 11 - Problem solving session - II
- Lecture 12 - Universal Source Coding - I
- Lecture 13 - Universal source coding - II
- Lecture 14 - Coding of sources with memory
- Lecture 15 - Channel Capacity
- Lecture 16 - Joint typical sequences
- Lecture 17 - Noisy channel coding theorem
- Lecture 18 - Differential entropy
- Lecture 19 - Gaussian channel
- Lecture 20 - Parallel Gaussian channel
- Lecture 21 - Problem solving session - III
- Lecture 22 - Rate distortion theory
- Lecture 23 - Blahut-Arimoto Algorithm
- Lecture 24 - Problem solving session - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Adaptive Signal Processing

Subject Co-ordinator - Prof. Mrityunjay Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Adaptive Filters
- Lecture 2 - Introduction to Stochastic Processes
- Lecture 3 - Stochastic Processes
- Lecture 4 - Correlation Structure
- Lecture 5 - FIR Wiener Filter (Real)
- Lecture 6 - Steepest Descent Technique
- Lecture 7 - LMS Algorithm
- Lecture 8 - Convergence Analysis
- Lecture 9 - Convergence Analysis (Mean Square)
- Lecture 10 - Convergence Analysis (Mean Square)
- Lecture 11 - Misadjustment and Excess MSE
- Lecture 12 - Misadjustment and Excess MSE
- Lecture 13 - Sign LMS Algorithm
- Lecture 14 - Block LMS Algorithm
- Lecture 15 - Fast Implementation of Block LMS Algorithm
- Lecture 16 - Fast Implementation of Block LMS Algorithm
- Lecture 17 - Vector Space Treatment to Random Variables
- Lecture 18 - Vector Space Treatment to Random Variables
- Lecture 19 - Orthogonalization and Orthogonal Projection
- Lecture 20 - Orthogonal Decomposition of Signal Subspaces
- Lecture 21 - Introduction to Linear Prediction
- Lecture 22 - Lattice Filter
- Lecture 23 - Lattice Recursions
- Lecture 24 - Lattice as Optimal Filter
- Lecture 25 - Linear Prediction and Autoregressive Modeling
- Lecture 26 - Gradient Adaptive Lattice
- Lecture 27 - Gradient Adaptive Lattice
- Lecture 28 - Introduction to Recursive Least Squares
- Lecture 29 - RLS Approach to Adaptive Filters

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - RLS Adaptive Lattice
- Lecture 31 - RLS Lattice Recursions
- Lecture 32 - RLS Lattice Recursions
- Lecture 33 - RLS Lattice Algorithm
- Lecture 34 - RLS Using QR Decomposition
- Lecture 35 - Givens Rotation
- Lecture 36 - Givens Rotation and QR Decomposition
- Lecture 37 - Systolic Implementation
- Lecture 38 - Systolic Implementation
- Lecture 39 - Singular Value Decomposition
- Lecture 40 - Singular Value Decomposition
- Lecture 41 - Singular Value Decomposition

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Computer Organization

Subject Co-ordinator - Prof. P.K. Biswas

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Digital Computer Organization  
Lecture 2 - CPU Design - I  
Lecture 3 - CPU Design - II  
Lecture 4 - CPU Design Timing and Control  
Lecture 5 - Micro programmed Control - I  
Lecture 6 - Micro programmed Control - II  
Lecture 7 - Pipeline Concept - I  
Lecture 8 - Pipeline Concept - II  
Lecture 9 - Pipeline Concept - III  
Lecture 10 - Pipeline CPU - I  
Lecture 11 - Pipeline CPU - II  
Lecture 12 - Pipeline CPU - III  
Lecture 13 - Memory Organization - I  
Lecture 14 - Memory Organization - II  
Lecture 15 - Memory Organization - III  
Lecture 16 - Memory Organization - IV  
Lecture 17 - Memory Organization - V  
Lecture 18 - Cache Memory Architecture  
Lecture 19 - Cache Memory Architecture RAM Architecture  
Lecture 20 - RAM Architecture  
Lecture 21 - DAM Architecture-1  
Lecture 22 - DAM Architecture Buffer Cache  
Lecture 23 - Buffer Cache  
Lecture 24 - Secondary Storage Organization - I  
Lecture 25 - Secondary Storage Organization - II  
Lecture 26 - Secondary Storage Organization - III  
Lecture 27 - I/O Subsystem Organization  
Lecture 28 - Error Detection and Correction

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Image Processing

Subject Co-ordinator - Prof. P.K. Biswas

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Image Digitization - I  
Lecture 3 - Image Digitization - II  
Lecture 4 - Pixels Relationships - I  
Lecture 5 - Pixels Relationships - II  
Lecture 6 - Basic Transformations  
Lecture 7 - Camera Model and Imaging Geometry  
Lecture 8 - Camera Calibration and Stereo Imaging  
Lecture 9 - Interpolation and Resampling  
Lecture 10 - Image Interpolation - II  
Lecture 11 - Image Interpolation - I  
Lecture 12 - Image Transformation - II  
Lecture 13 - Fourier Transformation - I  
Lecture 14 - Fourier Transformation - II  
Lecture 15 - Discrete Cosine Transform  
Lecture 16 - K-L Transform  
Lecture 17 - Image Enhancement  
Lecture 18 - Image Enhancement  
Lecture 19 - Image Enhancement  
Lecture 20 - Image Enhancement  
Lecture 21 - Image Enhancement Frequency  
Lecture 22 - Image Restoration - I  
Lecture 23 - Image Restoration - II  
Lecture 24 - Image Restoration - III  
Lecture 25 - Image Registration  
Lecture 26 - Colour Image Processing - I  
Lecture 27 - Colour Image Processing - II  
Lecture 28 - Colour Image Processing - III  
Lecture 29 - Image Segmentation - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Image Segmentation - II
- Lecture 31 - Image Segmentation - III
- Lecture 32 - Image Segmentation - IV
- Lecture 33 - Mathematical Morphology - I
- Lecture 34 - Mathematical Morphology - II
- Lecture 35 - Mathematical Morphology - III
- Lecture 36 - Mathematical Morphology - IV
- Lecture 37 - Object Representation and Description - I
- Lecture 38 - Object Representation and Description - II
- Lecture 39 - Object Representation and Description - III
- Lecture 40 - Object Recognition

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Systems Design

Subject Co-ordinator - Prof. D. Roychoudhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Digital Systems Design
- Lecture 2 - Introduction
- Lecture 3 - Digital Logic - I
- Lecture 4 - Digital Logic - II
- Lecture 5 - Digital Logic - III
- Lecture 6 - Boolean Algebra
- Lecture 7 - Boolean Algebra
- Lecture 8 - Boolean Function Minimization
- Lecture 9 - Boolean Function Minimization
- Lecture 10 - Boolean Function Minimization
- Lecture 11 - Hazzard Covers by K - Map
- Lecture 12 - Combinational Circuit Design
- Lecture 13 - Design of ADDER Circuits
- Lecture 14 - Design of Subtractor Circuits
- Lecture 15 - Digital of Common Digital Elements
- Lecture 16 - Design of Complex Combinational Circuits
- Lecture 17 - Design of Combinational Circuits
- Lecture 18 - Combinational Logic Problem Design
- Lecture 19 - Combinational Logic Design
- Lecture 20 - Logic Design with PLA
- Lecture 21 - Synchronous Sequential Circuit Design
- Lecture 22 - Design of Sequential Modules
- Lecture 23 - Design of Registers and Counter
- Lecture 24 - Finite State Machine Design
- Lecture 25 - Finite State Machine Design and Optimization
- Lecture 26 - Programmable Logic Devices
- Lecture 27 - Programmable Logic Devices
- Lecture 28 - Programmable Logic Devices
- Lecture 29 - Design of Arithmetic Circuits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design of Arithmetic Circuits
- Lecture 31 - Design of Memory Circuits
- Lecture 32 - Algorithmic State Machines Chart
- Lecture 33 - Design of Computer Instruction Set and the CPU
- Lecture 34 - Design of Computer Instruction Set and the CPU
- Lecture 35 - Design of Computer Instruction Set and the CPU
- Lecture 36 - Design of Computer Instruction Set and the CPU
- Lecture 37 - Design of Computer Instruction Set and the CPU
- Lecture 38 - Design of Computer Instruction Set and the CPU
- Lecture 39 - Design of a Micro Programmed CPU
- Lecture 40 - Digital System Design Current State of the Art

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Voice and Picture Communication

Subject Co-ordinator - Prof. Somnath Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Speech Production Model
- Lecture 3 - Speech Coding
- Lecture 4 - Quantizers for Speech Signal
- Lecture 5 - mew - Law and Optimum Quantizer
- Lecture 6 - Adaptive Quantizer
- Lecture 7 - Differential Quantization
- Lecture 8 - LDM and ADM
- Lecture 9 - Differential PCM and Adaptive Prediction
- Lecture 10 - Linear Prediction of Speech
- Lecture 11 - Computational Aspects of LPC parameters
- Lecture 12 - Cholesky Decomposition
- Lecture 13 - Lattice Formulation of LPC Coefficient
- Lecture 14 - Linear Predictive Synthesizer
- Lecture 15 - LPC Vocoder
- Lecture 16 - Introduction to Image and Video Coding
- Lecture 17 - Lossy Image Compression
- Lecture 18 - DCT Quantization and Limitations
- Lecture 19 - Theory of Wavelets
- Lecture 20 - Discrete Wavelet Transforms
- Lecture 21 - DWT on the Images and its Encoding
- Lecture 22 - Embedded Zero Tree Wavelet Encoding
- Lecture 23 - Video Coding
- Lecture 24 - Motion Estimate Techniques
- Lecture 25 - Fast Motion Estimation Techniques
- Lecture 26 - Video Coding Standards
- Lecture 27 - Advanced Coding Aspects
- Lecture 28 - Audio Coding
- Lecture 29 - Audio Coding AC - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - AC -3 Decoder
- Lecture 31 - MPEG - 1 Audio Coding
- Lecture 32 - Introduction to VoIP
- Lecture 33 - VoIP Signaling
- Lecture 34 - H.323 Call Controls and Enhancements
- Lecture 35 - Interworking with PSTN Limitations and Solution
- Lecture 36 - Multiplexing Schemes
- Lecture 37 - H.323
- Lecture 38 - ISDN Video Conferencing
- Lecture 39 - Video Conferencing
- Lecture 40 - 4G Multimedia Conferencing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - MEMS and Microsystems

Subject Co-ordinator - Prof. Santiram Kal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to MEMS & Microsystems
- Lecture 2 - Introduction to Microsensors
- Lecture 3 - Evaluation of MEMS, Microsensors, Market Survey
- Lecture 4 - Application of MEMS
- Lecture 5 - MEMS Materials
- Lecture 6 - MEMS Materials Properties
- Lecture 7 - MEMS Materials Properties (Continued...)
- Lecture 8 - Microelectronic Technology for MEMS - II
- Lecture 9 - Microelectronic Technology for MEMS - III
- Lecture 10 - Micromachining Technology for MEMS
- Lecture 11 - Micromachining Process
- Lecture 12 - Etch Stop Techniques and Microstructure
- Lecture 13 - Surface and Quartz Micromachining
- Lecture 14 - Fabrication of Micromachined Microstructure
- Lecture 15 - Microstereolithography
- Lecture 16 - MEMS Microsensors Thermal
- Lecture 17 - Micromachined Microsensors Mechanical
- Lecture 18 - MEMS Pressure and Flow Sensor
- Lecture 19 - Micromachined Flow Sensors
- Lecture 20 - MEMS Inertial Sensors
- Lecture 21 - Micromachined Microaccelerometers for MEMS
- Lecture 22 - MEMS Accelerometers for Avionics
- Lecture 23 - Temperature Drift and Damping Analysis
- Lecture 24 - Piezoresistive Accelerometer Technology
- Lecture 25 - MEMS Capacitive Accelerometer
- Lecture 26 - MEMS Capacitive Accelerometer Process
- Lecture 27 - MEMS Gyro Sensor
- Lecture 28 - MEMS for Space Application
- Lecture 29 - Polymer MEMS & Carbon Nano Tubes CNT

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wafer Bonding & Packaging of MEMS
- Lecture 31 - Interface Electronics for MEMS
- Lecture 32 - MEMS for Biomedical Applications (Bio-MEMS)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Neural Networks and Applications

Subject Co-ordinator - Prof. Somnath Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Artificial Neural Networks
- Lecture 2 - Artificial Neuron Model and Linear Regression
- Lecture 3 - Gradient Descent Algorithm
- Lecture 4 - Nonlinear Activation Units and Learning Mechanisms
- Lecture 5 - Learning Mechanisms-Hebbian, Competitive, Boltzmann
- Lecture 6 - Associative memory
- Lecture 7 - Associative Memory Model
- Lecture 8 - Condition for Perfect Recall in Associative Memory
- Lecture 9 - Statistical Aspects of Learning
- Lecture 10 - V.C. Dimensions
- Lecture 11 - Importance of V.C. Dimensions Structural Risk Minimization
- Lecture 12 - Single-Layer Perceptions
- Lecture 13 - Unconstrained Optimization
- Lecture 14 - Linear Least Squares Filters
- Lecture 15 - Least Mean Squares Algorithm
- Lecture 16 - Perceptron Convergence Theorem
- Lecture 17 - Bayes Classifier & Perceptron
- Lecture 18 - Bayes Classifier for Gaussian Distribution
- Lecture 19 - Back Propagation Algorithm
- Lecture 20 - Practical Consideration in Back Propagation Algorithm
- Lecture 21 - Solution of Non-Linearly Separable Problems Using MLP
- Lecture 22 - Heuristics For Back-Propagation
- Lecture 23 - Multi-Class Classification Using Multi-layered Perceptrons
- Lecture 24 - Radial Basis Function Networks
- Lecture 25 - Radial Basis Function Networks
- Lecture 26 - Posed Surface Reconstruction
- Lecture 27 - Solution of Regularization Equation
- Lecture 28 - Use of Greens Function in Regularization Networks
- Lecture 29 - Regularization Networks and Generalized RBF

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Comparison Between MLP and RBF
- Lecture 31 - Learning Mechanisms in RBF
- Lecture 32 - Introduction to Principal Components and Analysis
- Lecture 33 - Dimensionality reduction Using PCA
- Lecture 34 - Hebbian-Based Principal Component Analysis
- Lecture 35 - Introduction to Self Organizing Maps
- Lecture 36 - Cooperative and Adaptive Processes in SOM
- Lecture 37 - Vector-Quantization Using SOM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Probability and Random Processes

Subject Co-ordinator - Prof. Mrityunjay Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Theory of Probability
- Lecture 2 - Axioms of Probability
- Lecture 3 - Axioms of Probability (Continued.)
- Lecture 4 - Introduction to Random Variables
- Lecture 5 - Probability Distributions and Density Functions
- Lecture 6 - Conditional Distribution and Density Functions
- Lecture 7 - Function of a Random Variable
- Lecture 8 - Function of a Random Variable (Continued.)
- Lecture 9 - Mean and Variance of a Random Variable
- Lecture 10 - Moments
- Lecture 11 - Characteristic Function
- Lecture 12 - Two Random Variables
- Lecture 13 - Function of Two Random Variables
- Lecture 14 - Function of Two Random Variables (Continued.)
- Lecture 15 - Correlation Covariance and Related Inver
- Lecture 16 - Vector Space of Random Variables
- Lecture 17 - Joint Moments
- Lecture 18 - Joint Characteristic Functions
- Lecture 19 - Joint Conditional Densities
- Lecture 20 - Joint Conditional Densities (Continued.)
- Lecture 21 - Sequences of Random Variables
- Lecture 22 - Sequences of Random Variables (Continued.)
- Lecture 23 - Correlation Matrices and their Properties
- Lecture 24 - Correlation Matrices and their Properties
- Lecture 25 - Conditional Densities of Random Vectors
- Lecture 26 - Characteristic Functions and Normality
- Lecture 27 - Tchebycheff Inequality and Estimation of an Unknown Parameter
- Lecture 28 - Central Limit Theorem
- Lecture 29 - Introduction to Stochastic Process

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Stationary Processes
- Lecture 31 - Cyclostationary Processes
- Lecture 32 - System with Random Process at Input
- Lecture 33 - Ergodic Processes
- Lecture 34 - Introduction to Spectral Analysis
- Lecture 35 - Spectral Analysis (Continued.)
- Lecture 36 - Spectrum Estimation - Non Parametric Methods
- Lecture 37 - Spectrum Estimation - Parametric Methods
- Lecture 38 - Autoregressive Modeling and Linear Prediction
- Lecture 39 - Linear Mean Square Estimation - Wiener (FIR)
- Lecture 40 - Adaptive Filtering - LMS Algorithm

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Pattern Recognition and Application

Subject Co-ordinator - Prof. P.K. Biswas

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Feature Extraction - I
- Lecture 3 - Feature Extraction - II
- Lecture 4 - Feature Extraction - III
- Lecture 5 - Bayes Decision Theory
- Lecture 6 - Bayes Decision Theory (Continued.)
- Lecture 7 - Normal Density and Discriminant Function
- Lecture 8 - Normal Density and Discriminant Function (Continued.)
- Lecture 9 - Bayes Decision Theory - Binary Features
- Lecture 10 - Maximum Likelihood Estimation
- Lecture 11 - Probability Density Estimation
- Lecture 12 - Probability Density Estimation (Continued.)
- Lecture 13 - Probability Density Estimation (Continued.)
- Lecture 14 - Probability Density Estimation (Continued.)
- Lecture 15 - Probability Density Estimation (Continued.)
- Lecture 16 - Dimensionality Problem
- Lecture 17 - Multiple Discriminant Analysis
- Lecture 18 - Multiple Discriminant Analysis (Tutorial)
- Lecture 19 - Multiple Discriminant Analysis (Tutorial)
- Lecture 20 - Perceptron Criterion
- Lecture 21 - Perceptron Criterion (Continued.)
- Lecture 22 - MSE Criterion
- Lecture 23 - Linear Discriminator (Tutorial)
- Lecture 24 - Neural Networks for Pattern Recognition
- Lecture 25 - Neural Networks for Pattern Recognition (Continued.)
- Lecture 26 - Neural Networks for Pattern Recognition (Continued.)
- Lecture 27 - RBF Neural Network
- Lecture 28 - RBF Neural Network (Continued.)
- Lecture 29 - Support Vector Machine

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hyperbox Classifier
- Lecture 31 - Hyperbox Classifier (Continued.)
- Lecture 32 - Fuzzy Min Max Neural Network for Pattern Recognition
- Lecture 33 - Reflex Fuzzy Min Max Neural Network
- Lecture 34 - Unsupervised Learning - Clustering
- Lecture 35 - Clustering (Continued.)
- Lecture 36 - Clustering using minimal spanning tree
- Lecture 37 - Temporal Pattern recognition
- Lecture 38 - Hidden Markov Model
- Lecture 39 - Hidden Markov Model (Continued.)
- Lecture 40 - Hidden Markov Model (Continued.)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Basic Tools of Microwave Engineering

Subject Co-ordinator - Dr. Amitabha Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Challenges of Microwave Design

Lecture 2 - Introduction to the 1st tool

Lecture 3 - Measurement of Unknown Impedance

Lecture 4 - Application of Smith Chart for finding unknown impedance in laboratory

Lecture 5 - Problem Solving using Smith Chart

Lecture 6 - Need of Impedance Matching at Microwave Frequency

Lecture 7 - Lumped Element Based Impedance Matching Network Design by Smith Chart

Lecture 8 - Distributed Impedance Matching Design by Smith Chart

Lecture 9 - Broadband Impedance Matching Network Design

Lecture 10 - Tutorial 2

Lecture 11 - Voltage and Current at Microwave Frequency

Lecture 12 - Scattering Parameter

Lecture 13 - Properties of Scattering Parameter

Lecture 14 - Network Analyser

Lecture 15 - Tutorial 3

Lecture 16 - Radiation between S-Parameters and Transmission Parameters

Lecture 17 - Scattering Parameters of Coupler and Magic Tee

Lecture 18 - Signal Flow Graph

Lecture 19 - Understanding Network Analyser Calibration with the help of Signal Flow Graph

Lecture 20 - Tutorial 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Basic Building Blocks of Microwave Engineering

Subject Co-ordinator - Dr. Amitabha Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concept of Mode
- Lecture 2 - Mathematical Model of Modes
- Lecture 3 - Mathematical Model of TEM Mode
- Lecture 4 - Mathematical Model of TE and TM Mode and Impedance Concept
- Lecture 5 - Losses Associated with Microwave Transmission
- Lecture 6 - Coaxial Line
- Lecture 7 - Rectangular Waveguide
- Lecture 8 - Circular Waveguide
- Lecture 9 - Planar Transmission Line
- Lecture 10 - Coaxial Connectors
- Lecture 11 - 3 Port Microwave Power Divider/Combiner - Part I
- Lecture 12 - 3 Port Microwave Power Divider/Combiner - Part II
- Lecture 13 - 4 Port Microwave Power Divider/Combiner
- Lecture 14 - Microwave Resonator
- Lecture 15 - Microwave Attenuators
- Lecture 16 - Microwave Detector and Switching Diodes
- Lecture 17 - Microwave Tubes
- Lecture 18 - Microwave Tubes
- Lecture 19 - Microwave Solid State Diode Oscillator and Amplifier
- Lecture 20 - Microwave Transistors

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Satellite Communication Systems

Subject Co-ordinator - Prof. Kalyankumar Bandyopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Orbit - 1  
Lecture 3 - Orbit - 2  
Lecture 4 - Orbit - 3  
Lecture 5 - Orbit - 4  
Lecture 6 - Space Segment - 1  
Lecture 7 - Space Segment - 2  
Lecture 8 - Space Segment - 3  
Lecture 9 - Space Segment - 4  
Lecture 10 - Space Segment - 5  
Lecture 11 - Link Budget - 1  
Lecture 12 - Link Budget - 2  
Lecture 13 - Link Budget - 3  
Lecture 14 - Link Budget - 4  
Lecture 15 - Link Budget - 5  
Lecture 16 - Link Budget - 6  
Lecture 17 - Link Budget - 7  
Lecture 18 - Link Budget - 8  
Lecture 19 - Propagation - 1  
Lecture 20 - Propagation - 2  
Lecture 21 - Propagation - 3  
Lecture 22 - Ground Segment - 1  
Lecture 23 - Ground Segment - 2  
Lecture 24 - Ground Segment - 3  
Lecture 25 - Ground Segment - 4  
Lecture 26 - Multiple Access - 1  
Lecture 27 - Multiple Access - 2  
Lecture 28 - Multiple Access - 3  
Lecture 29 - Multiple Access - 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multiple Access - 5
- Lecture 31 - Nonlinearity - I
- Lecture 32 - Nonlinearity - II
- Lecture 33 - Nonlinearity - III
- Lecture 34 - Synchronisation - I
- Lecture 35 - Synchronisation - II
- Lecture 36 - Effect on Higher Layer - I
- Lecture 37 - Effect on Higher Layer - II
- Lecture 38 - Effect on Higher Layer - III
- Lecture 39 - Satellite Navigation - I
- Lecture 40 - Satellite Navigation - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Fundamentals of MIMO Wireless Communication

Subject Co-ordinator - Prof. Suvra Sekhar Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Evolution of Wireless Communication Systems 1G - 5G
- Lecture 2 - Elements of Wireless Communication System
- Lecture 3 - Overview of MIMO Communication Systems
- Lecture 4 - Layered View of Transmitter and Receiver
- Lecture 5 - Wireless Channel Models - I
- Lecture 6 - Large Scale Propagation Models Path Loss
- Lecture 7 - Large Scale Propagation Models Path Loss and Shadowing
- Lecture 8 - Small Scale Propagation Multipath Model
- Lecture 9 - Small Scale Propagation Frequency Flat Fading
- Lecture 10 - Small Scale Propagation Envelope Distribution
- Lecture 11 - Small Scale Propagation Received Signal Correlation
- Lecture 12 - Small Scale Propagation Received Signal Correlation (Continued...)
- Lecture 13 - Coherence Time
- Lecture 14 - Doppler Spectrum
- Lecture 15 - Frequency Selective Fading
- Lecture 16 - Frequency Selective Fading - II
- Lecture 17 - FSF-Coherence Bandwidth, Delay Doppler Characteristics
- Lecture 18 - Spatial Channel Characteristics - I
- Lecture 19 - Expression of MIMO Channel
- Lecture 20 - MIMO Channel Characteristics
- Lecture 21 - Statistical Properties of H
- Lecture 22 - Important Results from Linear Algebra
- Lecture 23 - Spatial Diversity
- Lecture 24 - Selection Combining
- Lecture 25 - Maximal Ratio Combining
- Lecture 26 - Problem of Error in MRC
- Lecture 27 - Diversity Gain and Transmit MRC
- Lecture 28 - Transmit Diversity without Channel known at Tx
- Lecture 29 - MIMO Transmit Diversity - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - MIMO Diversity - 2
- Lecture 31 - Fundamentals of Information Theory - I
- Lecture 32 - Fundamentals of Information Theory - II
- Lecture 33 - Fundamentals of Information Theory - III
- Lecture 34 - Fundamentals of Information Theory - IV
- Lecture 35 - Capacity of Deterministic MIMO Channels
- Lecture 36 - Capacity of Channel Unknown at Transmitter
- Lecture 37 - Capacity of Channel Known of Transmitter
- Lecture 38 - More on MIMO Channel Capacity
- Lecture 39 - Capacity of Random Channel
- Lecture 40 - MIMO in Practice

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Audio System Engineering

Subject Co-ordinator - Prof. S. Dasmandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Fundamentals of Linear Vibrations Edit Lesson
- Lecture 3 - Damped Oscillation and Forced Oscillation
- Lecture 4 - Equivalent Electrical Circuits for Oscillation
- Lecture 5 - Tutorial I
- Lecture 6 - Acoustic Wave Equation
- Lecture 7 - Acoustic Wave Equation (Continued...)
- Lecture 8 - Acoustic Wave Equation (Continued...)
- Lecture 9 - Spherical Waves Propagation
- Lecture 10 - Perception at Sound
- Lecture 11 - Sound Transmission
- Lecture 12 - Sound Transmission (Continued...)
- Lecture 13 - The Acoustic Environment
- Lecture 14 - Room Acoustics - I
- Lecture 15 - Room Acoustics - II
- Lecture 16 - Large Room Acoustics and Small Room Acoustics
- Lecture 17 - Large Room Acoustics and Small Room Acoustics (Continued...)
- Lecture 18 - Auditorium Acoustics
- Lecture 19 - Transduction - I
- Lecture 20 - Transduction - II
- Lecture 21 - Transduction - III
- Lecture 22 - Microphone - I
- Lecture 23 - Microphone Sensitivity
- Lecture 24 - Loudspeaker

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Discrete Time Signal Processing

Subject Co-ordinator - Prof. Mrityunjay Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Discrete Time Signals and Systems
- Lecture 3 - Linear, Shift Invariant Systems
- Lecture 4 - Properties of Discrete Convolution Causal and Stable Systems
- Lecture 5 - Graphical Evaluation of Discrete Convolutions
- Lecture 6 - Discrete Time Fourier Transform
- Lecture 7 - Properties of DTFT
- Lecture 8 - Dirac Comb and Sampling Analog Signals
- Lecture 9 - Relation between DTFT and Analog Fourier Transform
- Lecture 10 - Nyquist Interpolation Formula
- Lecture 11 - Rational Systems
- Lecture 12 - Properties of Rational Systems
- Lecture 13 - Introduction to Z-transform
- Lecture 14 - Properties of Z-transform
- Lecture 15 - Properties of z-transform
- Lecture 16 - Inverse z-transform
- Lecture 17 - Introduction to DFT
- Lecture 18 - Properties of DFT
- Lecture 19 - Introduction to Interpretation of Circular Convolution
- Lecture 20 - Graphically Interpretation of Circular Convolution
- Lecture 21 - Zero Padding and Linear convolution Via DFT
- Lecture 22 - Decimation and DFT of Decimated Sequences
- Lecture 23 - Expansion and Interpolation of Sequences
- Lecture 24 - Factor-of-M Polyphase Decomposition of Sequences
- Lecture 25 - Noble Identifies
- Lecture 26 - Efficient Decimator and Interpolator Structure
- Lecture 27 - Linear Phase Filters
- Lecture 28 - Properties of Linear Phase Filters
- Lecture 29 - Structures for IIR Filters

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structures for FIR Filters
- Lecture 31 - Analog LTI Systems, Fourier and Laplace Transforms
- Lecture 32 - Pole, Zero and Stability of of Analog Filters
- Lecture 33 - Analog Filter Design Example Butterworth Lowpass Filter
- Lecture 34 - IIR Filter Design by Impuls Invariance Method
- Lecture 35 - Design Filter Design from Analog Proptotype Filters by s-z Transformations
- Lecture 36 - Bilinear Transformation
- Lecture 37 - FIR Filter Design by Window
- Lecture 38 - FFT
- Lecture 39 - Complexity Analysis of FFT
- Lecture 40 - Bit Reversal and FFT

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Digital Image Processing

Subject Co-ordinator - Prof. P.K. Biswas

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Digital Image Processing
- Lecture 2 - Application of Digital Image Processing
- Lecture 3 - Image Digitalization, Sampling Quantization and Display
- Lecture 4 - Signal Reconstruction from Samples
- Lecture 5 - Signal Reconstruction from Image
- Lecture 6 - Quantizer Design
- Lecture 7 - Relationship between Pixels
- Lecture 8 - Relationship of Adjacency and Connected Components Labeling
- Lecture 9 - Application of Distance Measures
- Lecture 10 - Basic Transform
- Lecture 11 - Image Formation - I
- Lecture 12 - Image Formation - II
- Lecture 13 - Image Geometry - I
- Lecture 14 - Image Geometry - II
- Lecture 15 - Stereo Imaging Model - II
- Lecture 16 - Interpolation and Resampling
- Lecture 17 - Interpolation Techniques
- Lecture 18 - Interpolation with examples - I
- Lecture 19 - Interpolation with Examples - II
- Lecture 20 - Image Transformation - I Edit Lesson
- Lecture 21 - Image Transformation - 2
- Lecture 22 - Separable Transformation
- Lecture 23 - Basis Images
- Lecture 24 - Fourier Transformation
- Lecture 25 - Properties of FT
- Lecture 26 - FT Result Display - 2
- Lecture 27 - Rotation Invariance Property
- Lecture 28 - DCT and Walsh Transform
- Lecture 29 - Handmard Transformation

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- Lecture 30 - Histogram Equalization and Specifications - I
- Lecture 31 - KL-transform-2
- Lecture 32 - Image Enhancement
- Lecture 33 - Contrast Stretching Operation
- Lecture 34 - Histogram Equalization and Specification - I
- Lecture 35 - Histogram Equalization and Specification - II
- Lecture 36 - Histogram Implementation - I
- Lecture 37 - Histogram Implementation - II
- Lecture 38 - Image Enhancement
- Lecture 39 - Image Enhancement
- Lecture 40 - Image Enhancement
- Lecture 41 - Frequency Domain Processing Techniques
- Lecture 42 - Image Restoration Techniques - I
- Lecture 43 - Image Restoration Techniques - II
- Lecture 44 - Estimation of Degradation Model and Restoration Techniques - I
- Lecture 45 - Estimation of Degradation Model and Restoration Techniques - II
- Lecture 46 - Other Restoration Techniques - I
- Lecture 47 - Other Restoration Techniques - II
- Lecture 48 - Image Registration - I
- Lecture 49 - Image Registration - II
- Lecture 50 - Colour Image Processing
- Lecture 51 - Colour Model
- Lecture 52 - Conversion of one color model to another - I
- Lecture 53 - Conversion of one color model to another - II
- Lecture 54 - Pseudo color image processing
- Lecture 55 - Full color image processing
- Lecture 56 - Different Approaches for Image Segmentation
- Lecture 57 - Image Segmentation
- Lecture 58 - Region based Segmentation Operation. Thresholding Techniques
- Lecture 59 - Region Splitting and Merging Technique Edit Lesson

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC: Spread Spectrum Communications and Jamming

Subject Co-ordinator - Prof. Debarati Sen

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Spread Spectrum Communication

Lecture 2 - Direct Sequence Spread Spectrum System

Lecture 3 - Performance Analysis of DSSS

Lecture 4 - Concept of Jamming Margin

Lecture 5 - Frequency Hopping Spread Spectrum System

Lecture 6 - Tutorial-1

Lecture 7 - Slow and Fast Frequency Hopping

Lecture 8 - Hybrid Spread Spectrum System and Time Hopped SSS

Lecture 9 - Spread Sequences and Waveforms

Lecture 10 - Generation Mechanism of ML Sequence

Lecture 11 - Properties of Spread Spectrum Sequences

Lecture 12 - Tutorial-2

Lecture 13 - Power Spectral Density of ML Sequence

Lecture 14 - Walsh Hadamard Code and Properties

Lecture 15 - Generation Mechanism and Properties of OVSF and Barker Codes

Lecture 16 - Generation Mechanism and Properties of Gold and Kasami Codes

Lecture 17 - Performance Analysis of DSSS in Presence of Tone Jamming

Lecture 18 - Performance Analysis During Generation Tone Jamming

Lecture 19 - Performance Analysis in Presence of Gaussian Interference

Lecture 20 - Performance Analysis of a Quaternary System

Lecture 21 - Despreading with Matched Filter

Lecture 22 - Noncoherent Systems

Lecture 23 - Tutorial - III

Lecture 24 - Galois Field Mathematics

Lecture 25 - Galois Field Mathematics (Continued...)

Lecture 26 - Galois Field Mathematics (Continued...)

Lecture 27 - Polynomials over Binary Field

Lecture 28 - Long Nonlinear Sequence Generation

Lecture 29 - Rejection of Narrowband Interference

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Narrow Band Interference Cancellation by Transform Domain Processing
- Lecture 31 - PN Code Acquisition Fundamentals
- Lecture 32 - Performance Analysis of PN Code Acquisition System - Part I
- Lecture 33 - Performance Analysis of PN Code Acquisition System - Part II
- Lecture 34 - Tutorial - IV
- Lecture 35 - Rapid Acquisition Using Matched Filter - Part I
- Lecture 36 - Rapid Acquisition Using Matched Filter - Part II
- Lecture 37 - Active Search Acquisition for FFH/MFSK Signals
- Lecture 38 - Active Search Code Acquisition for FFH/MFSK Analysis
- Lecture 39 - Detection Probability Analysis of Code Acquisition for FFH / MFSK
- Lecture 40 - Tutorial - V
- Lecture 41 - DSSS Tracking
- Lecture 42 - FHSS Synchronization Method - I
- Lecture 43 - FHSS Synchronization Method - II
- Lecture 44 - FHSS Synchronization Method - III
- Lecture 45 - FHSS Tracking
- Lecture 46 - Tutorial - VI
- Lecture 47 - Concept of Fading for Wireless Communications
- Lecture 48 - Diversity for Fading Channels
- Lecture 49 - Rake Receiver
- Lecture 50 - Performance Analysis of Rake Receiver
- Lecture 51 - Spread Spectrum Multiple Access
- Lecture 52 - Tutorial - VII
- Lecture 53 - Introduction to CDMA
- Lecture 54 - Interference Handling Mechanism in CDMA Networks
- Lecture 55 - Interference Handling by Soft Handover
- Lecture 56 - Interference Handling by Smart Antenna
- Lecture 57 - Multiuser Detection and Interference Cancellation
- Lecture 58 - Tutorial - VIII
- Lecture 59 - Multiuser Detection - Part I
- Lecture 60 - Multiuser Detection - Part II
- Lecture 61 - MUD - Probability of Error
- Lecture 62 - IS95 and CDMA - Part I
- Lecture 63 - IS95 and CDMA - Part II
- Lecture 64 - Tutorial - IX
- Lecture 65 - WCDMA and UMTS - Part I
- Lecture 66 - WCDMA and UMTS - Part II
- Lecture 67 - LPI Communications
- Lecture 68 - Radiometer

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Lecture 69 - Interceptor Detectors

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Digital VLSI Testing

Subject Co-ordinator - Prof. Santanu Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Introduction (Continued...)  
Lecture 5 - DFT  
Lecture 6 - DFT (Continued...)  
Lecture 7 - DFT (Continued...)  
Lecture 8 - DFT (Continued...)  
Lecture 9 - DFT (Continued...)  
Lecture 10 - DFT (Continued...)  
Lecture 11 - Logic and Fault Simulation  
Lecture 12 - Logic and Fault Simulation (Continued...)  
Lecture 13 - Logic and Fault Simulation (Continued...)  
Lecture 14 - Logic and Fault Simulation (Continued...)  
Lecture 15 - Logic and Fault Simulation (Continued...)  
Lecture 16 - Logic and Fault Simulation (Continued...)  
Lecture 17 - Test Generation  
Lecture 18 - Test Generation (Continued...)  
Lecture 19 - Test Generation (Continued...)  
Lecture 20 - Test Generation (Continued...)  
Lecture 21 - Test Generation (Continued...)  
Lecture 22 - Test Generation (Continued...)  
Lecture 23 - Test Generation (Continued...)  
Lecture 24 - Logic BIST  
Lecture 25 - Logic BIST (Continued...)  
Lecture 26 - Logic BIST (Continued...)  
Lecture 27 - Logic BIST (Continued...)  
Lecture 28 - Test Compression  
Lecture 29 - Test Compression (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Test Compression (Continued...)
- Lecture 31 - Test Compression (Continued...)
- Lecture 32 - Low Power Testing
- Lecture 33 - Low Power Testing (Continued...)
- Lecture 34 - Low Power Testing (Continued...)
- Lecture 35 - Low Power Testing (Continued...)
- Lecture 36 - Low Power Testing (Continued...)
- Lecture 37 - Thermal Aware Testing
- Lecture 38 - Thermal Aware Testing (Continued...)
- Lecture 39 - Thermal Aware Testing (Continued...)
- Lecture 40 - Boundary Scan
- Lecture 41 - Boundary Scan (Continued...)
- Lecture 42 - Boundary Scan (Continued...)
- Lecture 43 - Boundary Scan (Continued...)
- Lecture 44 - Boundary Scan (Continued...)
- Lecture 45 - System/Network - On - Chip Test
- Lecture 46 - System/Network - On - Chip Test (Continued...)
- Lecture 47 - System/Network - On - Chip Test (Continued...)
- Lecture 48 - System/Network - On - Chip Test (Continued...)
- Lecture 49 - System/Network - On - Chip Test (Continued...)
- Lecture 50 - System/Network - On - Chip Test (Continued...)
- Lecture 51 - System/Network - On - Chip Test (Continued...)
- Lecture 52 - System/Network - On - Chip Test (Continued...)
- Lecture 53 - System/Network - On - Chip Test (Continued...)
- Lecture 54 - System/Network - On - Chip Test (Continued...)
- Lecture 55 - System/Network - On - Chip Test (Continued...)
- Lecture 56 - System/Network - On - Chip Test (Continued...)
- Lecture 57 - Memory Testing
- Lecture 58 - Memory Testing (Continued...)
- Lecture 59 - Memory Testing (Continued...)
- Lecture 60 - Memory Testing (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Design Principles of RF and Microwave Fi

Subject Co-ordinator - Prof. Amitabha Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Image Impedance based RF filter design
- Lecture 2 - Concept of Image impedance and Propagation Constant
- Lecture 3 - Symmetrical lossless network description for filter design
- Lecture 4 - Constant k prototype filter design
- Lecture 5 - m-derived prototype filter design
- Lecture 6 - Introduction to Insertion loss based Microwave Filter Design
- Lecture 7 - Prototype low pass filter design
- Lecture 8 - Filter transformation
- Lecture 9 - Microwave Filter implementation
- Lecture 10 - Tutorial an Insertion Loss based Microwave Filter design
- Lecture 11 - Gain Definitions of Microwave Amplifiers
- Lecture 12 - Stability Analysis of Microwave Amplifiers
- Lecture 13 - Conditional stability enforcement for Microwave Amplifier
- Lecture 14 - Amplifier design of maximising transducer gain
- Lecture 15 - Amplifier design for specified gain
- Lecture 16 - Amplifier design for specified noise performance
- Lecture 17 - Broadband Amplifier Design
- Lecture 18 - Quantitative Characterisation of Nonlinearity for Large Signal Amplifier
- Lecture 19 - Quantitative Characterisation of Nonlinearity for Large Signal Amplifier (Continued...)
- Lecture 20 - Measurement of Nonlinearity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Millimeter Wave Technology

Subject Co-ordinator - Prof. Mrinal Kanti Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Millimeter-Wave Technology  
Lecture 2 - Introduction to Millimeter-Wave Technology (Continued...)  
Lecture 3 - Introduction to Millimeter-Wave Technology (Continued...)  
Lecture 4 - Introduction to Millimeter-Wave Technology (Continued...)  
Lecture 5 - Introduction to Millimeter-Wave Technology (Continued...)  
Lecture 6 - Guiding Structures  
Lecture 7 - Guiding Structures (Continued...)  
Lecture 8 - Guiding Structures (Continued...)  
Lecture 9 - Guiding Structures (Continued...)  
Lecture 10 - Guiding Structures (Continued...)  
Lecture 11 - Guiding Structures (Continued...)  
Lecture 12 - Guiding Structures (Continued...)  
Lecture 13 - Guiding Structures (Continued...)  
Lecture 14 - Guiding Structures (Continued...)  
Lecture 15 - Guiding Structures (Continued...)  
Lecture 16 - Antennas at MM-Wave Frequencies  
Lecture 17 - Antennas at MM-Wave Frequencies (Continued...)  
Lecture 18 - Antennas at MM-Wave Frequencies (Continued...)  
Lecture 19 - Antennas at MM-Wave Frequencies (Continued...)  
Lecture 20 - Antennas at MM-Wave Frequencies (Continued...)  
Lecture 21 - Passive Components  
Lecture 22 - Passive Components (Continued...)  
Lecture 23 - Passive Components (Continued...)  
Lecture 24 - Passive Components (Continued...)  
Lecture 25 - Passive Components (Continued...)  
Lecture 26 - Active Devices  
Lecture 27 - Active Devices (Continued...)  
Lecture 28 - Active Devices (Continued...)  
Lecture 29 - Active Devices (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Active Devices (Continued...)
- Lecture 31 - Noise and Link Budget
- Lecture 32 - Noise and Link Budget (Continued...)
- Lecture 33 - Noise and Link Budget (Continued...)
- Lecture 34 - Noise and Link Budget (Continued...)
- Lecture 35 - Noise and Link Budget (Continued...)
- Lecture 36 - Millimeter-Wave Systems
- Lecture 37 - Millimeter-Wave Systems (Continued...)
- Lecture 38 - Millimeter-Wave Systems (Continued...)
- Lecture 39 - Millimeter-Wave Systems (Continued...)
- Lecture 40 - Millimeter-Wave Systems (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Power System Analysis

Subject Co-ordinator - Prof. Debapriya Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Structure of Power Systems and Few other Aspects - I
- Lecture 2 - Structure of Power Systems and Few other Aspects - II
- Lecture 3 - Structure of Power Systems and Few other Aspects - III
- Lecture 4 - Resistance and Inductance
- Lecture 5 - Resistance and Inductance (Continued...)
- Lecture 6 - Resistance and Inductance (Continued...)
- Lecture 7 - Resistance and Inductance (Continued...)
- Lecture 8 - Resistance and Inductance (Continued...)
- Lecture 9 - Resistance and Inductance (Continued...)
- Lecture 10 - Resistance and Inductance (Continued...)
- Lecture 11 - Capacitance of Transmission Lines
- Lecture 12 - Capacitance of Transmission Lines (Continued...)
- Lecture 13 - Capacitance of Transmission Lines (Continued...)
- Lecture 14 - Capacitance of Transmission Lines (Continued...)
- Lecture 15 - Power System Components and per-unit system
- Lecture 16 - Power System Components and per-unit system (Continued...)
- Lecture 17 - Power System Components and per-unit system (Continued...)
- Lecture 18 - Power System Components and per-unit system (Continued...)
- Lecture 19 - Power System Components and per-unit system (Continued...)
- Lecture 20 - Power System Components and per-unit system (Continued...)
- Lecture 21 - Characteristic and performance of transmission lines
- Lecture 22 - Characteristic and performance of transmission lines (Continued...)
- Lecture 23 - Characteristic and performance of transmission lines (Continued...)
- Lecture 24 - Characteristic and performance of transmission lines (Continued...)
- Lecture 25 - Characteristic and performance of transmission lines (Continued...)
- Lecture 26 - Load flow studies
- Lecture 27 - Load flow studies (Continued...)
- Lecture 28 - Load flow studies (Continued...)
- Lecture 29 - Load flow studies (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Load flow studies (Continued...)
- Lecture 31
- Lecture 32
- Lecture 33
- Lecture 34
- Lecture 35
- Lecture 36 - Load flow studies (Continued...)
- Lecture 37 - Optimal system operation
- Lecture 38 - Optimal system operation (Continued...)
- Lecture 39 - Optimal system operation (Continued...)
- Lecture 40 - Optimal system operation (Continued...)
- Lecture 41 - Optimal system operation (Continued...)
- Lecture 42 - Optimal system operation (Continued...)
- Lecture 43 - Optimal system operation (Continued...)
- Lecture 44 - Optimal system operation (Continued...)
- Lecture 45 - Three phase fault studies
- Lecture 46 - Three phase fault studies (Continued...)
- Lecture 47 - Three phase fault studies (Continued...)
- Lecture 48 - Three phase fault studies (Continued...)
- Lecture 49 - Symmetrical components
- Lecture 50 - Symmetrical components (Continued...)
- Lecture 51 - Symmetrical components (Continued...)
- Lecture 52 - Symmetrical components (Continued...)
- Lecture 53 - Symmetrical components (Continued...)
- Lecture 54 - Symmetrical components (Continued...)
- Lecture 55 - Power system stability>
- Lecture 56 - Power system stability (Continued...)
- Lecture 57 - Power system stability (Continued...)
- Lecture 58 - Power system stability (Continued...)
- Lecture 59 - Power system stability (Continued...)
- Lecture 60 - Power system stability (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Analog Communication

Subject Co-ordinator - Prof. Goutam Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Fourier Series  
Lecture 2 - Fourier Series (Continued...)  
Lecture 3 - Fourier Series (Continued...)  
Lecture 4 - Fourier Series (Continued...)  
Lecture 5 - Fourier Series (Continued...)  
Lecture 6 - Fourier Series (Continued...)  
Lecture 7 - Fourier Series (Continued...)  
Lecture 8 - Fourier Transform  
Lecture 9 - Fourier Transform (Continued...)  
Lecture 10 - Fourier Transform (Continued...)  
Lecture 11 - Fourier Transform (Continued...)  
Lecture 12 - Energy Spectral Density  
Lecture 13 - Power Spectral Density  
Lecture 14 - PSD of Random Signal  
Lecture 15 - Amplitude Modulation  
Lecture 16 - Amplitude Modulation (Continued...)  
Lecture 17 - Amplitude Modulation (Continued...)  
Lecture 18 - Amplitude Modulation (Continued...)  
Lecture 19 - SSB - SC  
Lecture 20 - SSB - SC (Continued...)  
Lecture 21 - VSB-SC  
Lecture 22 - VSB-SC (Continued...)  
Lecture 23 - Effect of Carrier Synchronization  
Lecture 24 - Comparison of Different Modulation Technique  
Lecture 25 - PLL  
Lecture 26 - PLL (Continued...)  
Lecture 27 - PLL (Continued...)  
Lecture 28 - PLL (Continued...) and LTI  
Lecture 29 - Dispersion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Channel Nonlinearities and Multipath Effects
- Lecture 31 - Probability Theory
- Lecture 32 - Probability Theory (Continued...)
- Lecture 33 - Probability Theory (Continued...)
- Lecture 34 - Probability Theory (Continued...)
- Lecture 35 - Probability Theory (Continued...)
- Lecture 36 - Probability Theory (Continued...)
- Lecture 37 - Probability Theory (Continued...)
- Lecture 38 - Random Process
- Lecture 39 - Random Process (Continued...)
- Lecture 40 - Random Process (Continued...)
- Lecture 41 - Random Process (Continued...)
- Lecture 42 - Random Process (Continued...)
- Lecture 43 - Random Process (Continued...)
- Lecture 44 - Noise Analysis - DSB-SC
- Lecture 45 - Noise Analysis - AM
- Lecture 46 - Noise Analysis - SSB-SC
- Lecture 47 - Frequency Modulation
- Lecture 48 - Frequency Modulation (Continued...)
- Lecture 49 - Frequency Modulation (Continued...)
- Lecture 50 - Frequency Modulation (Continued...)
- Lecture 51 - Frequency Modulation (Continued...)
- Lecture 52 - Frequency Modulation (Continued...)
- Lecture 53 - FM Noise Analysis
- Lecture 54 - FM Noise Analysis (Continued...)
- Lecture 55 - FM Noise Analysis (Continued...)>
- Lecture 56 - Sampling Theorem
- Lecture 57 - Sampling Theorem (Continued...)
- Lecture 58 - FDM Vs TDM
- Lecture 59 - Flat Top Vs Natural Sampling
- Lecture 60 - Pulse Coded Modulation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Modern Digital Communication Techniques

Subject Co-ordinator - Prof. Suvra Sekhar Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction of Digital Communication System  
Lecture 2 - Introduction of Digital Communication System (Continued...)  
Lecture 3 - Introduction of Digital Communication System (Continued...)  
Lecture 4 - Introduction of Digital Communication System (Continued...)  
Lecture 5 - Introduction of Digital Communication System (Continued...)  
Lecture 6 - Source Coding  
Lecture 7 - Source Coding (Continued...)  
Lecture 8 - Source Coding (Continued...)  
Lecture 9 - Source Coding (Continued...)  
Lecture 10 - Source Coding (Continued...)  
Lecture 11 - Source Coding (Continued...)  
Lecture 12 - Source Coding (Continued...)  
Lecture 13 - Source Coding (Continued...)  
Lecture 14 - Source Coding (Continued...)  
Lecture 15 - Analog to Digital Conversion  
Lecture 16 - Analog to Digital Conversion (Continued...)  
Lecture 17 - Characterization of Signals and Systems  
Lecture 18 - Characterization of Signals and Systems (Continued...)  
Lecture 19 - Characterization of Signals and Systems (Continued...)  
Lecture 20 - Characterization of Signals and Systems (Continued...)  
Lecture 21 - Characterization of Signals and Systems (Continued...)  
Lecture 22 - Characterization of Signals and Systems (Continued...)  
Lecture 23 - Characterization of Signals and Systems (Continued...)  
Lecture 24 - Memoryless Modulation  
Lecture 25 - Memoryless Modulation (Continued...)  
Lecture 26 - Memoryless Modulation (Continued...)  
Lecture 27 - Memoryless Modulation (Continued...)  
Lecture 28 - Memoryless Modulation (Continued...)  
Lecture 29 - Memoryless Modulation (Continued...)

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- Lecture 30 - Memoryless Modulation (Continued...)
- Lecture 31 - Memoryless Modulation (Continued...)
- Lecture 32 - Memoryless Modulation (Continued...)
- Lecture 33 - With Memory Modulation
- Lecture 34 - With Memory Modulation (Continued...)
- Lecture 35 - With Memory Modulation (Continued...)
- Lecture 36 - With Memory Modulation (Continued...)
- Lecture 37 - With Memory Modulation (Continued...)
- Lecture 38 - With Memory Modulation (Continued...)
- Lecture 39 - With Memory Modulation (Continued...)
- Lecture 40 - Optimum Receivers for AWGN
- Lecture 41 - Optimum Receivers for AWGN (Continued...)
- Lecture 42 - Optimum Receivers for AWGN (Continued...)
- Lecture 43 - Optimum Receivers for AWGN (Continued...)
- Lecture 44 - Optimum Receivers for AWGN (Continued...)
- Lecture 45 - Optimum Receivers for AWGN (Continued...)
- Lecture 46 - Performance of Digital Modulation Techniques
- Lecture 47 - Performance of Digital Modulation Techniques (Continued...)
- Lecture 48 - Performance of Digital Modulation Techniques (Continued...)
- Lecture 49 - Performance of Digital Modulation Techniques (Continued...)
- Lecture 50 - Performance of Digital Modulation Techniques (Continued...)
- Lecture 51 - Performance of Digital Modulation Techniques (Continued...)
- Lecture 52 - Performance of Digital Modulation Techniques (Continued...)
- Lecture 53 - Channel Estimation and Equalization
- Lecture 54 - Channel Estimation and Equalization (Continued...)
- Lecture 55 - Channel Estimation and Equalization (Continued...)>
- Lecture 56 - Channel Estimation and Equalization (Continued...)
- Lecture 57 - Synchronization Techniques
- Lecture 58 - Synchronization Techniques (Continued...)
- Lecture 59 - Synchronization Techniques (Continued...)
- Lecture 60 - Synchronization Techniques (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Digital Speech Processing

Subject Co-ordinator - Prof. Shyamal Kumar Das Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16 - Human Auditory System

Lecture 17

Lecture 18

Lecture 19 - Time Domain Methods in Speech Processing

Lecture 20

Lecture 21 - Introduction to Liner Prediction

Lecture 22 - Autocorrelation Method of LPC analysis

Lecture 23 - Autocorrelation Method of LPC analysis (Continued...)

Lecture 24 - Lattice Formulations of Linear Prediction

Lecture 25 - Lattice Formulations of Linear Prediction (Continued...)

Lecture 26

Lecture 27

Lecture 28

Lecture 29

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- Lecture 30
- Lecture 31 - Segmental and Supra-segmental features of speech signal
- Lecture 32 - Cepstral Transform Coefficients (CC) Parameters extraction
- Lecture 33 - Mel Frequency Cepstral Coefficients
- Lecture 34 - MFCC features vector
- Lecture 35 - Fundamental Frequency (F0) Detection of speech signal
- Lecture 36 - Frequency Domain Fundamental Frequency Detection Algorithms
- Lecture 37 - Text to Speech Synthesis
- Lecture 38 - Text to Speech Synthesis (Continued...)
- Lecture 39 - Automatic Speech Recognition
- Lecture 40 - Statistical Modeling of Automatic Speech Recognition
- Lecture 41 - Speech based Technology Development for e-learning
- Lecture 42 - Prosody Modeling
- Lecture 43 - Fundamental frequency contour modeling
- Lecture 44 - Fundamental frequency contour modeling (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Analog Circuits and Systems through SPI

Subject Co-ordinator - Prof. Mrigank Sharad

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Analog Design Part I  
Lecture 2 - Basic Analog Design Part I (Continued...)  
Lecture 3 - Basic Analog Design Part II  
Lecture 4 - Basic Analog Design Part II (Continued...)  
Lecture 5 - Basic Analog Design Part III  
Lecture 6 - Basic Analog Design Part III (Continued...)  
Lecture 7 - Basic Analog Design Part III (Continued...)  
Lecture 8 - Basic Analog Design Part III (Continued...)  
Lecture 9 - Basic Analog Design Part III (Continued...)  
Lecture 10 - Basic Analog Design Part III (Continued...)  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
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Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
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Lecture 57  
Lecture 58

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Analog IC Design

Subject Co-ordinator - Dr. Nagendra Krishnapura

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course introduction; Negative feedback control
- Lecture 2 - Negative feedback amplifier
- Lecture 3 - Step response, sinusoidal steady state response
- Lecture 4 - Loop gain and unity loop gain frequency; Opamp
- Lecture 5 - Opamp realization using controlled sources; Delay in the loop
- Lecture 6 - Negative feedback amplifier with ideal delay-small delays
- Lecture 7 - Negative feedback amplifier with ideal delay-large delays
- Lecture 8 - Negative feedback amplifier with parasitic poles and zeros
- Lecture 9 - Negative feedback amplifier with parasitic poles and zeros; Nyquist criterion
- Lecture 10 - Nyquist criterion; Phase margin
- Lecture 11 - Phase margin
- Lecture 12 - Single stage opamp realization
- Lecture 13 - Two stage miller compensated opamp
- Lecture 14 - Two stage miller compensated opamp
- Lecture 15 - Two and three stage miller compensated opamps; Feedforward compensated opamp
- Lecture 16 - Feedforward compensated opamp
- Lecture 17 - Feedforward compensated opamp
- Lecture 18 - Feedforward compensated opamp; typical opamp data sheet
- Lecture 19 - Opamp offset and CMRR; Transimpedance amplifier using an opamp
- Lecture 20 - Components available in a CMOS process
- Lecture 21 - MOS transistors-basics
- Lecture 22 - MOS transistors-parasitics, mismatch
- Lecture 23 - MOS transistors-mismatch, speed
- Lecture 24 - Noise in resistors
- Lecture 25 - Noise in MOS transistors; Input and output referred noise
- Lecture 26 - Noise scaling; Basic amplifier stages-Common source, common gate
- Lecture 27 - Basic amplifier stages-Common drain; Frequency response of amplifiers
- Lecture 28 - Common source amplifier frequency response; Differential amplifier
- Lecture 29 - Differential and common mode half circuits; Differential pair with active load

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Differential pair with current mirror load
- Lecture 31 - Single stage opamp characteristics
- Lecture 32 - Opamp with single and dual supplies; Single stage opamp tradeoffs
- Lecture 33 - Telescopic cascode opamp
- Lecture 34 - Telescopic cascode opamp; Folded cascode opamp
- Lecture 35 - Folded cascode opamp
- Lecture 36 - Two stage opamp
- Lecture 37 - Two stage opamp; Three stage and triple cascode opamps
- Lecture 38 - Common mode rejection ratio; Example
- Lecture 39 - Fully differential circuits
- Lecture 40 - Fully differential single stage opamp
- Lecture 41 - Common mode feedback
- Lecture 42 - Fully differential single stage opamp
- Lecture 43 - Fully differential two stage opamp; Fully differential versus pseudo-differential
- Lecture 44 - Circuit simulators and analyses
- Lecture 45 - Phase locked loop as frequency multiplier
- Lecture 46 - Phase domain model
- Lecture 47 - Type I PLL transfer function and reference feedthrough
- Lecture 48 - Type II PLL
- Lecture 49 - Type II PLL transfer functions; Implementation
- Lecture 50 - Type II PLL-extra poles; Random noise in a PLL
- Lecture 51 - Oscillator phase noise
- Lecture 52 - PLL phase noise; LC and ring Oscillators
- Lecture 53 - Generating PTAT and constant MOS gm bias currents
- Lecture 54 - Reducing supply sensitivity; Bandgap voltage reference
- Lecture 55 - Fractional bandgap reference; Low dropout regulator
- Lecture 56 - Low dropout regulators; Continuous-time active filters
- Lecture 57 - Continuous-time active filters
- Lecture 58 - Continuous-time active filters
- Lecture 59 - Discrete-time active filters
- Lecture 60 - Transistor sizing in practice; Course summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Coding Theory

Subject Co-ordinator - Dr. Andrew Thangaraj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Linear Block Codes
- Lecture 2 - Properties of Linear Block Codes
- Lecture 3 - Dual of Linear Block Codes
- Lecture 4 - Minimum Distance of Codes
- Lecture 5 - Operations on Codes
- Lecture 6 - Bounds on Code Parameters
- Lecture 7 - Optimal Decoders
- Lecture 8 - Syndrome Decoder, Basics of Finite Fields
- Lecture 9 - Constructions of Finite Fields
- Lecture 10 - Computations in Finite Fields
- Lecture 11 - Codes over Finite Fields, Minimal Polynomials
- Lecture 12 - BCH Codes
- Lecture 13 - BCH and RS Codes I
- Lecture 14 - BCH and RS Codes II
- Lecture 15 - Decoding BCH Codes
- Lecture 16 - Decoding RS Codes
- Lecture 17 - Coded Modulation and Soft Decision Decoding
- Lecture 18 - Optimal Decoders for BPSK and AWGN
- Lecture 19 - Bitwise Map Decoder for BPSK over AWGN
- Lecture 20 - Bitwise Map Decoder from the Dual Code
- Lecture 21 - Simulating Coded Modulation
- Lecture 22 - Union Bound, Introduction to LDPC Codes
- Lecture 23 - LDPC Codes
- Lecture 24 - Message Passing, Density Evolution Analysis
- Lecture 25 - Thresholds of LDPC Codes
- Lecture 26 - Irregular LDPC Codes
- Lecture 27 - Optimized Irregular LDPC Codes, Soft Message Passing Decoders
- Lecture 28 - Density Evolution for Soft Message Passing Decoding of LDPC Codes
- Lecture 29 - LDPC Codes in Practice

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Convolutional Codes
- Lecture 31 - Viterbi Decoding of Convolutional Codes
- Lecture 32 - Union Bound, Recursive Convolutional Encoders
- Lecture 33 - Convolutional Codes in Practice
- Lecture 34 - BCJR Decoder
- Lecture 35 - BCJR & Max-Log-MAP Decoder, Introduction to Turbo Codes
- Lecture 36 - Turbo Decoder
- Lecture 37 - Turbo Codes in Practice
- Lecture 38 - Modern Codes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Semiconductor Device Modeling

Subject Co-ordinator - Prof. S. Karmalkar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44  
Lecture 45  
Lecture 46

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - VLSI Data Conversion Circuits

Subject Co-ordinator - Dr. Shanthi Pavan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Data Conversion  
Lecture 2 - Sampling-1  
Lecture 3 - Sampling-2  
Lecture 4 - Nonidealities in Samples  
Lecture 5 - Noise due to Sampling  
Lecture 6 - Distortion in a Sampling Switch  
Lecture 7 - Gate Boosted Switches-1  
Lecture 8 - Gate Boosted Switches-2  
Lecture 9 - Charge Injection  
Lecture 10 - S/H Characterization-1  
Lecture 11 - S/H Characterization-2  
Lecture 12 - FFTs and Leakage  
Lecture 13 - Spectral Windows-1  
Lecture 14 - Spectral Windows-2  
Lecture 15 - ADC/DAC Definition  
Lecture 16 - Quantization Noise-1  
Lecture 17 - Quantization Noise-2  
Lecture 18 - Over Sampling and Noise Shaping  
Lecture 19 - Delta-Sigma Modulation-1  
Lecture 20 - Delta-Sigma Modulation-2  
Lecture 21 - Linearized Analysis  
Lecture 22 - Stability of Delta Sigma Modulators  
Lecture 23 - High Order DSMs  
Lecture 24 - NTF Design and Tradeoffs  
Lecture 25 - Single bit Modulators  
Lecture 26 - Loop Filter Architectures  
Lecture 27 - Continuous-time Delta Sigma Modulation  
Lecture 28 - Implicit Antialiasing  
Lecture 29 - Modulators with NRZ and Impulsive DACs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - High Order CTDSMs
- Lecture 31 - CTDM Design
- Lecture 32 - Excess Loop Delay (ELD)
- Lecture 33 - ELD Compensation
- Lecture 34 - Effect of Clock Jitter on CTDSMs-1
- Lecture 35 - Effect of Clock Jitter on CTDSMs-2
- Lecture 36 - Dynamic Range Scaling
- Lecture 37 - Simulation of CTDSMs
- Lecture 38 - Integrator Design-1
- Lecture 39 - Integrator Design-2
- Lecture 40 - Flash ADC Design
- Lecture 41 - Latches and Metastability
- Lecture 42 - Offset in a Latch-1
- Lecture 43 - Offset in a Latch-2 Auto Zeroing
- Lecture 44 - Auto Zeroing-2
- Lecture 45 - Auto Zeroing-3
- Lecture 46 - Auto Zeroing in flash ADCs
- Lecture 47 - Flash ADCs Case Study
- Lecture 48 - Flash ADC Case Study
- Lecture 49 - Flash ADC in a Delta Sigma Loop
- Lecture 50 - DAC Basics
- Lecture 51 - Binary and Thermometer DACs
- Lecture 52 - Segmented DACs
- Lecture 53 - Optimal DAC Segmentation
- Lecture 54 - DAC Nonlinearities
- Lecture 55 - Current Steering DACs-1
- Lecture 56 - Current Steering DACs-2
- Lecture 57 - DAC Mismatches in DSMS
- Lecture 58 - Calibration and Randomization
- Lecture 59 - Dynamic Element Matching-1
- Lecture 60 - Dynamic Element Matching-2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Circuits and Systems

Subject Co-ordinator - Prof. S. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction To Digital Circuits  
Lecture 2 - Introduction To Digital Circuits  
Lecture 3 - Combinational Logic Basics  
Lecture 4 - Combinational Circuits  
Lecture 5 - Logic Simplification  
Lecture 6 - Karnaugh Maps And Implicants  
Lecture 7 - Logic Minimization Using Karnaugh Maps  
Lecture 8 - Karnaugh Map Minimization Using Maxterms  
Lecture 9 - Code Converters  
Lecture 10 - Parity Generators And Display Decoder  
Lecture 11 - Arithmetic Circuits  
Lecture 12 - Carry Look Ahead Adders  
Lecture 13 - Subtractors  
Lecture 14 - 2's Complement Subtractor and BCD Adder  
Lecture 15 - Array Multiplier  
Lecture 16 - Introduction to Sequential Circuits  
Lecture 17 - S-R, J-K and D Flip Flops  
Lecture 18 - J-K and T Flip Flops  
Lecture 19 - Triggering Mechanisms of Flip Flops and Counters  
Lecture 20 - Up/Down Counters  
Lecture 21 - Shift Registers  
Lecture 22 - Application of shift Registers  
Lecture 23 - State Machines  
Lecture 24 - Design of Synchronous Sequential Circuits  
Lecture 25 - Design using J-K Flip Flop  
Lecture 26 - Mealy and Moore Circuits  
Lecture 27 - Pattern Detector  
Lecture 28 - MSI and LSI Based Design  
Lecture 29 - Multiplexer Based Design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Encoders and Decoders
- Lecture 31 - Programmable Logic Devices
- Lecture 32 - Design using Programmable Logic Devices
- Lecture 33 - Design using Programmable Logic Devices (Continued)
- Lecture 34 - MSI and LSI based Implementation of Sequential Circuits
- Lecture 35 - MSI and LSI based Implementation of Sequential Circuits (Continued)
- Lecture 36 - Design of circuits using MSI sequential blocks
- Lecture 37 - System Design Example
- Lecture 38 - System Design Example (Continued)
- Lecture 39 - System Design using the concept of controllers
- Lecture 40 - System Design using the concept of controllers (Continued)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Electronics for Analog Signal Processing - I

Subject Co-ordinator - Prof. K. Radhakrishna Rao

Co-ordinating Institute - IIT - Madras | Texas Instruments - India

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Diode  
Lecture 3 - Diode characteristics  
Lecture 4 - Rectifier  
Lecture 5 - Voltage Multiplier  
Lecture 6 - Full Wave Rectifier and Peak Detector  
Lecture 7 - Diode as a GATE  
Lecture 8 - Analog GATE  
Lecture 9 - Small Signal Analysis of Diode Circuit  
Lecture 10 - Zener Regulator and Voltage Regulator  
Lecture 11 - Varactor Diode  
Lecture 12 - Amplifiers  
Lecture 13 - Cascading of Amplifiers  
Lecture 14 - Cascading of Amplifiers  
Lecture 15 - h and g Parameters  
Lecture 16 - Two Port Analysis  
Lecture 17 - Amplifier Applications  
Lecture 18 - Frequency Limitations Of An Amplifier  
Lecture 19 - Distortion In Amplifiers  
Lecture 20 - Bipolar Junction Transistor  
Lecture 21 - Transistor (BJT) Inverter  
Lecture 22 - Transistor Biasing  
Lecture 23 - Stable Way of Biasing  
Lecture 24 - Common Emitter Amplifiers  
Lecture 25 - Transistor Biasing Using Single Supply  
Lecture 26 - Metal Oxide Semiconductor  
Lecture 27 - Construction of a MOSFET  
Lecture 28 - Varieties of MOSFETS and JFETS  
Lecture 29 - Characteristics of MOSFET

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cascading Amplifiers
- Lecture 31 - Cascading (Direct Coupling)
- Lecture 32 - The Differential Amplifiers
- Lecture 33 - BJT Differential Amplifiers
- Lecture 34 - MOSFET Differential Amplifiers
- Lecture 35 - Cascading Differential Amplifiers
- Lecture 36 - Current Source and Current Sink
- Lecture 37 - NMOS Inverters and CMOS Inverters
- Lecture 38 - Active Components used in Electronics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Electronics for Analog Signal Processing - I

Subject Co-ordinator - Prof. K. Radhakrishna Rao

Co-ordinating Institute - IIT - Madras | Texas Instruments - India

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Feedback Theory
- Lecture 2 - Negative Feedback
- Lecture 3 - Negative Feedback
- Lecture 4 - Y-Feedback
- Lecture 5 - h and g Negative Feedback
- Lecture 6 - g Feedback with Mosfet
- Lecture 7 - Operational Amplifier in Negative Feedback
- Lecture 8 - Operational Amplifier in Negative Feedback
- Lecture 9 - Positive Feedback (Regenerative)
- Lecture 10 - Experimental Demonstration
- Lecture 11 - Instrumentation Amplifiers
- Lecture 12 - Active Filters
- Lecture 13 - Simulation of Harmonic Oscillators
- Lecture 14 - Oscillators
- Lecture 15 - Oscillators
- Lecture 16 - Frequency Compensation in Negative Feedback
- Lecture 17 - Frequency Compensation
- Lecture 18 - Wideband (video) Amplifiers
- Lecture 19 - Wideband Amplifiers
- Lecture 20 - ICs For Video And Tuned Amplifier Applications
- Lecture 21 - Power Amplifier
- Lecture 22 - Power Amplifier
- Lecture 23 - Class B and C Power Amplifiers
- Lecture 24 - Class-B Power Amplifier Load and Drive
- Lecture 25 - Control Circuits
- Lecture 26 - Voltage Regulators
- Lecture 27 - Voltage Regulators
- Lecture 28 - Voltage Regulators
- Lecture 29 - Convertors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analog Multipliers (Modems & Mixers)
- Lecture 31 - Log-Antilog Multipliers
- Lecture 32 - Multipliers
- Lecture 33 - Multipliers
- Lecture 34 - AGC/AVC
- Lecture 35 - AGC/AVC
- Lecture 36 - Experimental Demonstration
- Lecture 37 - PLL (Phase Locked Loop)
- Lecture 38 - PLL (Phase Locked Loop)
- Lecture 39 - Lock Range Capture Range and FSK and FM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - High Speed Devices and Circuits

Subject Co-ordinator - Prof. K.N. Bhat

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Basic concepts
- Lecture 2 - Requirements for high speed circuits, devices and materials
- Lecture 3 - Classification and properties of semiconductor devices
- Lecture 4 - Ternary compound semiconductors and their applications
- Lecture 5 - Ternary compound semiconductors and their applications (Continued.)
- Lecture 6 - Crystal structures in GaAs
- Lecture 7 - Dopants and impurities in GaAs and InP
- Lecture 8 - Brief Overview of GaAs Technology for High Speed Devices
- Lecture 9 - Epitaxial Techniques for GaAs and high speed devices
- Lecture 10 - MBE and LPE for GaAs Epitaxy
- Lecture 11 - GaAs and InP devices for Microelectronics
- Lecture 12 - Metal Semiconductor contacts for MESFET
- Lecture 13 - Metal Semiconductor contacts for MESFET (Continued.)
- Lecture 14 - Metal Semiconductor contacts for MESFET (Continued.)
- Lecture 15 - Ohmic contacts on semiconductors
- Lecture 16 - Fermi level pinning, I V characteristics of Schottky Barrier Diodes
- Lecture 17 - Schottky Barrier Diodes I V characteristics of Non idealities -1
- Lecture 18 - Schottky Barrier Diodes I V characteristics of Non idealities -1
- Lecture 19 - Causes of Non idealities in the Schottky Barrier Diodes (I V characteristics)
- Lecture 20 - MESFET operations and I V characteristics
- Lecture 21 - MESFET I V characteristics Shockley's Model
- Lecture 22 - MESFET Shockley's Model and velocity saturation effect
- Lecture 23 - MESFET velocity saturation effect on drain current saturation
- Lecture 24 - MESFET
- Lecture 25 - MESFET
- Lecture 26 - MESFET
- Lecture 27 - MESFET
- Lecture 28 - MESFET
- Lecture 29 - Self Aligned MESFET SAINT Threshold Voltage and Sub Threshold current

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hetero junctions
- Lecture 31 - Hetero junctions and high electron Mobility Transistor (HEMT)
- Lecture 32 - Hetero junctions and high electron Mobility Transistor (HEMT) (Continued.)
- Lecture 33 - High Electron Mobility Transistor
- Lecture 34 - HEMT off voltage, I-V characteristics and trans conductance
- Lecture 35 - I-V characteristics and trans conductance and optimization
- Lecture 36 - Indium phosphide based HEMT
- Lecture 37 - Pseudomorphic HEMT and Hetrojunction Bipolar Transistors
- Lecture 38 - Hetero junction Bipolar Transistors (HBT)
- Lecture 39 - Hetero junction Bipolar Transistors (HBT) (Continued.)
- Lecture 40 - Hetero junction Bipolar Transistors (HBT) (Continued.)
- Lecture 41 - Hetero junction Bipolar Transistors (HBT) (Continued.)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Solid State Devices

Subject Co-ordinator - Prof. S. Karmalkar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction on Solid State Devices
- Lecture 2 - Evolution and Uniqueness of Semiconductor
- Lecture 3 - Equilibrium Carrier Concentration
- Lecture 4 - Equilibrium Carrier Concentration
- Lecture 5 - Equilibrium Carrier Concentration
- Lecture 6 - Equilibrium Carrier Concentration
- Lecture 7 - Equilibrium Carrier Concentration
- Lecture 8 - Equilibrium Carrier Concentration
- Lecture 9 - Equilibrium Carrier Concentration
- Lecture 10 - Equilibrium Carrier Concentration
- Lecture 11 - Equilibrium Carrier Concentration
- Lecture 12 - Carrier Transport
- Lecture 13 - Carrier Transport (Continued.)
- Lecture 14 - Carrier Transport (Continued.)
- Lecture 15 - Excess Carriers
- Lecture 16 - Excess Carriers (Continued.)
- Lecture 17 - Procedure for Device Analysis
- Lecture 18 - Procedure for Device Analysis (Continued.)
- Lecture 19 - PN Junction
- Lecture 20 - PN Junction (Continued.)
- Lecture 21 - PN Junction (Continued.)
- Lecture 22 - PN Junction (Continued.)
- Lecture 23 - PN Junction (Continued.)
- Lecture 24 - PN Junction (Continued.)
- Lecture 25 - PN Junction (Continued.)
- Lecture 26 - Bipolar Junction Transistor
- Lecture 27 - Bipolar Junction Transistor (Continued.)
- Lecture 28 - Bipolar Junction Transistor (Continued.)
- Lecture 29 - Bipolar Junction Transistor (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bipolar Junction Transistor (Continued.)
- Lecture 31 - Bipolar Junction Transistor (Continued.)
- Lecture 32 - Bipolar Junction Transistor (Continued.)
- Lecture 33 - Metal-Oxide-Semiconductor (MOS) Junction
- Lecture 34 - Metal-Oxide-Semiconductor (MOS) Junction (Continued.)
- Lecture 35 - Metal-Oxide-Semiconductor (MOS) Junction (Continued.)
- Lecture 36 - Metal-Oxide-Semiconductor (MOS) Junction (Continued.)
- Lecture 37 - Metal-Oxide-Semiconductor (MOS) Junction (Continued.)
- Lecture 38 - MOS Field Effect Transistor
- Lecture 39 - MOS Field Effect Transistor (Continued.)
- Lecture 40 - MOS Field Effect Transistor (Continued.)
- Lecture 41 - MOS Field Effect Transistor (Continued.)
- Lecture 42 - The Final Lecture - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - VLSI Circuits

Subject Co-ordinator - Prof. S. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to VLSI Design  
Lecture 2 - Combinational Circuit Design  
Lecture 3 - Programmable Logic Devices  
Lecture 4 - Programmable Array Logic  
Lecture 5 - Review of Flip-Flops  
Lecture 6 - Sequential Circuits  
Lecture 7 - Sequential Circuit Design  
Lecture 8 - MSI Implementation of Sequential Circuits  
Lecture 9 - Design of Sequential Circuits using One Hot Controller  
Lecture 10 - Verilog Modeling of Combinational Circuits  
Lecture 11 - Modeling of Verilog Sequential Circuits - Core Statements  
Lecture 12 - Modeling of Verilog Sequential Circuits - Core Statements(Continued.)  
Lecture 13 - RTL Coding Guidelines  
Lecture 14 - Coding Organization - Complete Realization  
Lecture 15 - Coding Organization - Complete Realization (Continued.)  
Lecture 16 - Writing a Test Bench  
Lecture 17 - System Design using ASM Chart  
Lecture 18 - Example of System Design using ASM Chart  
Lecture 19 - Examples of System Design using Sequential Circuits  
Lecture 20 - Examples of System Design using Sequential Circuits (Continued.)  
Lecture 21 - Microprogrammed Design  
Lecture 22 - Microprogrammed Design (Continued.)  
Lecture 23 - Design Flow of VLSI Circuits  
Lecture 24 - Simulation of Combinational Circuits  
Lecture 25 - Simulation of Combinational and Sequential Circuits  
Lecture 26 - Analysis of Waveforms using Modelsim  
Lecture 27 - Analysis of Waveforms using Modelsim (Continued.)  
Lecture 28 - ModelSim Simulation Tool  
Lecture 29 - Synthesis Tool

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- Lecture 30 - Synthesis Tool (Continued.)
- Lecture 31 - Synplify Tool - Schematic Circuit Diagram View
- Lecture 32 - Technology View using Synplify Tool
- Lecture 33 - Synopsys Full and Parallel Cases
- Lecture 34 - Xilinx Place & Route Tool
- Lecture 35 - Xilinx Place & Route Tool (Continued.)
- Lecture 36 - PCI Arbiter Design using ASM Chart
- Lecture 37 - Design of Memories - ROM
- Lecture 38 - Design of Memories- RAM
- Lecture 39 - Design of External RAM
- Lecture 40 - Design of Arithmetic Circuits
- Lecture 41 - Design of Arithmetic Circuits (Continued.)
- Lecture 42 - Design of Arithmetic Circuits (Continued.)
- Lecture 43 - System Design Examples
- Lecture 44 - System Design Examples (Continued.)
- Lecture 45 - System Design Examples (Continued.)
- Lecture 46 - System Design Examples (Continued.)
- Lecture 47 - System Design Examples (Continued.)
- Lecture 48 - System Design Examples using FPGA Board
- Lecture 49 - System Design Examples using FPGA Board (Continued.)
- Lecture 50 - Advanced Features of Xilinx Project Navigator
- Lecture 51 - System Design Examples using FPGA Board (Continued.)
- Lecture 52 - System Design Examples using FPGA Board (Continued.)
- Lecture 53 - System Design Examples using FPGA Board (Continued.)
- Lecture 54 - System Design Examples using FPGA Board (Continued.)
- Lecture 55 - Project Design Suggested for FPGA/ASIC Implementations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - VLSI Technology

Subject Co-ordinator - Dr. Nandita Dasgupta

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction on VLSI Design
- Lecture 2 - Bipolar Junction Transistor Fabrication
- Lecture 3 - MOSFET Fabrication for IC
- Lecture 4 - Crystal Structure of Si
- Lecture 5 - Crystal Structure (Continued.)
- Lecture 6 - Defects in Crystal + Crystal growth
- Lecture 7 - Crystal growth Contd + Epitaxy I
- Lecture 8 - Epitaxy II - Vapour phase Epitaxy
- Lecture 9 - Epitaxy III - Doping during Epitaxy
- Lecture 10 - Molecular beam Epitaxy
- Lecture 11 - Oxidation I - Kinetics of Oxidation
- Lecture 12 - Oxidation II - Oxidation rate constants
- Lecture 13 - Oxidation III - Dopant Redistribution
- Lecture 14 - Oxidation IV - Oxide Charges
- Lecture 15 - Diffusion I - Theory of Diffusion
- Lecture 16 - Diffusion II - Infinite Source
- Lecture 17 - Diffusion III - Actual Doping Profiles
- Lecture 18 - Diffusion IV - Diffusion Systems
- Lecture 19 - Ion - Implantation Process
- Lecture 20 - Ion - Implantation Process
- Lecture 21 - Annealing of Damages
- Lecture 22 - Masking during Implantation
- Lecture 23 - Lithography - I
- Lecture 24 - Lithography - II
- Lecture 25 - Wet Chemical Etching
- Lecture 26 - Dry Etching
- Lecture 27 - Plasma Etching Systems
- Lecture 28 - Etching of Si, SiO<sub>2</sub>, SiN and other materials
- Lecture 29 - Plasma Deposition Process

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Metallization - I
- Lecture 31 - Problems in Aluminium Metal contacts
- Lecture 32 - IC BJT - From junction isolation to LOCOS
- Lecture 33 - Problems in LOCOS + Trench isolation
- Lecture 34 - More about BJT Fabrication and Realization
- Lecture 35 - Circuits + Transistors in ECL Circuits
- Lecture 36 - MOSFET I - Metal gate vs. Self-aligned Poly-gate
- Lecture 37 - MOSFET II Tailoring of Device Parameters
- Lecture 38 - CMOS Technology
- Lecture 39 - Latch - up in CMOS
- Lecture 40 - BICMOS Technology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Basic Electrical Circuits

Subject Co-ordinator - Dr. Nagendra Krishnapura

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the course; Current and Voltage; Kirchhoff's Current and Voltage laws

Lecture 2 - Electrical circuit elements

Lecture 3 - Elements in series and parallel; Superposition in linear circuits

Lecture 4 - Controlled sources; Determining the characteristics of a two terminal element; Realizing a resist

Lecture 5 - Nodal analysis of a network with conductances and current sources; Setting up the equations; Cond

Lecture 6 - Circuit analysis; Number of KCL and KVL equations in a circuit; Nodal analysis of a network with

Lecture 7 - Nodal analysis with voltage sources and controlled sources; Brief introduction to modified nodal

Lecture 8 - Mesh analysis of a circuit with resistors and voltage sources; Comparison with nodal analysis; Me

Lecture 9 - Choice of nodal versus mesh analysis; Circuit theorems

Lecture 10 - Thevenin and Norton (theorem and) equivalent circuits; Power conservation in a circuit

Lecture 11 - Tellegen's theorem; Reciprocity theorem

Lecture 12 - Compensation Theorem; Two ports

Lecture 13 - Two port parameters-y parameters

Lecture 14 - Two port parameters(z, h, and g); Reciprocal two ports

Lecture 15 - Opamp, ideal opamp circuits, non-inverting and inverting amplifiers; Ensuring that the opamp has

Lecture 16 - RC circuit natural response; First order differential equation

Lecture 17 - RC (first-order) circuit, complete response with step inputs; Transient(natural) and steady stat

Lecture 18 - Step response of RC circuit with loops of voltage sources and capacitors; RL circuits; RLC circu

Lecture 19 - Second order(RLC circuit) natural response; Series and prallel RLC circuits; Differential equati

Lecture 20 - General formulation of second order(RLC circuit) natural response; Natural frequency and damping

Lecture 21 - Sinusoidal steady state response of RC and RLC circuits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Basic Electrical Circuits

Subject Co-ordinator - Dr. Nagendra Krishnapura

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Preliminaries
- Lecture 2 - Current
- Lecture 3 - Voltage
- Lecture 4 - Electrical elements and circuits
- Lecture 5 - Kirchhoff's current law (KCL)
- Lecture 6 - Kirchhoff's Voltage law (KVL)
- Lecture 7 - Voltage Source
- Lecture 8 - Current Source
- Lecture 9 - Resistor
- Lecture 10 - Capacitor
- Lecture 11 - Inductor
- Lecture 12 - Mutual Inductor
- Lecture 13 - Linearity of Elements
- Lecture 14 - Solutions to the assignment on units 1 and 2
- Lecture 15 - Series connection-Voltage sources in series
- Lecture 16 - Series connection of R, L, C, current source
- Lecture 17 - Elements in parallel
- Lecture 18 - Current source in series with an element; Voltage source in parallel with an element
- Lecture 19 - Extreme cases
- Lecture 20 - Summary
- Lecture 21 - Voltage controlled voltage source (VCVS)
- Lecture 22 - Voltage controlled current source (VCCS)
- Lecture 23 - Current controlled voltage source (CCVS)
- Lecture 24 - Current controlled current source (CCCS)
- Lecture 25 - Realizing a resistance using a VCCS or CCCS
- Lecture 26 - Scaling an element's value using controlled sources
- Lecture 27 - Example calculation
- Lecture 28 - Solution to the assignment on units 3 and 4
- Lecture 29 - Power and energy absorbed by electrical elements

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Power and energy in a resistor
- Lecture 31 - Power and energy in a capacitor
- Lecture 32 - Power and energy in an inductor
- Lecture 33 - Power and energy in a voltage source
- Lecture 34 - Power and energy in a current source
- Lecture 35 - Goals of circuit analysis
- Lecture 36 - Number of independent KCL equations
- Lecture 37 - Number of independent KVL equations and branch relationships
- Lecture 38 - Analysis of circuits with a single independent source
- Lecture 39 - Analysis of circuits with multiple independent sources using superposition
- Lecture 40 - Superposition
- Lecture 41 - Solution to the assignment on units 5 and 6
- Lecture 42 - What is nodal analysis
- Lecture 43 - Setting up nodal analysis equations
- Lecture 44 - Structure of the conductance matrix
- Lecture 45 - How elements appear in the nodal analysis formulation
- Lecture 46 - Completely solving the circuit starting from nodal analysis
- Lecture 47 - Nodal analysis example
- Lecture 48 - Matrix inversion basics
- Lecture 49 - Nodal analysis with independent voltage sources
- Lecture 50 - Supernode for nodal analysis with independent voltage sources
- Lecture 51 - Nodal analysis with VCCS
- Lecture 52 - Nodal analysis with VCVS
- Lecture 53 - Nodal analysis with CCCS
- Lecture 54 - Nodal analysis with CCCS
- Lecture 55 - Nodal analysis summary
- Lecture 56 - Solution to the assignment on units 7 and 8
- Lecture 57 - Planar circuits
- Lecture 58 - Mesh currents and their relationship to branch currents
- Lecture 59 - Mesh analysis
- Lecture 60 - Mesh analysis with independent current sources-Supermesh
- Lecture 61 - Mesh analysis with current controlled voltage sources
- Lecture 62 - Mesh analysis with current controlled current sources
- Lecture 63 - Mesh analysis using voltage controlled sources
- Lecture 64 - Nodal analysis versus Mesh analysis
- Lecture 65 - Superposition theorem
- Lecture 66 - Pushing a voltage source through a node
- Lecture 67 - Splitting a current source
- Lecture 68 - Substitution theorem

## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Substitution theorem
- Lecture 70 - Substituting a voltage or current source with a resistor
- Lecture 71 - Solutions
- Lecture 72 - Extensions to Superposition and Substitution theorem
- Lecture 73 - Thevenin's theorem
- Lecture 74 - Worked out example
- Lecture 75 - Norton's theorem
- Lecture 76 - Worked out example
- Lecture 77 - Maximum power transfer theorem
- Lecture 78 - Preliminaries.
- Lecture 79 - Two port parameters
- Lecture 80 - y parameters
- Lecture 81 - y parameters
- Lecture 82 - Solutions.
- Lecture 83 - z parameters
- Lecture 84 - z parameters
- Lecture 85 - h parameters
- Lecture 86 - h parameters
- Lecture 87 - g parameters
- Lecture 88 - g parameters
- Lecture 89 - Calculations with a two-port element
- Lecture 90 - Calculations with a two-port element.
- Lecture 91 - Degenerate cases
- Lecture 92 - Relationships between different two-port parameters
- Lecture 93 - Equivalent circuit representation for two ports
- Lecture 94 - Reciprocity
- Lecture 95 - Proof of reciprocity of resistive two-ports
- Lecture 96 - Proof for 4-terminal two-ports
- Lecture 97 - Reciprocity in terms of different two-port parameters
- Lecture 98 - Reciprocity in circuits containing controlled sources
- Lecture 99 - Examples
- Lecture 100 - Solutions..
- Lecture 101 - Feedback amplifier using an opamp
- Lecture 102 - Ideal opamp
- Lecture 103 - Negative feedback around the opamp
- Lecture 104 - Finding opamp signs for negative feedback
- Lecture 105 - Example
- Lecture 106 - Analysis of circuits with opamps
- Lecture 107 - Inverting amplifier

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Summing amplifier
- Lecture 109 - Instrumentation amplifier
- Lecture 110 - Negative resistance and Miller effect
- Lecture 111 - Finding opamp signs for negative feedback-circuits with multiple opamps
- Lecture 112 - Opamp supply voltages and saturation
- Lecture 113 - KCL with an opamp and supply currents
- Lecture 114 - Solutions...
- Lecture 115 - Circuits with storage elements (capacitors and inductors)
- Lecture 116 - First order circuit with zero input-natural response
- Lecture 117 - First order RC circuit with zero input-Example
- Lecture 118 - First order circuit with a constant input
- Lecture 119 - General form of the first order circuit response
- Lecture 120 - First order RC circuit with a constant input-Example
- Lecture 121 - First order circuit with piecewise constant input
- Lecture 122 - First order circuit with piecewise constant input-Example
- Lecture 123 - First order circuit-Response of arbitrary circuit variables
- Lecture 124 - Summary
- Lecture 125 - Does a capacitor block DC?
- Lecture 126 - Finding the order of a circuit
- Lecture 127 - First order RC circuits with discontinuous capacitor voltages
- Lecture 128 - Summary
- Lecture 129 - First order RL circuits
- Lecture 130 - First order RL circuit with discontinuous inductor current-Example
- Lecture 131 - First order RC circuit with an exponential input
- Lecture 132 - First order RC response to its own natural response
- Lecture 133 - First order RC response to a sinusoidal input
- Lecture 134 - First order RC response to a sinusoidal input-via the complex exponential
- Lecture 135 - Summary
- Lecture 136 - Three methods of calculating the sinusoidal steady state response
- Lecture 137 - Calculating the total response including initial conditions
- Lecture 138 - Why are sinusoids used in measurement?
- Lecture 139 - Second order system natural response
- Lecture 140 - Second order system as a cascade of two first order systems
- Lecture 141 - Second order system natural response-critically damped and underdamped
- Lecture 142 - Generalized form of a second order system
- Lecture 143 - Numerical example
- Lecture 144 - Series and parallel RLC circuits
- Lecture 145 - Forced response of a second order system
- Lecture 146 - Steady state response calculation and Phasors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 147 - Phasors (Continued...)
- Lecture 148 - Magnitude and Phase plots
- Lecture 149 - Magnitude and phase plots of a second order system
- Lecture 150 - Maximum power transfer and Conjugate matching

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Advanced Logic Synthesis

Subject Co-ordinator - Mr. Dhiraj Taneja

Co-ordinating Institute - Broadcom - Hyderabad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - MOS Transistor  
Lecture 2 - MOS Transistor - Detailed Study  
Lecture 3 - Combinational Circuits and layout  
Lecture 4 - Delay  
Lecture 5 - Sequential Circuits  
Lecture 6 - Logical Effort  
Lecture 7 - Circuit Families  
Lecture 8 - Lab-01  
Lecture 9 - Lab-02  
Lecture 10 - Lab-03  
Lecture 11 - Lab-04  
Lecture 12 - Introduction to Synthesis  
Lecture 13 - Libraries  
Lecture 14 - RTL Coding for Synthesis  
Lecture 15 - Reading Design in DC  
Lecture 16 - Design Environment  
Lecture 17 - Design Constraints  
Lecture 18 - Compile Flow and strategies  
Lecture 19 - Analysis and Reporting  
Lecture 20 - Lab-05  
Lecture 21 - Advanced Synthesis Techniques  
Lecture 22 - Datapath Extraction Guidelines  
Lecture 23 - Power - Methodology and Analysis  
Lecture 24 - Lab-06  
Lecture 25 - Lab-07  
Lecture 26 - Lab-08  
Lecture 27 - Lab-09  
Lecture 28 - Static Timing Analysis - Concepts and Flow  
Lecture 29 - Interconnects and Delay calculation

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- Lecture 30 - Clock and Exceptions
- Lecture 31 - On Chip Variation
- Lecture 32 - Introduction to Crosstalk
- Lecture 33 - Gaussian / Normal Distribution
- Lecture 34 - Equivalence Checking / Formal Verification

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - ARM Based Development

Subject Co-ordinator - Mr. S. Chandramouleeswaran

Co-ordinating Institute - Independent Embedded SW Trainer

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Types of computer Architectures, ISA's and ARM History
- Lecture 2 - Embedded System Software and Hardware, stack implementation in ARM, Endianness, condition codes
- Lecture 3 - Processor core VS CPU core, ARM7TDMI Interface signals, Memory Interface, Bus Cycle types, Register
- Lecture 4 - Instruction Format, ARM Core Data Flow Model, ARM 3 stage Pipeline, ARM family attribute comparis
- Lecture 5 - ARM 5 stage Pipeline, Pipeline Hazards, Data forwarding - a hardware solution
- Lecture 6 - ARM ISA and Processor Variants, Different Types of Instructions, ARM Instruction set, data proces
- Lecture 7 - Shift Operations, shift Operations using RS lower byte, Immediate value encoding
- Lecture 8 - Dataprocessing Instructions
- Lecture 9 - Addressing Mode-1, Addressing Mode-2
- Lecture 10 - Addressing Mode-2, LDR/STR, Addressing mode-3 with examples
- Lecture 11 - Instruction Timing, Addressing Mode-4 with Examples
- Lecture 12 - Swap Instructions, Swap Register related Instructions, Loading Constants
- Lecture 13 - Program Control Flow, Control Flow Instructions, B & BL instructions, BX instruction
- Lecture 14 - Interrupts and Exceptions, Exception Handlers, Reset Handling
- Lecture 15 - Aborts, software Interrupt Instruction, undefined instruction exception
- Lecture 16 - Interrupt Latency, Multiply Instructions, Instruction set examples
- Lecture 17 - Thumb state, Thumb Programmers model, Thumb Implementation, Thumb Applications
- Lecture 18 - Thumb Instructions, Interrupt processing
- Lecture 19 - Interrupt Handelling schemes, Examples of Interrupt Handlers
- Lecture 20 - Coprocessors
- Lecture 21 - Coprocessor Instructions, data Processing Instruction, data transfers, register transfers
- Lecture 22 - Number representations, floating point representation
- Lecture 23 - Flynn's Taxonomy, SIMD and Vector Processors, Vector Floating Point Processor (VFP), VFP and ARM
- Lecture 24 - Memory Technologies, Need for memory Hierarchy, Hierarchical Memory Organization, Virtual Memory
- Lecture 25 - Cache Memory, Mapping Functions
- Lecture 26 - Cache Design, Unified or split cache, multiple level of caches, ARM cache features, coprocessor
- Lecture 27 - Processes, Memory Map, Protected Systems, ARM systems with MPU, memory Protection Unit (MPU)
- Lecture 28 - Physical Vs Virtual Memory, Paging, Segmentation
- Lecture 29 - MMU Advantage, virtual memory translation, Multitasking with MMU, MMU organization, Tightly coup

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - ARM Development Environment, Arm Procedure Call Standard (APCS),
- Lecture 31 - Example C program
- Lecture 32 - Embedded software Development, Image structure, linker inputs and outputs, memory map, applicati
- Lecture 33 - AMBA Overview, Typical AMAB Based Microcontroller, AHB bus features, AHB Bus transfers, APB bus
- Lecture 34 - DMA, Peripherals, Programming Peripherals in ARM
- Lecture 35 - DMA
- Lecture 36 - Protocols (I2c, SPI), UART, GPIO
- Lecture 37 - ARM ISAs, ARMv5, ARMv6, ARM v7, big.little technology, ARMv8

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Embedded Software Testing

Subject Co-ordinator - Mr. Madhukeshwara H.M

Co-ordinating Institute - HCL

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Embedded Systems Basics Session 1
- Lecture 2 - Embedded Systems Basics Session 1 (Continued...)
- Lecture 3 - Prerequistics for Embedded Systems Testing
- Lecture 4 - Test Case Designa and procedures
- Lecture 5 - Test Standards
- Lecture 6 - Depicting Levels of Testing
- Lecture 7 - Depicting Levels of Testing (Continued...)
- Lecture 8 - Software Life Cycle
- Lecture 9 - Embeddel V-Model Life Cycle
- Lecture 10 - Embedded V-Model Life Cycle (Continued...)
- Lecture 11 - Master Test Planning
- Lecture 12 - Black Box Testing (Continued...)
- Lecture 13 - Black Box Testing (Continued...)
- Lecture 14 - Dynamic Testing
- Lecture 15 - Black Box Testing
- Lecture 16 - (Lecture Missing)
- Lecture 17 - Black Box Testing (Continued...)
- Lecture 18 - Model Based Design Intro.
- Lecture 19 - Dynamic Testing (Continued...)
- Lecture 20 - White Box Testing
- Lecture 21 - White Box Testing (Continued...)
- Lecture 22 - Grey-box testing
- Lecture 23 - Static Testing
- Lecture 24 - Static Analysis
- Lecture 25 - Static Analysis (Continued...)
- Lecture 26 - Static Analysis (Continued...)
- Lecture 27 - Test Metrics
- Lecture 28 - Software Testing Metrics
- Lecture 29 - Integration Test Strategy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Integration Tests Environment
- Lecture 31 - Use Case Diagram
- Lecture 32 - Depicting Levels of Testing (Continued...)
- Lecture 33 - Configure Management Elements
- Lecture 34 - SCM Activities
- Lecture 35 - Test Management Tool
- Lecture 36 - SCM Activities (Continued...)
- Lecture 37 - Overview Lecture 1
- Lecture 38 - Unit Testing
- Lecture 39 - Unit Testing (Continued...)
- Lecture 40 - Understading C++
- Lecture 41 - Unit Testing (Continued...)
- Lecture 42 - Level Testing
- Lecture 43 - Identify Test Cases
- Lecture 44 - Test Link Work Flow

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Linux Programming and Scripting

Subject Co-ordinator - Mr. Anand Iyer

Co-ordinating Institute - Calypto Design Systems

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Linux Basics - I  
Lecture 2 - Linux Basics - II  
Lecture 3 - Linux Basics - III  
Lecture 4 - Linux Basics - IV  
Lecture 5 - Linux Networking - I  
Lecture 6 - Linux Networking - II  
Lecture 7 - File Transfer Protocol  
Lecture 8 - Domain Name System  
Lecture 9 - DNS (Continued...)  
Lecture 10 - DFS  
Lecture 11 - AFS and NIS  
Lecture 12 - PERL 1  
Lecture 13 - PERL 2  
Lecture 14 - PERL 3  
Lecture 15 - PERL 4  
Lecture 16 - PERL 5  
Lecture 17 - PERL 6  
Lecture 18 - PERL 7  
Lecture 19 - PERL 8  
Lecture 20 - PERL 9  
Lecture 21 - Using sort  
Lecture 22 - PERL 10  
Lecture 23 - Programming Using Tcl/Tk - I  
Lecture 24 - Programming Using Tcl/Tk - II  
Lecture 25 - Programming Using Tcl/Tk - III  
Lecture 26 - More about Procedures  
Lecture 27 - TCP, Ports and Sockets  
Lecture 28 - I/O and Processes  
Lecture 29 - Bindings

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Programming Using Tcl/Tk - IV
- Lecture 31 - Furniture Arranger
- Lecture 32 - Bindtags
- Lecture 33 - Tcl in Synopsys Tools
- Lecture 34 - Python Programming
- Lecture 35 - Scope
- Lecture 36 - Iteration
- Lecture 37 - More about Regexprs
- Lecture 38 - Advanced Functions
- Lecture 39 - Exception Handling
- Lecture 40 - Examples of file Parsing
- Lecture 41 - Program on If Statement
- Lecture 42 - Program on Lists
- Lecture 43 - Makefiles

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Digital Circuits and Systems

Subject Co-ordinator - Prof. Shankar Balachandran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Basic Boolean Logic  
Lecture 3 - Boolean Theorems  
Lecture 4 - Definitions, SoP and Pos  
Lecture 5 - Algebraic Minimization Examples  
Lecture 6 - Introduction to Verilog  
Lecture 7 - Universality, Rearranging Truth Tables  
Lecture 8 - Karnaugh Maps  
Lecture 9 - K-Map Minimization  
Lecture 10 - K-Map with Don't cares  
Lecture 11 - Multiple Output Functions  
Lecture 12 - Number Systems  
Lecture 13 - Encoders and Decoders  
Lecture 14 - Multiplexers  
Lecture 15 - Multiplexer based Circuit Design  
Lecture 16 - Verilog  
Lecture 17 - Compiling and Running Verilog - A Demonstration  
Lecture 18 - Sequential Elements  
Lecture 19 - Gated Latches  
Lecture 20 - Flipflops  
Lecture 21 - Verilog - Assign Statement and Instantiation  
Lecture 22 - Sequential Circuits  
Lecture 23 - CMOS+Electrical Properties  
Lecture 24 - Delays  
Lecture 25 - Sequential Element Delays  
Lecture 26 - More Sequential Circuits  
Lecture 27 - Introduction to State Machines  
Lecture 28 - Always Statement in Verilog  
Lecture 29 - Sequential Logic Synthesis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - FSM Design Problems
- Lecture 31 - State Minimization
- Lecture 32 - State Assignment
- Lecture 33 - Timing Sequential Circuits
- Lecture 34 - Verilog Styles + Sequential Elements
- Lecture 35 - GCD Algorithm
- Lecture 36 - GCD Machines Datapath
- Lecture 37 - GCD State Machine
- Lecture 38 - GCD Top Level Module
- Lecture 39 - Datapath in Verilog
- Lecture 40 - Datapath Elements in Verilog
- Lecture 41 - FSM in Verilog
- Lecture 42 - Putting it all together
- Lecture 43 - Pipelining
- Lecture 44 - K-stage Pipeline
- Lecture 45 - Interleaving and Parallelism
- Lecture 46 - Blocking and Non-blocking Statements
- Lecture 47 - Modeling Circuits with Pipelining
- Lecture 48 - Signed Number Representation
- Lecture 49 - Signed Number Addition
- Lecture 50 - Adder/Subtractor
- Lecture 51 - Fast Adders
- Lecture 52 - Multiplication
- Lecture 53 - Closing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Networks and Systems

Subject Co-ordinator - Prof. V.G.K. Murti, Mr. C. S. Ramalingam, Dr. Andrew Thangaraj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Functions in circuits - constant and sinusoidal functions

Lecture 2 - Functions in circuits - Exponential function

Lecture 3 - Complex numbers and other topics

Lecture 4 - Systems, Signals, Networks

Lecture 5 - Representation and Classification of Systems

Lecture 6 - Linear systems

Lecture 7 - Time-invariance and causality

Lecture 8 - Signals, Elementary continuous signals

Lecture 9 - Complex frequencies of signals

Lecture 10 - Discontinuous signals - step, ramp

Lecture 11 - Unit impulse or delta function

Lecture 12 - Basic discrete-time signals

Lecture 13 - Examples of Signals

Lecture 14 - Introduction to Systems, Complementary Functions, Initial Conditions

Lecture 15 - Special initial conditions

Lecture 16 - Characterization of a linear system

Lecture 17 - Impulse Response

Lecture 18 - Evaluating the Convolution Integral

Lecture 19 - Worked-out Problems

Lecture 20 - Introduction and Motivation

Lecture 21 - Evaluating Fourier series coefficients

Lecture 22 - Symmetry conditions

Lecture 23 - Symmetry Condition Examples

Lecture 24 - Application to Network Analysis

Lecture 25 - Exponential Fourier Series

Lecture 26 - Frequency Spectrum

Lecture 27 - Examples

Lecture 28 - Signal Power and Related Ideas

Lecture 29 - Convergence of Fourier Series

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- Lecture 30 - Week 1 Solutions
- Lecture 31 - Hints for Assignment 2
- Lecture 32 - Hints for Assignment 3
- Lecture 33 - Additional Properties of Fourier Series
- Lecture 34 - Exercises on Fourier Series
- Lecture 35 - Lab Demo
- Lecture 36 - From Fourier Series to Fourier Transform
- Lecture 37 - Continuous Time Fourier Transform
- Lecture 38 - Fourier Transform Examples
- Lecture 39 - Examples and Some Properties of Fourier Transform
- Lecture 40 - Properties of Fourier Transform (contd.)
- Lecture 41 - More Fourier Transform Properties
- Lecture 42 - Energy Considerations
- Lecture 43 - Energy Considerations II
- Lecture 44 - Helpful Relationships for Inverse Fourier Transform
- Lecture 45 - Fourier transform of signals that are not absolutely integrable
- Lecture 46 - Fourier Transform of Periodic Signals, Unit Step and Signum Function
- Lecture 47 - Truncated Sine wave and Convolution properties
- Lecture 48 - Integration in Time domain
- Lecture 49 - Application of continuous-time Fourier transform to system analysis
- Lecture 50 - Comments about transient analysis
- Lecture 51 - Sampling Theorem and Exercises on Fourier Transforms
- Lecture 52 - Introduction to Laplace Transform
- Lecture 53 - Laplace transforms of important functions
- Lecture 54 - Recap, Poles / Zeros and Laplace Transform Notation
- Lecture 55 - Properties
- Lecture 56 - Application and properties of Laplace transform
- Lecture 57 - More properties of Laplace transform
- Lecture 58 - More properties of Laplace transform
- Lecture 59 - Properties
- Lecture 60 - Properties
- Lecture 61 - Complex convolution and periodic functions
- Lecture 62 - Examples of Laplace transform
- Lecture 63 - Laplace transform examples
- Lecture 64 - Inverse Laplace transform
- Lecture 65 - Partial fractions
- Lecture 66 - Inverse Laplace Transform and Contour Integration
- Lecture 67 - Relating Fourier and Laplace Transform
- Lecture 68 - Exercises

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Applications of Laplace transform to network transients
- Lecture 70 - Laplace transform for resistor and system analysis
- Lecture 71 - Laplace transform method for mutual inductance
- Lecture 72 - Mutual Inductance Continued
- Lecture 73 - Examples and Advantages of L-transform
- Lecture 74 - General LTI systems and more about  $H(s)$
- Lecture 75 - Many facets of the system function (contd)
- Lecture 76 - Frequency response and stability
- Lecture 77 - Full circuit example
- Lecture 78 - Exercises

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Circuits for Analog System Design

Subject Co-ordinator - Prof. M.K. Gunasekaran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Transistor Amplifier
- Lecture 2 - Transistor Op-amp and Transistor Based Voltage Regulator
- Lecture 3 - Some applications of transistor - I
- Lecture 4 - Some applications of transistor - II
- Lecture 5 - Transformer design & Heat sink design
- Lecture 6 - Op-amp Based Linear Voltage Regulator
- Lecture 7 - Short circuit protection for linear power supply
- Lecture 8 - Temperature indicator design using Op-amp
- Lecture 9 - On & off Temperature controller design
- Lecture 10 - Proportional Temperature Controller Design
- Lecture 11 - PID - Temperature Controller Design
- Lecture 12 - Heater Drive for Various Temperature Controllers
- Lecture 13 - Short Circuit Protection of Power MOSFET
- Lecture 14 - Error budgeting for temperature Indicator
- Lecture 15 - PID Temperature Controllers with Error Budgeting
- Lecture 16 - Error Budgeting for Constant Current Sources
- Lecture 17 - Error Budgeting for Thermo Couple Amplifier
- Lecture 18 - Error Budgeting for Op amp Circuits
- Lecture 19 - Gain Error Calculation in Op amp Circuits
- Lecture 20 - Input Resistance Calculations for Op amp
- Lecture 21 - Output Resistance Calculations for Op amp
- Lecture 22 - Error Budgeting for Different Circuits
- Lecture 23 - 4-20 mA current Transmitter design
- Lecture 24 - Error budgeting for 4-20mA Current Transmitters
- Lecture 25 - LVDT Based Current Transmitters
- Lecture 26 - Constant Current Source Design
- Lecture 27 - 4-20 MA Based Temperature Transmitter
- Lecture 28 - 3-Wire Current Transmitter
- Lecture 29 - Various Resistance Measurement Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ratio Transformer Technique to Measure Resistance and capacitance
- Lecture 31 - Capacitive Sensor Circuit Design Examples
- Lecture 32 - Capacitive Sensor Circuit With High Impedance Amplifier
- Lecture 33 - AC- applications of the Op-Amp and Lock in Amplifier Design
- Lecture 34 - Design of lock in Amplifier Circuit with example
- Lecture 35 - Dual Slopes ADC & Design Examples
- Lecture 36 - Dual Slope ADC and Successor approximation ADC
- Lecture 37 - MC based ADC
- Lecture 38 - Digital to analog Converter design and working, Flash ADC
- Lecture 39 - Flash ADC and ADC Converter errors
- Lecture 40 - Sigma delta ADC working Principle

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital System design with PLDs and FPGAs

Subject Co-ordinator - Prof. Kuruvilla Varghese

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Contents, Objective
- Lecture 2 - Revision of Prerequisite
- Lecture 3 - Design of Synchronous Sequential Circuits
- Lecture 4 - Analysis of Synchronous Sequential Circuits
- Lecture 5 - Top-down Design
- Lecture 6 - Controller Design
- Lecture 7 - Control algorithm and State diagram
- Lecture 8 - Case study 1
- Lecture 9 - FSM issues 1
- Lecture 10 - FSM Issues 2
- Lecture 11 - FSM Issues 3
- Lecture 12 - FSM Issues 4
- Lecture 13 - FSM Issues 5
- Lecture 14 - Synchronization 1
- Lecture 15 - Synchronization 2
- Lecture 16 - Case study 2
- Lecture 17 - Case study on FPGA Board
- Lecture 18 - Entity, Architecture and Operators
- Lecture 19 - Concurrency, Data flow and Behavioural models
- Lecture 20 - Structural Model, Simulation
- Lecture 21 - Simulating Concurrency
- Lecture 22 - Classes and Data types
- Lecture 23 - Concurrent statements and Sequential statements
- Lecture 24 - Sequential statements and Loops
- Lecture 25 - Modelling flip-flops, Registers
- Lecture 26 - Synthesis of Sequential circuits
- Lecture 27 - Libraries and Packages
- Lecture 28 - Operators, Delay modelling
- Lecture 29 - Delay modelling

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - VHDL Examples
- Lecture 31 - VHDL coding of FSM
- Lecture 32 - VHDL Test bench
- Lecture 33 - VHDL Examples, FSM Clock
- Lecture 34 - Evolution of PLDs
- Lecture 35 - Simple PLDs
- Lecture 36 - Simple PLDs
- Lecture 37 - Complex PLDs
- Lecture 38 - FPGA Introduction
- Lecture 39 - FPGA Interconnection, Design Methodology
- Lecture 40 - Xilinx Virtex FPGA's CLB
- Lecture 41 - Xilinx Virtex Resource Mapping, IO Block
- Lecture 42 - Xilinx Virtex Clock Tree
- Lecture 43 - FPGA Configuration
- Lecture 44 - Altera and Actel FPGAs



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Error Correcting Codes

Subject Co-ordinator - Prof. P. Vijay Kumar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Overview & Basics
- Lecture 2 - Example Codes and their Parameters
- Lecture 3 - Mathematical Preliminaries
- Lecture 4 - Subgroups and Equivalence Relations
- Lecture 5 - Cosets, Rings & Fields
- Lecture 6 - Vector Spaces, Linear Independence and Basis
- Lecture 7 - Linear Codes, & Linear independence
- Lecture 8 - Spanning & Basis
- Lecture 9 - The Dual Code
- Lecture 10 - Systematic Generator Matrix
- Lecture 11 - Minimum Distance of a Linear Code
- Lecture 12 - Bounds on the size of a Code
- Lecture 13 - Asymptotic Bounds
- Lecture 14 - Standard Array Decoding
- Lecture 15 - Performance Analysis of the SAD
- Lecture 16 - State and Trellis
- Lecture 17 - The Viterbi Decoder
- Lecture 18 - Catastrophic Error Propagation
- Lecture 19 - Path Enumeration
- Lecture 20 - Viterbi Decoder over the AWGN Channel
- Lecture 21 - Generalized Distributive Law
- Lecture 22 - The MPF Problem
- Lecture 23 - Further Examples of the MPF Problem
- Lecture 24 - Junction Trees
- Lecture 25 - Example of Junction Tree Construction
- Lecture 26 - Message passing on the Junction tree
- Lecture 27 - GDL Approach to Decoding Convolutional Codes
- Lecture 28 - ML Code-Symbol Decoding of the Convolutional Code
- Lecture 29 - LDPC Codes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - LDPC Code Terminology
- Lecture 31 - Gallager Decoding Algorithm A
- Lecture 32 - BP Decoding of LDPC Codes
- Lecture 33 - BP Decoding (Continued)
- Lecture 34 - Density Evolution under BP decoding
- Lecture 35 - Convergence & Concentration Theorem - LDPC Codes
- Lecture 36 - A Construction for Finite Fields
- Lecture 37 - Finite Fields
- Lecture 38 - Deductive Approach to Finite Fields
- Lecture 39 - Subfields of a Finite field
- Lecture 40 - Transform Approach to Cyclic Codes
- Lecture 41 - Estimating the Parameters of a Cyclic Code
- Lecture 42 - Decoding Cyclic Codes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Nanoelectronics: Devices and Materials

Subject Co-ordinator - Dr. Navakanta Bhat, Prof. K.N. Bhat, Dr. S.A. Shivashankar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Nanoelectronics

Lecture 2 - CMOS Scaling Theory

Lecture 3 - Short Channel Effects

Lecture 4 - Subthreshold Conduction

Lecture 5 - Drain Induced Barrier Lowering

Lecture 6 - Channel and Source / Drain Engineering

Lecture 7 - CMOS Process Flow

Lecture 8 - Gate oxide scaling and reliability

Lecture 9 - High-k gate dielectrics

Lecture 10 - Metal gate transistor

Lecture 11 - Industrial CMOS Technology

Lecture 12 - Ideal MOS C-V Characteristics

Lecture 13 - Effect of non idealities on C-V

Lecture 14 - MOS Parameter Extraction from C-V Characteristics

Lecture 15 - MOS Parameter Extraction from I-V Characteristics

Lecture 16 - MOSFET Analysis, sub-threshold swing  $\Delta S$

Lecture 17 - Interface state density effects on  $\Delta S$ . Short Channel Effects (SCE) and Drain Induced Barrier

Lecture 18 - Velocity Saturation, Ballistic transport, and Velocity Overshoot Effects and Injection Velocity

Lecture 19 - SOI Technology and comparisons with Bulk Silicon CMOS technology

Lecture 20 - SOI MOSFET structures, Partially Depleted (PD) and Fully Depleted (FD) SOI MOSFETs

Lecture 21 - FD SOI MOSFET

Lecture 22 - Sub-threshold Slope & SCE suppression in FD SOI MOSFET, Volume Inversion and Ultra thin (UTFD) SOI

Lecture 23 - Need for MS contact Source/Drain Junction in Nano scale MOSFETs

Lecture 24 - Rectifying and Ohmic contacts and challenges in MS junction source drain MOSFET Technology

Lecture 25 - Effect of Interface states and Fermi level pinning on MS contacts on Si and passivation techniques

Lecture 26 - Germanium as an alternate to silicon for high performance MOSFETs and the challenges in Germanium

Lecture 27 - Germanium MOSFET technology and recent results on surface passivated Ge MOSFETs

Lecture 28 - Compound semiconductors and hetero junction FETs for high performance

Lecture 29 - GaAs MESFETs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hetero-junctions and High Electron Mobility Transistors (HEMT)
- Lecture 31 - Introduction to Nanomaterials
- Lecture 32 - Basic Principles of Quantum Mechanics
- Lecture 33 - Basic Principles of Quantum Mechanics (Continued...)
- Lecture 34 - Energy bands in crystalline solids
- Lecture 35 - Quantum structures and devices
- Lecture 36 - Crystal growth and nanocrystals
- Lecture 37 - Nanocrystals and nanostructured thin films
- Lecture 38 - Nanowires and other nanostructures
- Lecture 39 - Carbon Nanostructures and CVD
- Lecture 40 - Atomic layer deposition (ALD)
- Lecture 41 - Characterisation of nanomaterials

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Pattern Recognition

Subject Co-ordinator - Prof. P.S. Sastry

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Statistical Pattern Recognition
- Lecture 2 - Overview of Pattern Classifiers
- Lecture 3 - The Bayes Classifier for minimizing Risk
- Lecture 4 - Estimating Bayes Error; Minimax and Neymann-Pearson classifiers
- Lecture 5 - Implementing Bayes Classifier; Estimation of Class Conditional Densities
- Lecture 6 - Maximum Likelihood estimation of different densities
- Lecture 7 - Bayesian estimation of parameters of density functions, MAP estimates
- Lecture 8 - Bayesian Estimation examples; the exponential family of densities and ML estimates
- Lecture 9 - Sufficient Statistics; Recursive formulation of ML and Bayesian estimates
- Lecture 10 - Mixture Densities, ML estimation and EM algorithm
- Lecture 11 - Convergence of EM algorithm; overview of Nonparametric density estimation
- Lecture 12 - Convergence of EM algorithm, Overview of Nonparametric density estimation
- Lecture 13 - Nonparametric estimation, Parzen Windows, nearest neighbour methods
- Lecture 14 - Linear Discriminant Functions; Perceptron -- Learning Algorithm and convergence proof
- Lecture 15 - Linear Least Squares Regression; LMS algorithm
- Lecture 16 - AdaLine and LMS algorithm; General nonlinear least-squares regression
- Lecture 17 - Logistic Regression; Statistics of least squares method; Regularized Least Squares
- Lecture 18 - Fisher Linear Discriminant
- Lecture 19 - Linear Discriminant functions for multi-class case; multi-class logistic regression
- Lecture 20 - Learning and Generalization; PAC learning framework
- Lecture 21 - Overview of Statistical Learning Theory; Empirical Risk Minimization
- Lecture 22 - Consistency of Empirical Risk Minimization
- Lecture 23 - Consistency of Empirical Risk Minimization; VC-Dimension
- Lecture 24 - Complexity of Learning problems and VC-Dimension
- Lecture 25 - VC-Dimension Examples; VC-Dimension of hyperplanes
- Lecture 26 - Overview of Artificial Neural Networks
- Lecture 27 - Multilayer Feedforward Neural networks with Sigmoidal activation functions;
- Lecture 28 - Backpropagation Algorithm; Representational abilities of feedforward networks
- Lecture 29 - Feedforward networks for Classification and Regression; Backpropagation in Practice

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Radial Basis Function Networks; Gaussian RBF networks
- Lecture 31 - Learning Weights in RBF networks; K-means clustering algorithm
- Lecture 32 - Support Vector Machines -- Introduction, obtaining the optimal hyperplane
- Lecture 33 - SVM formulation with slack variables; nonlinear SVM classifiers
- Lecture 34 - Kernel Functions for nonlinear SVMs; Mercer and positive definite Kernels
- Lecture 35 - Support Vector Regression and  $\epsilon$ -insensitive Loss function, examples of SVM learning
- Lecture 36 - Overview of SMO and other algorithms for SVM;  $\nu$ -SVM and  $\nu$ -SVR; SVM as a risk minimizer
- Lecture 37 - Positive Definite Kernels; RKHS; Representer Theorem
- Lecture 38 - Feature Selection and Dimensionality Reduction; Principal Component Analysis
- Lecture 39 - No Free Lunch Theorem; Model selection and model estimation; Bias-variance trade-off
- Lecture 40 - Assessing Learnt classifiers; Cross Validation;
- Lecture 41 - Bootstrap, Bagging and Boosting; Classifier Ensembles; AdaBoost
- Lecture 42 - Risk minimization view of AdaBoost

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Analog Circuits and Systems 1

Subject Co-ordinator - Prof. K. Radhakrishna Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Sensors, Signals and Systems
- Lecture 2 - Role of Analog Signal Processing in Electronic Products - Part I
- Lecture 3 - Role of Analog Signal Processing in Electronic Products - Part II
- Lecture 4 - Analog Signal Processing using One Port Networks
- Lecture 5 - Analog Signal Processing using One Port Networks, Passive Two Ports and Ideal amplifiers
- Lecture 6 - Synthesis of Amplifiers using Nullators and Norators
- Lecture 7 - Passive Electronic Devices for Analog Signal Processing
- Lecture 8 - Active Devices for Analog Signal Processing Systems
- Lecture 9 - Electronic Devices for Analog Circuits - Part I
- Lecture 10 - Electronic Devices for Analog Circuits - Part II
- Lecture 11 - Feedback in Systems
- Lecture 12 - Static Characteristic of Feedback Systems
- Lecture 13 - Dynamic Behaviour of Feedback Systems - Part I
- Lecture 14 - Dynamic Behavior of Feedback Systems - Part II
- Lecture 15 - Design of Feedback Amplifiers - Part I
- Lecture 16 - Design of Feedback Amplifiers - Part II
- Lecture 17 - Design of Feedback Amplifiers and Instrumentation Amplifiers
- Lecture 18 - Instrumentation Amplifiers, Integrators and Differentiators
- Lecture 19 - Non-linear Analog Signal Processing
- Lecture 20 - DC Voltage Regulators
- Lecture 21 - Filters - Approximations to ideal filter functions
- Lecture 22 - Passive Filters - Part I
- Lecture 23 - Passive Filters - Part II
- Lecture 24 - Active Filters - Part I
- Lecture 25 - Active Filters - Part II
- Lecture 26 - Active Filters
- Lecture 27 - State Space Filters
- Lecture 28 - Universal Active Filter - Effect of Active Device GB
- Lecture 29 - State-Space Filters (Tuning of Filters)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Automatic Tuning of Filters (PLL) and Review of Filter Design
- Lecture 31 - Waveform Generation
- Lecture 32 - LC Oscillator - Effect of Non-idealities
- Lecture 33 - Transconductor based Oscillator
- Lecture 34 - Regenerative Comparators and Non-Sinusoidal Oscillators
- Lecture 35 - Non-Sinusoidal Oscillators and VCO (FM & FSK Generators)
- Lecture 36 - Phase and Frequency Followers
- Lecture 37 - Frequency Locked Loop (Popularly known as PLL)
- Lecture 38 - Design of PLL and FLL
- Lecture 39 - Analog System Design



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Design and Simulation of DC-DC converter

Subject Co-ordinator - Prof. L. Umanand

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - System Overview
- Lecture 2 - Understanding Rectifier with C-filter
- Lecture 3 - Setting up gEDA, ngSpice and Octave
- Lecture 4 - Simulation walk-through
- Lecture 5 - Designing the rectifier capacitor filter circuit
- Lecture 6 - Startup surge limiting
- Lecture 7 - DC-DC converter concepts
- Lecture 8 - Buck, Boost and Buck-Boost Converters
- Lecture 9 - Simulation Example of Buck Converter
- Lecture 10 - Understanding Buck Converter
- Lecture 11 - Understanding Boost and Buck-Boost
- Lecture 12 - Forward Converter Topology
- Lecture 13 - Waveforms and Design
- Lecture 14 - Simulation of Forward Converter
- Lecture 15 - Forward Converter with Lossless Core Reset
- Lecture 16 - Transformer Design
- Lecture 17 - Inductor Design
- Lecture 18 - Flyback Converter Topology
- Lecture 19 - Pushpull Converter
- Lecture 20 - Half and Full Bridge Converters
- Lecture 21 - Close Loop Operation of Converters
- Lecture 22 - Simulation examples
- Lecture 23 - Multi-Output Converters
- Lecture 24 - Concluding Remarks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Enclosure Design of Electronics Equipmen

Subject Co-ordinator - Prof. N. V Chalapathi Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Enclosure design for Electronics Equipment Introduction

Lecture 2 - Aspects and features that are non electrical and are essential to Electronic Product Realisation

Lecture 3 - Enclosure Design in electronic equipment

Lecture 4 - Design as applied to small electronics products and projects

Lecture 5 - Sketching in design for communication

Lecture 6 - Sketching as a tool with example and exercise

Lecture 7 - Sketching Part 2

Lecture 8 - Enclosures to Product design

Lecture 9 - Examples of product enclosures ID\_PD

Lecture 10 - Enclosures with detailing

Lecture 11 - Alternate Designs in an everyday item

Lecture 12 - Sheet metal in small equipment (PSU)

Lecture 13 - Layouts and Materials of small equipment

Lecture 14 - Materials used for construction

Lecture 15 - Materials choice

Lecture 16 - Aluminium for common equipment

Lecture 17 - Use of Aluminium extrusions

Lecture 18 - Application of Sheet metal

Lecture 19 - Sheet Metal bending

Lecture 20 - Development of enclosures for bending

Lecture 21 - Video of Fabrication

Lecture 22 - What can be done in the lab Bending

Lecture 23 - Issues in bending and folding

Lecture 24 - Making a quick model

Lecture 25 - Detailing in plastic

Lecture 26 - Fabricating with flat plastic

Lecture 27 - Video in ID Lab

Lecture 28 - Off the shelf enclosures

Lecture 29 - Ready made enclosures

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- Lecture 30 - Application documentation and Selection
- Lecture 31 - Index of protection, Safety
- Lecture 32 - NEMA and related
- Lecture 33 - Testing for IP class
- Lecture 34 - Sealed Enclosures Video
- Lecture 35 - Public utility boxes
- Lecture 36 - EMI Sealing
- Lecture 37 - Sealed Enclosures 2
- Lecture 38 - Gasketing practice
- Lecture 39 - Gasketing Basics
- Lecture 40 - Off the shelf Aluminum enclosures
- Lecture 41 - Understanding
- Lecture 42 - Heat sink enclosures
- Lecture 43 - Detailing of Built in Heat sink boxes
- Lecture 44 - Connector basics
- Lecture 45 - Connectors - Part 2
- Lecture 46 - Common connectors
- Lecture 47 - Connectors (multi way) and CoAx
- Lecture 48 - MIL C connectors
- Lecture 49 - CAD in Layout Drawing
- Lecture 50 - Types of CAD
- Lecture 51 - CAD for enclosure Design
- Lecture 52 - Egpt layout with CAD
- Lecture 53 - CAD sample Example
- Lecture 54 - CAD Layout
- Lecture 55 - Detailing with CAD
- Lecture 56 - Integrating Products with CAD
- Lecture 57 - Product Detailing
- Lecture 58 - Components CAD Physical Models
- Lecture 59 - Sheet Metal and Plastic common details
- Lecture 60 - Sample of Simple Organic Shapes
- Lecture 61 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Design of Photovoltaic Systems

Subject Co-ordinator - Prof. L. Umanand

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A historical perspective
- Lecture 2 - PV cell characteristics and equivalent circuit
- Lecture 3 - Model of PV cell
- Lecture 4 - Short Circuit, Open Circuit and peak power parameters
- Lecture 5 - Datasheet study
- Lecture 6 - Cell efficiency
- Lecture 7 - Effect of temperature
- Lecture 8 - Temperature effect calculation example
- Lecture 9 - Fill factor
- Lecture 10 - PV cell simulation
- Lecture 11 - Identical cells in series
- Lecture 12 - Load line
- Lecture 13 - Non-identical cells in series
- Lecture 14 - Protecting cells in series
- Lecture 15 - Interconnecting modules in series
- Lecture 16 - Simulation of cells in series
- Lecture 17 - Identical cells in parallel
- Lecture 18 - Non-identical cells in parallel
- Lecture 19 - Protecting cells in parallel
- Lecture 20 - Interconnecting modules
- Lecture 21 - Simulation of cells in parallel
- Lecture 22 - Practicals - Measuring i-v characteristics
- Lecture 23 - Practicals - PV source emulation
- Lecture 24 - Introduction
- Lecture 25 - Insolation and irradiance
- Lecture 26 - Insolation variation with time of day
- Lecture 27 - Earth centric viewpoint and declination
- Lecture 28 - Solar geometry
- Lecture 29 - Insolation on a horizontal flat plate

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Energy on a horizontal flat plate
- Lecture 31 - Sunrise and sunset hour angles
- Lecture 32 - Examples
- Lecture 33 - Energy on a tilted flat plate
- Lecture 34 - Energy plots in octave
- Lecture 35 - Atmospheric effects
- Lecture 36 - Airmass
- Lecture 37 - Energy with atmospheric effects
- Lecture 38 - Clearness index
- Lecture 39 - Clearness index and energy scripts in Octave
- Lecture 40 - Sizing PV for applications without batteries
- Lecture 41 - Sizing PV Examples
- Lecture 42 - Batteries - intro
- Lecture 43 - Batteries - Capacity
- Lecture 44 - Batteries - C-rate
- Lecture 45 - Batteries - Efficiency
- Lecture 46 - Batteries - Energy and power densities
- Lecture 47 - Batteries - Comparison
- Lecture 48 - Battery selection
- Lecture 49 - Other energy storage methods
- Lecture 50 - PV system design - Load profile
- Lecture 51 - PV system design - Days of autonomy and recharge
- Lecture 52 - PV system design - Battery size
- Lecture 53 - PV system design - PV array size
- Lecture 54 - Design toolbox in octave
- Lecture 55 - MPPT concept>
- Lecture 56 - Input impedance of DC-DC converters - Boost converter
- Lecture 57 - Input impedance of DC-DC converters - Buck converter
- Lecture 58 - Input impedance of DC-DC converters - Buck-Boost converter
- Lecture 59 - Input impedance of DC-DC converters - PV module in SPICE
- Lecture 60 - Input impedance of DC-DC converters -Simulation - PV and DC-DC interface
- Lecture 61 - Impedance control methods
- Lecture 62 - Impedance control methods- Reference cell - voltage scaling
- Lecture 63 - Impedance control methods- Reference cell - current scaling
- Lecture 64 - Impedance control methods- Reference cell - Sampling method
- Lecture 65 - Impedance control methods- Reference cell - Power slope method 1
- Lecture 66 - Impedance control methods- Reference cell - Power slope method 2
- Lecture 67 - Impedance control methods- Reference cell - Hill climbing method
- Lecture 68 - Practical points - Housekeeping power supply

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- Lecture 69 - Practical points - Gate driver
- Lecture 70 - Practical points - MPPT for non-resistive loads
- Lecture 71 - Simulation - MPPT
- Lecture 72 - Direct PV-battery connection
- Lecture 73 - Charge controller
- Lecture 74 - Battery charger - Understanding current control
- Lecture 75 - Battery charger - slope compensation
- Lecture 76 - Battery charger - simulation of current control
- Lecture 77 - Batteries in series - charge equalisation
- Lecture 78 - Batteries in parallel
- Lecture 79 - Peltier device - principle
- Lecture 80 - Peltier element - datasheet
- Lecture 81 - Peltier cooling
- Lecture 82 - Thermal aspects
- Lecture 83 - Thermal aspects - Conduction
- Lecture 84 - Thermal aspects - Convection
- Lecture 85 - Thermal aspects - A peltier refrigeration example
- Lecture 86 - Thermal aspects - Radiation and mass transport
- Lecture 87 - Demo of Peltier cooling
- Lecture 88 - Water pumping principle
- Lecture 89 - Hydraulic energy and power
- Lecture 90 - Total dynamic head
- Lecture 91 - Numerical solution - Colebrook formula
- Lecture 92 - Octave script for head calculation
- Lecture 93 - PV and Water Pumping Examples
- Lecture 94 - Octave script for hydraulic power
- Lecture 95 - Centrifugal pump
- Lecture 96 - Reciprocating pump
- Lecture 97 - PV power
- Lecture 98 - Pumped hydro application
- Lecture 99 - Grid connection principle
- Lecture 100 - PV to grid topologies Part-I
- Lecture 101 - PV to grid topologies Part-II
- Lecture 102 - PV to grid topologies Part-III
- Lecture 103 - 3ph d-q controlled grid connection intro
- Lecture 104 - 3ph d-q controlled grid connection dq-axis theory
- Lecture 105 - 3ph d-q controlled grid connection AC to DC transformations
- Lecture 106 - 3ph d-q controlled grid connection DC to AC transformations
- Lecture 107 - 3ph d-q controlled grid connection Complete 3ph grid connection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - 1ph d-q controlled grid connection
- Lecture 109 - 3ph PV-Grid interface example
- Lecture 110 - SVPWM - discrete implementation
- Lecture 111 - SVPWM - analog implementation
- Lecture 112 - Application of integrated magnetics
- Lecture 113 - Life cycle Costing Growth models
- Lecture 114 - Life cycle Costing Growth model examples
- Lecture 115 - Life cycle Costing Annual payment and present worth factor
- Lecture 116 - Life cycle Costing LCC with example - 1
- Lecture 117 - Life cycle Costing LCC example - 2
- Lecture 118 - Life cycle Costing LCC example - 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Photonic Integrated Circuits

Subject Co-ordinator - Dr. Srinivas Talabatulla

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Photonic Integrated Circuits
- Lecture 2 - Optical Waveguide Theory - Symmetric Waveguides
- Lecture 3 - Optical Waveguide Theory - Asymmetric Waveguides
- Lecture 4 - Vector Modes
- Lecture 5 - Channel Waveguide
- Lecture 6 - Directional Coupler and Coupled Mode Theory
- Lecture 7 - Passive Devices and Beam Propagation Method
- Lecture 8 - Dynamic Devices
- Lecture 9 - Integrated optical Systems and Applications
- Lecture 10 - Fabrication and Characterisation
- Lecture 11 - MOEMS
- Lecture 12 - Ring Resonators
- Lecture 13 - Photonic Band Gap Devices
- Lecture 14 - Lecture Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Nanotechnology - Nano structured materials-synthesis, properties, self assembly and appl

Subject Co-ordinator - Prof. A.K. Ganguli

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Nanotechnology
- Lecture 2 - Introduction to Nanotechnology (Continued...)
- Lecture 3 - Synthetic Methodologies
- Lecture 4 - Synthetic Methodologies (Continued...)
- Lecture 5 - Synthetic Methodologies (Continued...)
- Lecture 6 - Synthetic Methodologies (Continued...)
- Lecture 7 - Synthetic Methodologies (Continued...)
- Lecture 8 - Synthetic Methodologies (Continued...)
- Lecture 9 - Template Methods - I
- Lecture 10 - Template Methods - II
- Lecture 11 - Spray Pyrolysis
- Lecture 12 - V-L-S Method
- Lecture 13 - Lithography - I
- Lecture 14 - Lithography - II
- Lecture 15 - Fullerenes and Carbon Nanotubes - I
- Lecture 16 - Fullerenes and Carbon Nanotubes - II
- Lecture 17 - Fullerenes and Carbon Nanotubes - III
- Lecture 18 - Metal and Metal Oxide Nanowires - I
- Lecture 19 - Metal and Metal Oxide Nanowires - II
- Lecture 20 - Metal and Metal Oxide Nanowires - III
- Lecture 21 - Self Assembly of Nanostructures - I
- Lecture 22 - Self Assembly of Nanostructures - II
- Lecture 23 - Self Assembly of Nanostructures - III
- Lecture 24 - Core Shell Nanostructures - I
- Lecture 25 - Core Shell Nanostructures - II
- Lecture 26 - Core Shell Nanostructures - III
- Lecture 27 - Nanocomposites - I
- Lecture 28 - Nanocomposites - II
- Lecture 29 - Photocatalysis - I

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- Lecture 30 - Photocatalysis - II
- Lecture 31 - Photocatalysis - III
- Lecture 32 - Dielectric Properties - I
- Lecture 33 - Dielectric Properties - II
- Lecture 34 - Magnetic Properties - I
- Lecture 35 - Magnetic Properties - II
- Lecture 36 - Magnetic Properties - III
- Lecture 37 - Optical Properties - I
- Lecture 38 - Optical Properties - II
- Lecture 39 - Mechanical Properties
- Lecture 40 - Concluding Lecture

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Nanotechnology - Nanostructures and Nanomaterials: Characterization and Properties

Subject Co-ordinator - Dr. Anandh Subramaniam, Dr. Kantesh Balani

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Nanomaterials  
Lecture 2 - Introduction to Nanomaterials  
Lecture 3 - Introduction to Nanomaterials  
Lecture 4 - Introduction to Nanomaterials  
Lecture 5 - Introduction to Nanomaterials  
Lecture 6 - Introduction to Nanomaterials  
Lecture 7 - Introduction to Nanomaterials  
Lecture 8 - Introduction to Nanomaterials  
Lecture 9 - Introduction to Nanomaterials  
Lecture 10 - Introduction to Nanomaterials  
Lecture 11 - Surface Effects and Physical properties of nanomaterials  
Lecture 12 - Surface Effects and Physical properties of nanomaterials  
Lecture 13 - Surface Effects and Physical properties of nanomaterials  
Lecture 14 - Surface Effects and Physical properties of nanomaterials  
Lecture 15 - Surface Effects and Physical properties of nanomaterials  
Lecture 16 - Defect Structure & Mechanical Behaviour of Nanomaterials  
Lecture 17 - Defect Structure & Mechanical Behaviour of Nanomaterials  
Lecture 18 - Defect Structure & Mechanical Behaviour of Nanomaterials  
Lecture 19 - Defect Structure & Mechanical Behaviour of Nanomaterials  
Lecture 20 - Defect Structure & Mechanical Behaviour of Nanomaterials  
Lecture 21 - Electrical, Magnetic and Optical Properties of Nanomaterials  
Lecture 22 - Electrical, Magnetic and Optical Properties of Nanomaterials  
Lecture 23 - Electrical, Magnetic and Optical Properties of Nanomaterials  
Lecture 24 - Electrical, Magnetic and Optical Properties of Nanomaterials  
Lecture 25 - Electrical, Magnetic and Optical Properties of Nanomaterials  
Lecture 26 - Atomic Bonding  
Lecture 27 - Overview of Nano structures and Nano materials  
Lecture 28 - Carbon Nanostructures  
Lecture 29 - Multi-Scale Hierarchy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Self Assembly
- Lecture 31 - Nanomaterials in Nature
- Lecture 32 - Surfaces and Interfaces
- Lecture 33 - Non-wetting
- Lecture 34 - Nanomaterials Science and Nanomanufacturing
- Lecture 35 - Surface Adsorption Isotherms (Langmuir/Bet)
- Lecture 36 - Reciprocal Lattice
- Lecture 37 - Transmission Electron Microscopy
- Lecture 38 - Transmission Electron Microscopy
- Lecture 39 - Auger Electron Spectroscopy
- Lecture 40 - X-Ray Photoelectron Spectroscopy (XPS)
- Lecture 41 - Electron Energy Loss Spectroscopy (EELS)
- Lecture 42 - Deformation Behavior of Nanomaterials
- Lecture 43 - Fracture and Creep
- Lecture 44 - Nanomechanics
- Lecture 45 - Nanotribology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Atmospheric Science - Introduction to Atmospheric Science

Subject Co-ordinator - Prof. C. Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Atmosphere-A brief survey (Pressure, Temperature and Chemical composition)
- Lecture 3 - Atmosphere-A brief survey (Continued...) (Vertical structure of the atmosphere)
- Lecture 4 - Vertical structure of atmosphere (Continued...) and The Earth system - Oceans
- Lecture 5 - The Earth system - Oceans (Continued...) and Marine biosphere
- Lecture 6 - The Earth system - Hydrological cycle
- Lecture 7 - The Earth system - Hydrological cycle (Continued...) and Carbon cycle
- Lecture 8 - The Earth system - Carbon cycle (Continued...), and Carbon in the oceans Earth's crust
- Lecture 9 - The Earth system - Carbon in the oceans Earth's crust
- Lecture 10 - Atmospheric Thermodynamics- Introduction
- Lecture 11 - The hydrostatic equation
- Lecture 12 - Hypsometric equation and pressure at sea level
- Lecture 13 - Basic Thermodynamics
- Lecture 14 - Concept of air parcel and dry adiabatic lapse rate
- Lecture 15 - Potential temperature
- Lecture 16 - Skew-T ln-P chart
- Lecture 17 - Problems using Skew-T ln-P chart
- Lecture 18 - Problems using Skew-T ln-P chart (Continued...)
- Lecture 19 - Problems using Skew-T ln-P chart (Continued...)
- Lecture 20 - Lifting Condensation Level (LCL)
- Lecture 21 - Lifting Condensation Level (LCL) (Continued...)
- Lecture 22 - Saturated Adiabatic and Pseudo-adiabatic processes
- Lecture 23 - Equivalent potential temperature and wet bulb potential temperature
- Lecture 24 - Normand's rule - Chinook winds
- Lecture 25 - Problems on Chinook wind and static stability
- Lecture 26 - Static stability-Brunt-Visala frequency
- Lecture 27 - Conditional and convective instability
- Lecture 28 - Static stability - Problems using radiosonde data and skew T ln P chart
- Lecture 29 - The second law of thermodynamics  $\hat{a}$  Clausius Clapeyron relation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Clausius Clapeyron relation (Continued...)
- Lecture 31 - Atmospheric radiation & Radiation laws
- Lecture 32 - Planck's distribution and Inverse square law
- Lecture 33 - Physics of scattering, emission and absorption
- Lecture 34 - Physics of scattering, emission and absorption (Continued...)
- Lecture 35 - Radiative Transfer Equation & Derivation
- Lecture 36 - Radiative Transfer Equation (Continued...)
- Lecture 37 - Radiative heating profiles of the atmosphere
- Lecture 38 - Climate Dynamics & Introduction
- Lecture 39 - Climate sensitivity and feedback
- Lecture 40 - Climate change
- Lecture 41 - Atmospheric dynamics

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Atmospheric Science - Radiation Heat Transfer

Subject Co-ordinator - Prof. J. Srinivasan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Blackbody radiation
- Lecture 3 - Properties of real surfaces
- Lecture 4 - Spectral and directional variations
- Lecture 5 - Shape factor
- Lecture 6 - Triangular enclosure
- Lecture 7 - Evaluation of shape factors
- Lecture 8 - Radiation in enclosures
- Lecture 9 - Electrical analogy
- Lecture 10 - Applications
- Lecture 11 - Non-gray enclosures
- Lecture 12 - Enclosure with Specular surfaces
- Lecture 13 - Integral method for enclosures
- Lecture 14 - Introduction to gas radiation
- Lecture 15 - Plane parallel model
- Lecture 16 - Diffusion approximation
- Lecture 17 - Radiative equilibrium
- Lecture 18 - Optically thick limit
- Lecture 19 - Radiation spectroscopy
- Lecture 20 - Isothermal gas emissivity
- Lecture 21 - Band models
- Lecture 22 - Total Emissivity method
- Lecture 23 - Isothermal gas enclosures
- Lecture 24 - Well-stirred furnace model
- Lecture 25 - Gas radiation in complex enclosures
- Lecture 26 - Interaction between radiation and other modes of heat transfer
- Lecture 27 - Radiation heat transfer during flow over flat plate
- Lecture 28 - Radiation and Climate
- Lecture 29 - Radiative-convective equilibrium

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Radiative equilibrium with scattering
- Lecture 31 - Radiation measurement
- Lecture 32 - Radiation with internal heat source
- Lecture 33 - Particle scattering
- Lecture 34 - Scattering in the atmosphere
- Lecture 35 - Non-isotropic scattering
- Lecture 36 - Approximate methods in scattering
- Lecture 37 - Approximate methods in scattering
- Lecture 38 - Monte Carlo method



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Atmospheric Science - The monsoon and its variability

Subject Co-ordinator - Prof. Sulochana Gadgil

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Preamble and Introduction to the Indian Monsoon

Lecture 2 - Nature of the variability of the Indian Monsoon

Lecture 3 - Monsoon variability through the eye in the sky, seasonal variation of the surface wind and pressure

Lecture 4 - Background about the atmosphere and rotating systems

Lecture 5 - Rainfall and clouds over the tropics

Lecture 6 - Organization of clouds over mesoscale, synoptic scale and planetary scales

Lecture 7 - The Indian monsoon

Lecture 8 - Monsoons and the seasonal variation of tropical circulation and rainfall

Lecture 9 - Evolution of the ideas about the basic system responsible for the Indian monsoon - Part 1

Lecture 10 - Evolution of the ideas about the basic system responsible for the Indian monsoon - Part 2

Lecture 11 - Tropical Convergence Zones and the Indian monsoon - Part 1

Lecture 12 - Tropical Convergence Zones and the Indian monsoon - Part 2

Lecture 13 - Variability of organized convection over the tropical oceans

Lecture 14 - Heat lows and the TCZ

Lecture 15 - Monsoonal regions of the world

Lecture 16 - Seasonal transitions - Part 1

Lecture 17 - Seasonal transitions - Part 2

Lecture 18 - Seasonal transitions - Part 3

Lecture 19 - Climatic clusters of the Indian region

Lecture 20 - Active-weak spells and breaks in the monsoon - Part 1

Lecture 21 - Active-weak spells and breaks in the monsoon - Part 2

Lecture 22 - Intraseasonal variation and intraseasonal oscillations

Lecture 23 - The tropical oceans

Lecture 24 - El Nino Southern Oscillation (ENSO) - Part 1

Lecture 25 - El Nino Southern Oscillation (ENSO) - Part 2

Lecture 26 - El Nino Southern Oscillation (ENSO) - Part 3

Lecture 27 - El Nino Southern Oscillation (ENSO) - Part 4

Lecture 28 - El Nino Southern Oscillation (ENSO) - Part 5

Lecture 29 - El Nino Southern Oscillation (ENSO) - Part 6

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Indian Ocean and the monsoon - Part 1
- Lecture 31 - Indian Ocean and the monsoon - Part 2
- Lecture 32 - Indian Ocean Dipole - Part 1
- Lecture 33 - Indian Ocean Dipole - Part 2
- Lecture 34 - Interannual variation of the Indian summer Monsoon rainfall
- Lecture 35 - Monsoon Variability and Agriculture - Part 1
- Lecture 36 - Monsoon Variability and Agriculture - Part 2
- Lecture 37 - Monsoon Variability and Agriculture - Part 3
- Lecture 38 - Monsoon Variability and Agriculture - Part 4
- Lecture 39 - Indian Summer Monsoon, GDP and Agriculture
- Lecture 40 - Monsoon Prediction - Part 1
- Lecture 41 - Monsoon Prediction - Part 2
- Lecture 42 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - Introduction to Japanese Language and Culture

Subject Co-ordinator - Mrs. Vatsala Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Japanese scripts
- Lecture 2 - Jiko shoukai (Self introduction)
- Lecture 3 - Dochira kara desu ka ( Where are you from?)
- Lecture 4 - Senmon wa nan desu ka (What is your specialization?)
- Lecture 5 - Kore wa hon desu (This is a book)
- Lecture 6 - Ikura desu ka (How much is it?)
- Lecture 7 - Ima nan-ji desu ka (What is the time now?)
- Lecture 8 - Kaigi wa roku-ji-han kara desu (The meeting is from 6
- Lecture 9 - Ashita Tokyo e ikimasu. (I will go to Tokyo tomorrow)
- Lecture 10 - Watashi wa mainichi roku-ji ni okimasu (I wake up at 6 o'clock everyday)
- Lecture 11 - Itsu Kanpur e kimashita ka (When did you come to Kanpur?)
- Lecture 12 - Y?binkyoku wa asoko ni arimasu (The post office is over there)
- Lecture 13 - Rao san wa doko ni imasu ka (Where is Mr. Rao?)
- Lecture 14 - Pikuniku e ikimash? (Let's go for a picnic)
- Lecture 15 - Kesa pan to tamago o tabemashita (I ate eggs and bread for breakfast)
- Lecture 16 - Depa-to no tonari no biru wa gink? desu (The building next to the department store is the bank)
- Lecture 17 - Taj hoteru wa ookii hoteru desu(Hotel Taj is a big hotel)
- Lecture 18 - Hoteru de nani o tabemashita ka (What did you eat at the hotel?)
- Lecture 19 - Tokyo wa ?kikute kirei desu (Tokyo is big and beautiful)
- Lecture 20 - Ko-hi- wa oishiku arimasen(Coffee is not tasty)
- Lecture 21 - Hantai kotoba (Opposites)
- Lecture 22 - Watashi wa mainichi miruku o nomimasu (I drink milk everyday)
- Lecture 23 - Watashi wa oniisan ni kamera o moratta(I received a camera from my brother)
- Lecture 24 - Nani o tabetai desu ka(What do you want to eat?)
- Lecture 25 - Nani o sashiagemasu ka (Giving and Receiving)
- Lecture 26 - Sensei wa watashi ni hon o kuremashita (My teacher gave me a book)
- Lecture 27 - Chotto matte kudasai ( Just a minute please)
- Lecture 28 - Ke-ki o tabete mite kudasai ( Eat and see how is the cake)
- Lecture 29 - Nani o shite imasu ka(What are you doing?)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tokyo ni sunde imasu ( I live in Tokyo)
- Lecture 31 - Kanji ga kakemasu (I can write Kanji)
- Lecture 32 - Im?to wa ningy? o hoshigatte imasu (My sister wants a doll)
- Lecture 33 - Aisukuri-mu ga ke-ki yori suki desu (I like ice-cream more than cakes)
- Lecture 34 - Kutsu o kai ni ikimasu ( I am going to buy shoes)
- Lecture 35 - Ashita motto atsuku narimasu (It is going to become very hot tomorrow)
- Lecture 36 - Rainen Tokyo e iku to omoimasu (I think I will go to Tokyo next year)
- Lecture 37 - Pen de kaite mo ii desu ka(Is it alright to write in pen?)
- Lecture 38 - Comprehensions and Expressions
- Lecture 39 - Basic Kanji
- Lecture 40 - Basic Kanji

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - Astronomy in Ancient, Medieval and Early Telescopic Era of India

Subject Co-ordinator - Prof. Amitabha Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Pre Siddhantic Astronomy

Lecture 3 - Siddhantic Astronomy

Lecture 4 - Astronomy in Medieval India

Lecture 5 - Introduction to Telescopic Astronomy and Concluding remarks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Stress Management

Subject Co-ordinator - Prof. Rajlakshmi Guha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Stress
- Lecture 2 - Sources of stress
- Lecture 3 - Types of Stress
- Lecture 4 - Personality Factors and Stress
- Lecture 5 - Stress and the College Student
- Lecture 6 - Stress and Nervous System
- Lecture 7 - Hypothalamic-Pituitary-Adrenal (HPA) Axis
- Lecture 8 - Effect of Stress on Immune System
- Lecture 9 - Health Risk Associated with Chronic Stress
- Lecture 10 - Stress and Major Psychiatric Disorders
- Lecture 11 - Understanding your stress level
- Lecture 12 - Role of Personality Pattern, Self Esteem, Locus of Control
- Lecture 13 - Role of Thoughts Beliefs and Emotions - I
- Lecture 14 - Role of Thoughts Beliefs and Emotions - II
- Lecture 15 - Life Situation Intrapersonal
- Lecture 16 - Developing Cognitive Coping Skills
- Lecture 17 - Autogenic Training, Imagery and Progressive Relaxation
- Lecture 18 - Other Relaxation Techniques
- Lecture 19 - Exercise and Health
- Lecture 20 - DIY Strategies Stress Management

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Outcome Based Pedagogic Principles for Effective Teaching

Subject Co-ordinator - Prof. Shyamal Kumar Das Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Need of 21st Century Education

Lecture 2 - Accreditation

Lecture 3 - Outcome based Learning

Lecture 4 - Approach to Design Outcome based Learning

Lecture 5 - Approach to Design Outcome based Learning (Continued...)

Lecture 6 - Instructional Design for Active Learning

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - Ayurvedic Inheritance of India

Subject Co-ordinator - Dr. M.S. Valiathan

Co-ordinating Institute - Manipal University

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Roots of Ayurveda
- Lecture 2 - Traditional Medicine in Buddhist India
- Lecture 3 - Period of Systematization
- Lecture 4 - Philosophical ideas in Ayurveda
- Lecture 5 - Human Body in Health
- Lecture 6 - Human Body in Disease
- Lecture 7 - Food and Drinks
- Lecture 8 - Code for Healthy Living
- Lecture 9 - Diseases
- Lecture 10 - Diagnosis and Prognosis
- Lecture 11 - Medical Treatment of Diseases
- Lecture 12 - Materia Medica
- Lecture 13 - Surgical Treatment of Diseases
- Lecture 14 - Surgical Instruments
- Lecture 15 - Treatment of fractures; some surgical procedures
- Lecture 16 - Principles and methods of rejuvenation
- Lecture 17 - Selection of Students
- Lecture 18 - A Science Initiative in Ayurveda (ASIIA)
- Lecture 19 - Ayurvedic Biology
- Lecture 20 - Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Introduction to Research

Subject Co-ordinator - Dr. G. Phanikumar, Prof. C. Balaji, Dr. Arun K.Tangirala, Dr. Abhijit P. Deshpande, Pr

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Insight into research

Lecture 2 - Role of Guide and Student

Lecture 3 - Art of Re-Search

Lecture 4 - Persistent small steps towards success

Lecture 5 - Overview of research

Lecture 6 - Overview of Literature Survey

Lecture 7 - Literature Survey using Web of Science

Lecture 8 - Literature Survey using Scopus

Lecture 9 - Writing Up

Lecture 10 - Tutorial on using BibTeX with LaTeX to add references to a document

Lecture 11 - Tutorial on using Microsoft Word with Bibliographic Sources

Lecture 12 - Tutorial on using Microsoft Word with endnote entries

Lecture 13 - Experimental skills

Lecture 14 - Data analysis - Part 1

Lecture 15 - Data analysis - Part 2

Lecture 16 - Modelling skills - Part 1

Lecture 17 - Modelling skills - Part 2

Lecture 18 - Safety in laboratory

Lecture 19 - How to make Technical presentation

Lecture 20 - Creativity in Research - Part 1

Lecture 21 - Creativity in research - Part 2

Lecture 22 - Creativity in research - Part 3

Lecture 23 - Technical Writing

Lecture 24 - Group discussion on Ethics in Research

Lecture 25 - Intellectual property - Part 1

Lecture 26 - Intellectual property - Part 2

Lecture 27 - DOE Part 1

Lecture 28 - DOE part 2

Lecture 29 - DOE part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - DOE part 4
- Lecture 31 - DOE part 5
- Lecture 32 - Research in Applied Mechanics
- Lecture 33 - Research in Chemical Engineering
- Lecture 34 - Research in Civil Engineering
- Lecture 35 - Research in Computer Science and Engineering
- Lecture 36 - Research in Engineering Design
- Lecture 37 - Research in Humanities and Social Sciences
- Lecture 38 - Research in Mechanical Engineering
- Lecture 39 - Research in Metallurgical and Materials Engineering
- Lecture 40 - Research in Ocean Engineering
- Lecture 41 - Research in Management Studies
- Lecture 42 - Research in Aerospace Engineering
- Lecture 43 - Research in Biotechnology
- Lecture 44 - Research in Chemistry
- Lecture 45 - Research in Electrical Engineering
- Lecture 46 - Research in Mathematics
- Lecture 47 - Research in Physics
- Lecture 48 - Discussion with Research Scholars

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC: Biology for engineers and other non-biologists

Subject Co-ordinator - Dr. Madhulika Dixit, Prof. G.K. Suraishkumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Origin of Life  
Lecture 3 - Evolution  
Lecture 4 - Cells  
Lecture 5 - Biomolecules  
Lecture 6 - Biomolecules  
Lecture 7 - Biomolecules  
Lecture 8 - Biomolecules  
Lecture 9 - Biomolecules  
Lecture 10 - Cell structure and function ^ Prokaryotes  
Lecture 11 - Cell structure and function ^ Eukaryotes  
Lecture 12 - Cell cycle  
Lecture 13 - Cell division ^ mitosis  
Lecture 14 - Cell division ^ meiosis  
Lecture 15 - Culture growth  
Lecture 16 - Mendelian genetics  
Lecture 17 - Mendelian genetics  
Lecture 18 - Mendelian genetics  
Lecture 19 - Mendelian genetics  
Lecture 20 - DNA replication  
Lecture 21 - Transcription  
Lecture 22 - Translation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Digital and the Everyday - from Codes to Cloud

Subject Co-ordinator - Prof. Amit Prakash, Prof. Bidisha Chaudhuri

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course
- Lecture 2 - Introduction to the Winter School
- Lecture 3 - Socio-algorithmic processes and the Everyday - Part 1
- Lecture 4 - Socio-algorithmic processes and the Everyday - Part 2
- Lecture 5 - Socio-algorithmic processes and the Everyday - Part 3
- Lecture 6 - Data Protection and Privacy Regulation in the Digital Era - Part 1
- Lecture 7 - Data Protection and Privacy Regulation in the Digital Era - Part 2
- Lecture 8 - Data Protection and Privacy Regulation in the Digital Era - Part 3
- Lecture 9 - Data-driven Identities - Part 1
- Lecture 10 - Data-driven Identities - Part 2
- Lecture 11 - Data-driven Identities - Part 3
- Lecture 12 - Promises and Challenges of e-Health - Part 1
- Lecture 13 - Promises and Challenges of e-Health - Part 2
- Lecture 14 - Promises and Challenges of e-Health - Part 3
- Lecture 15 - Digital Finance - Part 1
- Lecture 16 - Digital Finance - Part 2
- Lecture 17 - Digital and our everyday interactions with the state - Part 1
- Lecture 18 - Digital and our everyday interactions with the state - Part 2
- Lecture 19 - Digital and our everyday interactions with the state - Part 3
- Lecture 20 - Creating a Machine Zone through Affected Feedback
- Lecture 21 - Creating a Machine Zone through Affected Feedback
- Lecture 22 - Creating a Machine Zone through Affected Feedback

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Effective Engineering Teaching in Practice

Subject Co-ordinator - Prof. G.K. Suraishkumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - An Inexperienced Engineering Teacher's View
- Lecture 3 - From traditional lecturing to helping students learn - 1
- Lecture 4 - From traditional lecturing to helping students learn - 2
- Lecture 5 - Better learning (Bloom's Taxonomy)
- Lecture 6 - Problem based learning (PBL) and Problem Solving - Part 1
- Lecture 7 - Problem based learning (PBL) and Problem Solving - Part 2
- Lecture 8 - Writing Learning Outcomes for a Course
- Lecture 9 - Active Learning
- Lecture 10 - Cooperative Group Learning
- Lecture 11 - Flipped Classroom
- Lecture 12 - Effective Laboratory Courses
- Lecture 13 - Assessment - Part 1
- Lecture 14 - Assessment - Part 2
- Lecture 15 - How can we use research in education? - Part A1
- Lecture 16 - How can we use research in education? - Part A2
- Lecture 17 - The Class, as a Whole - Part A3
- Lecture 18 - Psychological Type (Orientation) and Learning - Part B
- Lecture 19 - Cognitive Development Theories - Two Main Examples - Part C
- Lecture 20 - Learning Theories - Part D
- Lecture 21 - Feedback and Reflection - Part 1
- Lecture 22 - Feedback and Reflection - Part 2
- Lecture 23 - Feedback and Reflection - Part 3
- Lecture 24 - Live Session 1
- Lecture 25 - Live Session 2

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Virtual Reality Engineering

Subject Co-ordinator - Dr. M. Manivannan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course mechanics
- Lecture 2 - Goals and VR definitions
- Lecture 3 - Historical perspective
- Lecture 4 - Birds-eye view (general)
- Lecture 5 - Birds-eye view (general) (Continued...)
- Lecture 6 - Birds-eye view (hardware)
- Lecture 7 - Birds-eye view (software)
- Lecture 8 - Birds-eye view (sensation and perception)
- Lecture 9 - Geometric modeling
- Lecture 10 - Transforming models
- Lecture 11 - Matrix algebra and 2D rotations
- Lecture 12 - 3D rotations and yaw, pitch, and roll
- Lecture 13 - 3D rotations and yaw, pitch, and roll (Continued...)
- Lecture 14 - Axis-angle representations
- Lecture 15 - Quaternions
- Lecture 16 - Converting and multiplying rotations
- Lecture 17 - Converting and multiplying rotations (Continued...)
- Lecture 18 - Homogeneous transforms
- Lecture 19 - The chain of viewing transforms
- Lecture 20 - Eye transforms
- Lecture 21 - Eye transforms (Continued...)
- Lecture 22 - Canonical view transform
- Lecture 23 - Viewport transform
- Lecture 24 - Viewport transform (Continued...)
- Lecture 25 - Three interpretations of light
- Lecture 26 - Refraction
- Lecture 27 - Simple lenses
- Lecture 28 - Diopters
- Lecture 29 - Imaging properties of lenses

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lens aberrations
- Lecture 31 - Optical system of eyes
- Lecture 32 - Photoreceptors
- Lecture 33 - Sufficient resolution for VR
- Lecture 34 - Light intensity
- Lecture 35 - Eye movements
- Lecture 36 - Eye movements (Continued...)
- Lecture 37 - Eye movement issues for VR
- Lecture 38 - Neuroscience of vision
- Lecture 39 - Three Psychophysical Laws
- Lecture 40 - Sensation and Perception
- Lecture 41 - Psychophysics of Visual Perception
- Lecture 42 - Gamma Encoding
- Lecture 43 - Limiting Resolution
- Lecture 44 - Depth perception
- Lecture 45 - Depth perception (Continued...)
- Lecture 46 - Motion perception from Visual System
- Lecture 47 - Frame rates and displays
- Lecture 48 - Frame rates and displays (Continued...)
- Lecture 49 - Psychophysics of Depth Perception
- Lecture 50 - Overview
- Lecture 51 - Orientation tracking
- Lecture 52 - Tilt drift correction
- Lecture 53 - Yaw drift correction
- Lecture 54 - Tracking with a camera
- Lecture 55 - Perspective n-point problem
- Lecture 56 - Filtering
- Lecture 57 - Lighthouse approach
- Lecture 58 - Visual Rendering-Overview
- Lecture 59 - Visual Rendering-overview (Continued...)
- Lecture 60 - Shading models
- Lecture 61 - Rasterization
- Lecture 62 - Pixel shading
- Lecture 63 - VR-specific problems
- Lecture 64 - Distortion shading
- Lecture 65 - Post-rendering image warp
- Lecture 66 - Why Haptics?
- Lecture 67 - What is Haptics?
- Lecture 68 - Branches of Haptics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Human Haptics - Tactile System
- Lecture 70 - Kinesthetic System
- Lecture 71 - Motor System
- Lecture 72 - Haptic Devices and Interfaces - Kinesthetic Devices
- Lecture 73 - Haptic Devices and Interfaces - Tactile Devices
- Lecture 74 - Physics and Physiology
- Lecture 75 - Auditory perception
- Lecture 76 - Auditory localization
- Lecture 77 - Rendering
- Lecture 78 - Spatialization and display
- Lecture 79 - Combining other senses
- Lecture 80 - Interfaces -overview
- Lecture 81 - Evaluation of VR Systems
- Lecture 82 - Social interaction
- Lecture 83 - System control
- Lecture 84 - Manipulation
- Lecture 85 - Locomotion
- Lecture 86 - Principles of Perception
- Lecture 87 - Introduction to Kalman Filter
- Lecture 88 - Introduction to Extended Kalman Filter
- Lecture 89 - Grand Challenges in VR/AR
- Lecture 90 - Ultimate VR/AR System



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Non-Conventional Energy Resources

Subject Co-ordinator - Dr. Prathap Haridoss

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Renewable Energy Technologies
- Lecture 2 - Energy Usage by Humans - Estimate of Impact on Atmosphere
- Lecture 3 - Conventional Sources of Energy
- Lecture 4 - Non-Conventional Sources of Energy - An Overview
- Lecture 5 - Energy consumption
- Lecture 6 - Details of Energy usage in each sector
- Lecture 7 - Consequences of Energy consumption
- Lecture 8 - Solar Energy incident on Earth, Solar Spectrum
- Lecture 9 - The Solar Energy Budget
- Lecture 10 - Electromagnetic Radiation - The Solar Spectrum
- Lecture 11 - Solar flat plate collector
- Lecture 12 - Solar Radiator
- Lecture 13 - Solar Energy - The Semiconductor
- Lecture 14 - Solar energy - The p-n junction
- Lecture 15 - Solar Cell - Growing the single crystal and making the p-n junction
- Lecture 16 - Solar Energy - Interaction of p-n junction with radiation
- Lecture 17 - Solar Energy - Solar cell characteristics and usage
- Lecture 18 - Solar Energy - Solar cell construction
- Lecture 19 - Solar Energy - Solar Photocatalysis
- Lecture 20 - Wind Energy - Overview
- Lecture 21 - Wind Energy - Energy Considerations
- Lecture 22 - Wind Energy - Efficiency
- Lecture 23 - Wind Energy - Parts and Materials
- Lecture 24 - Wind Energy - Design Considerations
- Lecture 25 - Ocean Thermal Energy - Conversion (OTEC)
- Lecture 26 - Geothermal Energy
- Lecture 27 - Geothermal Energy Technological aspects
- Lecture 28 - Biomass Usage and Issues
- Lecture 29 - Battery Basics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Battery Testing and Performance
- Lecture 31 - Lithium ion Batteries
- Lecture 32 - Common Battery Structures and Types
- Lecture 33 - Types of Fuel Cells
- Lecture 34 - Fuel Processing for PEM Fuel Cells
- Lecture 35 - Fuel Cells
- Lecture 36 - Characterization of Electrochemical Devices
- Lecture 37 - Fuel Cells
- Lecture 38 - Supercapacitors
- Lecture 39 - Flywheels
- Lecture 40 - Magnetohydrodynamic Power Generation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Introduction to Remote Sensing

Subject Co-ordinator - Dr.Arun K.Saraf

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is satellite based remote sensing?

Lecture 2 - Development of remote sensing technology and advantages

Lecture 3 - Different platforms of remote sensing.

Lecture 4 - Electromagnetic Spectrum, solar reflection and thermal emission

Lecture 5 - Interaction of EM radiation with atmosphere including atmospheric scattering, absorption and emission

Lecture 6 - Interaction mechanism of EM radiation with ground and spectral response curve

Lecture 7 - Principles of image interpretation

Lecture 8 - Multi-spectral scanners and imaging devices

Lecture 9 - Salient characteristics of Landsat, IRS, Cartosat, Resourcesat sensors

Lecture 10 - Image characteristics and different resolutions in Remote Sensing

Lecture 11 - Image interpretation of different geological landforms, rock types and structures

Lecture 12 - Remote Sensing Integration with GIS and GPS

Lecture 13 - Geo-referencing Technique

Lecture 14 - Basic Image Enhancement Techniques

Lecture 15 - Spatial Filtering, Band ratio and Principal Component Analysis techniques

Lecture 16 - Image Classification Techniques

Lecture 17 - InSAR Techniques in its applications

Lecture 18 - Hyperspectral Remote Sensing

Lecture 19 - Integrated applications of RS and GIS in groundwater studies

Lecture 20 - Limitations of Remote Sensing Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Applied Mechanics

Subject Co-ordinator - Prof. Sanjeev Sanghi, Prof. R.K. Mittal

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Preliminary Concepts

Lecture 2 - Vector Analysis

Lecture 3 - Analysis of Forces

Lecture 4 - Analysis of Equilibrium

Lecture 5 - Structural Mechanics - Part-1

Lecture 6 - Structural Mechanics - Part-2

Lecture 7 - Friction and its Applications - Part-1

Lecture 8 - Friction and its Applications - Part-2

Lecture 9 - Friction and its Applications - Part-3

Lecture 10 - Properties of Surfaces - Part-1

Lecture 11 - Properties of Surfaces - Part-2

Lecture 12 - Properties of Surfaces - Part-3

Lecture 13 - Moments and Products of Inertia

Lecture 14 - Methods of Virtual Work and Potential Energy - Part-1

Lecture 15 - Methods of Virtual Work and Potential Energy - Part-2

Lecture 16 - Stability of Equilibrium

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Management Science I

Subject Co-ordinator - Prof. Anuradha Sharma

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Motivation  
Lecture 3 - Management  
Lecture 4 - Work Ethics  
Lecture 5 - Comparison Between Theories  
Lecture 6 - Job Enrichment  
Lecture 7 - Team Building and Participation  
Lecture 8 - Other Leadership Styles  
Lecture 9 - Empowerment  
Lecture 10 - Barriers to Communication  
Lecture 11 - Issues in Leadership  
Lecture 12 - Participation Management and Team Working Part - 1  
Lecture 13 - Participation Management and Team Working Part - 2  
Lecture 14 - Participation Management and Team Working Part - 3  
Lecture 15 - Participative Management and Team Working Part - 5  
Lecture 16 - Organizations  
Lecture 17 - Some Management Concepts - Part - 1  
Lecture 18 - Some Management Concepts - Part - 2  
Lecture 19 - Some Management Concepts - Part - 3  
Lecture 20 - Diversity at Work Place and Management Issues  
Lecture 21 - Industrial Relations and Conflict Management - Part - 1  
Lecture 22 - Industrial Relations and Conflict Management - Part - 2  
Lecture 23 - Selection and Training of Employees  
Lecture 24 - Performance Management - Part - 1  
Lecture 25 - Performance Management - Part - 2  
Lecture 26 - Performance Management - Part - 3  
Lecture 27 - Management Research  
Lecture 28 - Corporate Social Responsibilities  
Lecture 29 - Women, Work and Organizations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Women, Work and Organizations
- Lecture 31 - Selection, Recruitment and Training
- Lecture 32 - Management of Change in Organization
- Lecture 33 - Organizational Development
- Lecture 34 - Values, Ethics and Corporate Social Responsibilities - Part - 1
- Lecture 35 - Values, Ethics and Corporate Social Responsibilities - Part - 2
- Lecture 36 - Management
- Lecture 37 - Management
- Lecture 38 - Management
- Lecture 39 - Conclusions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Materials Science

Subject Co-ordinator - Prof. S.K. Gupta

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Internal Energy Enthalpy  
Lecture 3 - Crystal Geometry  
Lecture 4 - Crystal Geometry  
Lecture 5 - Crystal Geometry  
Lecture 6 - Crystal Structure  
Lecture 7 - Close Packing of Spheres of Equal Size  
Lecture 8 - Structure of Solid Materials  
Lecture 9 - Non Crystalline Solids  
Lecture 10 - Polymers (Continued)  
Lecture 11 - Crystal Imperfections  
Lecture 12 - Crystal Imperfections  
Lecture 13 - Crystal Imperfections  
Lecture 14 - Crystal Imperfections  
Lecture 15 - Crystal Imperfections  
Lecture 16 - Phase Diagrams  
Lecture 17 - Phase Diagrams  
Lecture 18 - Phase Diagrams  
Lecture 19 - Diffusion in Solids  
Lecture 20 - Diffusion in Solids  
Lecture 21 - Phase Transformations  
Lecture 22 - Phase Transformations  
Lecture 23 - Phase Transformations  
Lecture 24 - Transformations in Steels  
Lecture 25 - Phase Transformations; Precipitation Hardening  
Lecture 26 - Mechanical Behaviour of Materials  
Lecture 27 - Plastic Deformation  
Lecture 28 - Plastic Deformation  
Lecture 29 - Plastic Deformation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strengthening Mechanisms Creep
- Lecture 31 - Fracture
- Lecture 32 - Conductors and Resistors
- Lecture 33 - Conductors and Resistors
- Lecture 34 - Superconductors
- Lecture 35 - Superconductors
- Lecture 36 - Semiconductors



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Numerical Methods and Computation

Subject Co-ordinator - Prof. S.R.K. Iyengar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Errors in Computation and Numerical Instability  
Lecture 2 - Solution of Nonlinear Algebraic Equations - Part 1  
Lecture 3 - Solution of Nonlinear Algebraic Equations - Part 2  
Lecture 4 - Solution of Nonlinear Algebraic Equations - Part 3  
Lecture 5 - Solution of Nonlinear Algebraic Equations - Part 4  
Lecture 6 - Solution of Nonlinear Algebraic Equations - Part 5  
Lecture 7 - Solution of Nonlinear Algebraic Equations - Part 6  
Lecture 8 - Solution of Nonlinear Algebraic Equations - Part 7  
Lecture 9 - Solution of Nonlinear Algebraic Equations - Part 8  
Lecture 10 - Solution of Nonlinear Algebraic Equations - Part 9  
Lecture 11 - Solution of a System of Linear Algebraic Equations - Part 1  
Lecture 12 - Solution of a System of Linear Algebraic Equations - Part 2  
Lecture 13 - Solution of a System of Linear Algebraic Equations - Part 3  
Lecture 14 - Solution of a System of Linear Algebraic Equations - Part 4  
Lecture 15 - Solution of a System of Linear Algebraic Equations - Part 5  
Lecture 16 - Solution of a System of Linear Algebraic Equations - Part 6  
Lecture 17 - Solution of a System of Linear Algebraic Equations - Part 7  
Lecture 18 - Solution of a System of Linear Algebraic Equations - Part 8  
Lecture 19 - Solution of a System of Linear Algebraic Equations - Part 9  
Lecture 20 - Solution of a System of Linear Algebraic Equations - Part 10  
Lecture 21 - Solution of a System of Linear Algebraic Equations - Part 11  
Lecture 22 - Solution of a System of Linear Algebraic Equations - Part 12  
Lecture 23 - Solution of a System of Linear Algebraic Equations - Part 13  
Lecture 24 - Solution of a System of Linear Algebraic Equations - Part 14  
Lecture 25 - Interpolation and Approximation - Part 1  
Lecture 26 - Interpolation and Approximation - Part 2  
Lecture 27 - Interpolation and Approximation - Part 3  
Lecture 28 - Interpolation and Approximation - Part 4  
Lecture 29 - Interpolation and Approximation - Part 5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interpolation and Approximation - Part 6
- Lecture 31 - Interpolation and Approximation - Part 7
- Lecture 32 - Interpolation and Approximation - Part 8
- Lecture 33 - Interpolation and Approximation - Part 9
- Lecture 34 - Numerical Differentiation and Integration - Part 1
- Lecture 35 - Numerical Differentiation and Integration - Part 2
- Lecture 36 - Numerical Differentiation and Integration - Part 3
- Lecture 37 - Numerical Differentiation and Integration - Part 4
- Lecture 38 - Numerical Differentiation and Integration - Part 5
- Lecture 39 - Numerical Differentiation and Integration - Part 6
- Lecture 40 - Numerical Differentiation and Integration - Part 7
- Lecture 41 - Numerical Differentiation and Integration - Part 8

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Engineering Mechanics

Subject Co-ordinator - Prof. Manoj K Harbola

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Engineering Mechanics
- Lecture 2 - Equilibrium - I
- Lecture 3 - Equilibrium - II
- Lecture 4 - Equilibrium - III
- Lecture 5 - Plan Trusses - I
- Lecture 6 - Plan Trusses - II
- Lecture 7 - Friction
- Lecture 8 - Properties of Surfaces - I
- Lecture 9 - Properties of Surfaces - II
- Lecture 10 - Properties of Surfaces - III
- Lecture 11 - Method of Virtual Work
- Lecture 12 - Motion of Particles Planar Polar Coordinates
- Lecture 13 - Motion With Constraints
- Lecture 14 - Motion of Particle With Friction
- Lecture 15 - Motion of Particles With Drag
- Lecture 16 - Momentum
- Lecture 17 - Work and Energy - I
- Lecture 18 - Work and Energy - II
- Lecture 19 - Work and Energy - III
- Lecture 20 - Work and Energy - IV
- Lecture 21 - Rotational Motion - I
- Lecture 22 - Rotational Motion - II
- Lecture 23 - Rotational Motion - III
- Lecture 24 - Rotational Motion - IV
- Lecture 25 - Rotational Motion - V
- Lecture 26 - Rotational Motion - VI
- Lecture 27 - Simple Harmonic Motion - I
- Lecture 28 - Simple Harmonic Motion - II
- Lecture 29 - Simple Harmonic Motion - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Motion in Uniformly Accelerating Frames

Lecture 31 - Motion In Rotating Frame

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Engineering Physics II

Subject Co-ordinator - Prof. V. Ravishankar, Prof. S. Raychaudhuri

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module - 1 lecture - 1  
Module - 1 lecture - 2  
Module - 1 lecture - 3  
Module - 1 lecture - 4  
Module - 2 lecture - 1  
Module - 2 lecture - 2  
Module - 2 lecture - 3  
Module - 2 lecture - 4  
Module - 2 lecture - 5  
Module - 3 lecture - 1  
Module - 3 lecture - 2  
Module - 3 lecture - 3  
Module - 3 lecture - 4  
Module - 3 lecture - 5 (Lecture Missing)  
Module - 3 lecture - 6  
Module - 3 lecture - 7  
Module - 3 lecture - 8  
Module - 4 lecture - 1  
Module - 4 lecture - 2  
Module - 4 lecture - 3  
Module - 4 lecture - 4  
Module - 4 lecture - 5  
Module - 4 lecture - 6  
Module - 4 lecture - 7  
Module - 4 lecture - 8  
Module - 4 lecture - 9  
Module - 4 lecture - 10  
Module - 4 lecture - 11  
Module - 4 lecture - 12

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Mathematics I

Subject Co-ordinator - Prof. Swagato K. Ray, Prof. Shobha Madan, Dr. P. Shunmugaraj

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Real Number  
Lecture 2 - Sequences I  
Lecture 3 - Sequences II  
Lecture 4 - Sequences III  
Lecture 5 - Continuous Function  
Lecture 6 - Properties of Continuous Function  
Lecture 7 - Uniform Continuity  
Lecture 8 - Differentiable Functions  
Lecture 9 - Mean Value Theorem  
Lecture 10 - Maxima - Minima  
Lecture 11 - Taylor's Theorem  
Lecture 12 - Curve Sketching  
Lecture 13 - Infinite Series I  
Lecture 14 - Infinite Series II  
Lecture 15 - Tests of Convergence  
Lecture 16 - Power Series  
Lecture 17 - Riemann Integral  
Lecture 18 - Riemann Integrable Functions  
Lecture 19 - Applications of Riemann Integral  
Lecture 20 - Length of a curve  
Lecture 21 - Line Integrals  
Lecture 22 - Functions of Several Variables  
Lecture 23 - Differentiation  
Lecture 24 - Derivatives  
Lecture 25 - Mean Value Theorem  
Lecture 26 - Maxima Minima  
Lecture 27 - Method of Lagrange Multipliers  
Lecture 28 - Multiple Integrals  
Lecture 29 - Surface Integrals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Green's Theorem
- Lecture 31 - Stokes Theorem
- Lecture 32 - Gauss Divergence Theorem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Human Resource Management-I

Subject Co-ordinator - Prof. Kalyan Chakravarti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Nature and Scope of HRM
- Lecture 2 - Analysing and Designing Job - I
- Lecture 3 - Analysing and Designing Job - II
- Lecture 4 - Human Resource Planning - I
- Lecture 5 - Human Resource Planning - II
- Lecture 6 - Recruitment and Selection
- Lecture 7 - Performance Evaluation and Appraisal - I
- Lecture 8 - Performance Evaluation and Appraisal (Continued...)
- Lecture 9 - Training and Development
- Lecture 10 - Employee Welfare
- Lecture 11 - Safety, Health, Environment
- Lecture 12 - Industrial Relations
- Lecture 13 - Total Quality Management
- Lecture 14 - Organization Culture
- Lecture 15 - Change Management - Part - I
- Lecture 16 - Change Management - Part - II
- Lecture 17 - Wage and Salary Administration
- Lecture 18 - Career Planning - Part - I
- Lecture 19 - Career Planning - Part - II
- Lecture 20 - Contemporary Issues in HRM - I
- Lecture 21 - Contemporary Issues in HRM - II
- Lecture 22 - Contemporary Issues in HRM - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Leadership

Subject Co-ordinator - Prof. Kalyan Chakravarti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Leadership  
Lecture 2 - Leadership Roles  
Lecture 3 - Leadership Styles  
Lecture 4 - Leadership Behaviour  
Lecture 5 - Leadership Styles  
Lecture 6 - Case  
Lecture 7 - Leadership Skills  
Lecture 8 - Competencies and Skills of Leaders  
Lecture 9 - Case  
Lecture 10 - Case  
Lecture 11 - Case  
Lecture 12 - Case  
Lecture 13 - Case

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Management Information System

Subject Co-ordinator - Prof. Biswajit Mahanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - I  
Lecture 2 - Introduction - II  
Lecture 3 - Introduction - III  
Lecture 4 - Concept of Information - I  
Lecture 5 - Concept of Information - II  
Lecture 6 - Decision Making Process  
Lecture 7 - Impact of IS on Management - I  
Lecture 8 - Impact of IS on Management - II  
Lecture 9 - Hardware Software Overview - I  
Lecture 10 - Hardware Software Overview - II  
Lecture 11 - Knowledge Management  
Lecture 12 - Learning Organization  
Lecture 13 - Decision Analysis - I  
Lecture 14 - Decision Analysis - II  
Lecture 15 - Decision Analysis - III  
Lecture 16 - Data Flow Diagrams - I  
Lecture 17 - Data Flow Diagrams - II  
Lecture 18 - Data Flow Diagrams - III  
Lecture 19 - Data Flow Diagrams - IV  
Lecture 20 - System Design - I  
Lecture 21 - System Design - II  
Lecture 22 - DBMS - I  
Lecture 23 - DBMS - II  
Lecture 24 - DBMS - III  
Lecture 25 - DBMS - IV  
Lecture 26 - DBMS - V  
Lecture 27 - OOAD - I  
Lecture 28 - OOAD - II  
Lecture 29 - OOAD - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Physics I - Oscillations and Waves

Subject Co-ordinator - Prof. S. Bharadwaj

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Simple Harmonic Oscillators  
Lecture 2 - Damped Oscillator - I  
Lecture 3 - Damped Oscillator - II  
Lecture 4 - Oscillator With External Forcing - I  
Lecture 5 - Oscillator With External Forcing  
Lecture 6 - Resonance  
Lecture 7 - Coupled Oscillations  
Lecture 8 - Sinusoidal Plane Waves - I  
Lecture 9 - Electromagnetic waves - I  
Lecture 10 - Electromagnetic Waves - II  
Lecture 11 - The Vector Nature of Electromagnetic Waves  
Lecture 12 - The Electromagnetic Spectrum  
Lecture 13 - The Electromagnetic Spectrum - II  
Lecture 14 - Interference - I  
Lecture 15 - Interference - II  
Lecture 16 - Interference - III  
Lecture 17 - Interference - IV  
Lecture 18 - Coherence  
Lecture 19 - Coherence  
Lecture 20 - Diffraction - I  
Lecture 21 - Diffraction - II  
Lecture 22 - Diffraction - III  
Lecture 23 - Diffraction - IV  
Lecture 24 - X-Ray Diffraction  
Lecture 25 - Beats  
Lecture 26 - The Wave Equation  
Lecture 27 - Solving the Wave Equation  
Lecture 28 - Waves  
Lecture 29 - Standing Waves

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Standing Waves
- Lecture 31 - Polarization
- Lecture 32 - Compton Effect
- Lecture 33 - Wave - Particle Duality
- Lecture 34 - Wave - Particle Duality
- Lecture 35 - Probability Amplitude
- Lecture 36 - Probability
- Lecture 37 - Schrodinger Wave Equation
- Lecture 38 - Measurements
- Lecture 39 - Particle in a Potential
- Lecture 40 - Potential Well
- Lecture 41 - Potential Well
- Lecture 42 - Potential Well
- Lecture 43 - Quantum Tunneling
- Lecture 44 - Quantum Tunneling

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Strategic Management

Subject Co-ordinator - Prof. Kalyan Chakravarti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Strategy

Lecture 2 - Strategy

Lecture 3 - Case Study - Group Presentation on Case - I (Baddi`s Solvent)

Lecture 4 - Case Study - Group Presentation on Case - II

Lecture 5 - Case Study - Group Presentation on Case - III

Lecture 6 - Case Study - Group Presentation on Case - IV Form

Lecture 7 - Strategy

Lecture 8 - Strategy

Lecture 9 - Case Study

Lecture 10 - Case Study

Lecture 11 - Group Presentation - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Basic Electronics and Lab

Subject Co-ordinator - Prof. T.S. Natarajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Basic Electronics

Lecture 2 - Electronic Devices 1

Lecture 3 - Electronics Devices II Resistor in series and parallel

Lecture 4 - Some Useful Laws in Basic Electronics

Lecture 5 - Some Useful Theorems in Basic Electronics

Lecture 6 - Semi Conductor Diodes

Lecture 7 - Applications of Diodes

Lecture 8 - Wave Shaping using Diodes

Lecture 9 - Zener Diode Characteristics

Lecture 10 - Transistors

Lecture 11 - Transistor Biasing - Common Emitter Circuits, Fixed Bias, Collector to base Bias

Lecture 12 - Transistor Biasing - Emitter Current Bias, Thermal Stability (RC Coupled Amplifier)

Lecture 13 - Basic Characteristic of an Amplifier - Simple Transistor model, Common emitter Amplifier

Lecture 14 - Hybrid Equivalent Circuit, H-Parameters

Lecture 15 - Circuit Analysis using H-Parameters

Lecture 16 - Frequency Response of Amplifiers

Lecture 17 - Frequency Analysis

Lecture 18 - Power Amplifiers

Lecture 19 - Differential Amplifiers Circuit

Lecture 20 - Integrated Chip

Lecture 21 - Typical Characteristic of Operation Amplifier

Lecture 22 - Four Types of Feed Back

Lecture 23 - Four Types of Feed Back

Lecture 24 - Mathematical Operations

Lecture 25 - Mathematical Operations

Lecture 26 - Mathematical Operations

Lecture 27 - Characteristics of Operation Amplifier

Lecture 28 - Characteristics of Operation Amplifier

Lecture 29 - Characteristics of Operation Amplifier

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Inverter/Non-Inverter Circuits
- Lecture 31 - Applications of Op Amps
- Lecture 32 - Non-Linear Op Amp circuits
- Lecture 33 - Applications of Op Amps
- Lecture 34 - Active Diode Circuits
- Lecture 35 - Oscillators
- Lecture 36 - Logarithmic and Anti-Logarithmic Amplifier
- Lecture 37 - Filters
- Lecture 38 - Unit Junction Transistor
- Lecture 39 - Silicon Controlled Rectifier
- Lecture 40 - Field Effect Transistor

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Classical Physics

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Newtonian mechanics
- Lecture 3 - Dynamics in phase space
- Lecture 4 - Linear dynamical systems
- Lecture 5 - Autonomous dynamical systems (Part 1)
- Lecture 6 - Autonomous dynamical systems (Part 2)
- Lecture 7 - Lagrangian formalism
- Lecture 8 - Summary of classical electromagnetism
- Lecture 9 - Charged particle in an electromagnetic field
- Lecture 10 - Hamiltonian dynamics (Part 1)
- Lecture 11 - Hamiltonian dynamics (Part 2)
- Lecture 12 - Hamiltonian dynamics (Part 3)
- Lecture 13 - Dynamical symmetry (Part 1)
- Lecture 14 - Dynamical symmetry (Part 2)
- Lecture 15 - Randomness in phase space; chaos
- Lecture 16 - Discrete-time dynamics
- Lecture 17 - Discrete-time dynamics
- Lecture 18 - Problems and solutions (Part 1)
- Lecture 19 - Problems and solutions (Part 2)
- Lecture 20 - Classical statistical mechanics
- Lecture 21 - Some probability distributions; isolated system
- Lecture 22 - The microcanonical ensemble
- Lecture 23 - Thermodynamics
- Lecture 24 - The canonical ensemble
- Lecture 25 - Connection between statistical mechanics and thermodynamics
- Lecture 26 - Probability distributions
- Lecture 27 - Probability distributions (concl'd.). Phase transitions (Part 1)
- Lecture 28 - Phase transitions (Part 2)
- Lecture 29 - Phase transitions (Part 3)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Phase transitions (Part 4); misc. topics
- Lecture 31 - Problems and solutions (Part 3)
- Lecture 32 - Continuous groups in physics (Part 1)
- Lecture 33 - Continuous groups in physics (Part 2)
- Lecture 34 - Continuous groups in physics (Part 3)
- Lecture 35 - Noether's Theorem. Special Relativity (Part 1)
- Lecture 36 - Special Relativity (Part 2)
- Lecture 37 - Special Relativity (Part 3)
- Lecture 38 - Special Relativity (Part 4)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Engineering Chemistry I

Subject Co-ordinator - Prof. K. Mangala Sunder

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Chemistry & Quantum Chemical Mechanics

Lecture 2 - Particle in a box (one and two dimensions)

Lecture 3 - Particle in a box (One and Two Dimensions) Continued

Lecture 4 - Harmonic Oscillator and Molecular Vibration

Lecture 5 - Harmonic Oscillator (Continued)

Lecture 6 - Hydrogen Atom - Radial Solution

Lecture 7 - Hydrogen Atom Part III Angular Solutions

Lecture 8 - Hydrogen Atom - Angular Solutions (Continued)

Lecture 9 - Hydrogen Atom - Angular Solutions (Continued)

Lecture 10 - Oppenheimer Approximation and Superposition

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Numerical Methods and Programming

Subject Co-ordinator - Prof. P.B. Sunil Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Programming Basics  
Lecture 2 - Introduction to Pointers  
Lecture 3 - Pointers And Arrays  
Lecture 4 - External Functions and Argument Passing  
Lecture 5 - Representation of Numbers  
Lecture 6 - Numerical Error  
Lecture 7 - Error Propagation and Stability  
Lecture 8 - Polynomial Interpolation-1  
Lecture 9 - Polynomial Interpolation-2  
Lecture 10 - Error In Interpolation Polynomial  
Lecture 11 - Polynomial Interpolation  
Lecture 12 - Cubic Spline Interpolation  
Lecture 13 - Data Fitting  
Lecture 14 - Data Fitting  
Lecture 15 - Data Fitting  
Lecture 16 - Matrix Elimination and Solution  
Lecture 17 - Solution To Linear Equations  
Lecture 18 - Matrix Elimination  
Lecture 19 - Eigen Values of A Matrix  
Lecture 20 - Eigen Values And Eigen Vectors  
Lecture 21 - Solving NonLinear Equations  
Lecture 22 - Solving NonLinear Equations Newton Raphson Method  
Lecture 23 - Methods For Solving NonLinear Equations  
Lecture 24 - System of NonLinear Equations  
Lecture 25 - Numerical Derivations  
Lecture 26 - High order Derivatives From Difference Formula  
Lecture 27 - Numerical Integration - Basic Rules  
Lecture 28 - Comparison of Different Basic Rules  
Lecture 29 - Gaussian Rules

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Comparison of Gaussian Rules
- Lecture 31 - Solving Ordinary Differential Equations
- Lecture 32 - Solving ordinary differential equations
- Lecture 33 - Adaptive step size Runge Kutta scheme
- Lecture 34 - Partial Differential Equations
- Lecture 35 - Explicit and Implicit Methods
- Lecture 36 - The Crank - Nicholson Scheme For Two Spatial
- Lecture 37 - Fourier Transforms
- Lecture 38 - Fast Fourier Transforms

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Quantum Physics

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Quantum Physics;Heisenberg's uncertainty principle

Lecture 2 - Introduction to linear vector spaces

Lecture 3 - Characteristics of linear vector spaces

Lecture 4 - Functions in a linear vector space

Lecture 5 - Linear operations in a linear vector space and their eigenvalues

Lecture 6 - Classical Vs Quantum Mechanics

Lecture 7 - Quantum Physics

Lecture 8 - Quantum Physics

Lecture 9 - Quantum Physics

Lecture 10 - Quantum Physics

Lecture 11 - Quantum Physics

Lecture 12 - Quantum Physics

Lecture 13 - Quantum Physics

Lecture 14 - Quantum Physics

Lecture 15 - Quantum Physics

Lecture 16 - Quantum Physics

Lecture 17 - Quantum Physics

Lecture 18 - Quantum Physics

Lecture 19 - Quantum Physics

Lecture 20 - Quantum Physics

Lecture 21 - Quantum Physics

Lecture 22 - Quantum Physics

Lecture 23 - Quantum Physics

Lecture 24 - Quantum Physics

Lecture 25 - Quantum Physics

Lecture 26 - Quantum Physics

Lecture 27 - Quantum Physics

Lecture 28 - Quantum Physics

Lecture 29 - Quantum Physics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Quantum Physics

Lecture 31 - Quantum Physics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Engineering Physics I

Subject Co-ordinator - Prof. Rajdeep Chatterjee, Prof. B.K. Patra, Prof. M.K. Srivastava, Prof. G.D. Verma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Malus law & Superposition of ways
- Lecture 3 - Double Refraction
- Lecture 4 - Interference of polarized light
- Lecture 5 - Optical Activity
- Lecture 6 - Introduction
- Lecture 7 - Stationary Waves & Reflection, Refraction and Diffraction
- Lecture 8 - Ultrasonics
- Lecture 9 - Acoustics of Buildings - Part I
- Lecture 10 - Acoustics of Buildings - Part II
- Lecture 11 - Interference of light Part-1
- Lecture 12 - Interference of light Part-2
- Lecture 13 - Interference of light Part-3
- Lecture 14 - Interference by Division of Wave front
- Lecture 15 - Interference by Division of Amplitude
- Lecture 16 - Coherence and Application of Interference
- Lecture 17 - Diffraction Part-1
- Lecture 18 - Diffraction Part-2
- Lecture 19 - Diffraction Part-3
- Lecture 20 - Diffraction by a circular aperture
- Lecture 21 - Kinetic theory of gases - Part-1
- Lecture 22 - Kinetic theory of gases - Part-2
- Lecture 23 - Maxwellian distribution law of velocity - Part-1
- Lecture 24 - Maxwellian distribution law of velocity - Part-2
- Lecture 25 - Maxwellian distribution law of velocity - Part-3
- Lecture 26 - Vanderwaal's equation of states - Part-1
- Lecture 27 - Vanderwaal's equation of states - Part-2
- Lecture 28 - Vanderwaal's equation of states - Part-3
- Lecture 29 - Fluid Mechanics - Part-1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fluid Mechanics - Part-2
- Lecture 31 - Introduction of special relativity
- Lecture 32 - Consequences of special relativity-1
- Lecture 33 - Consequences of special relativity-2
- Lecture 34 - Consequences of special relativity-3
- Lecture 35 - Consequences of special relativity-4
- Lecture 36 - Consequences of special relativity-5
- Lecture 37 - Introduction
- Lecture 38 - Image formation by lenses
- Lecture 39 - Lens aberrations - Part I
- Lecture 40 - Lens aberrations - Part II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Mathematics II

Subject Co-ordinator - Dr. Sunita Gakkhar, Prof. H.G. Sharma, Dr. Tanuja Srivastava

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Complex Integration  
Lecture 2 - Contour Integration  
Lecture 3 - Cauchy's Integral Theorem  
Lecture 4 - Cauchy's Integral Formula  
Lecture 5 - Application of Cauchy Integral Formula  
Lecture 6 - Zeros, Singularities and Poles  
Lecture 7 - Residue Integration Method  
Lecture 8 - Residue Theorem  
Lecture 9 - Evaluation of Real Integrals  
Lecture 10 - Evaluation of Real Improper Integrals-1  
Lecture 11 - Evaluation of Real Improper Integrals-2  
Lecture 12 - Evaluation of Real Improper Integrals-3  
Lecture 13 - Evaluation of Real Improper Integrals-4  
Lecture 14 - Evaluation of Real Integrals - Revision  
Lecture 15 - Matrix Algebra Part - 1  
Lecture 16 - Matrix Algebra Part - 2  
Lecture 17 - Determinants Part - 1  
Lecture 18 - Determinants Part - 2  
Lecture 19 - Solution of System Equation  
Lecture 20 - Linear Algebra Part - 1  
Lecture 21 - Linear Algebra part - 2  
Lecture 22 - Linear Algebra Part - 3  
Lecture 23 - Linear Algebra Part - 4  
Lecture 24 - Inner Product  
Lecture 25 - Linear Transformation Part - 1  
Lecture 26 - Linear Transformation Part - 2  
Lecture 27 - Eigenvalues Eigenvectors Part - 1  
Lecture 28 - Eigenvalues Eigenvectors Part - 2  
Lecture 29 - Quadratic Forms

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diagonalization Part - 1
- Lecture 31 - Diagonalization Part - 2
- Lecture 32 - Solution of System of Linear Equation
- Lecture 33 - Functions of Complex Variables Part - 1
- Lecture 34 - Functions of Complex Variables Part - 2
- Lecture 35 - Taylor Series
- Lecture 36 - Laurent Series
- Lecture 37 - Rank of a Matrix
- Lecture 38 - Complex Numbers Their Geometrical Representation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Mathematics III

Subject Co-ordinator - Prof. P.N. Agrawal, Dr. Tanuja Srivastava

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Solution of ODE of First Order and First Degree
- Lecture 2 - Linear Differential Equations of the First Order
- Lecture 3 - Approximate Solution of An Initial Value
- Lecture 4 - Series Solution of Homogeneous Linear I
- Lecture 5 - Series Solution of Homogeneous Linear II
- Lecture 6 - Bessel Functions and Their Properties
- Lecture 7 - Bessel Functions And Their Properties (Continued..)
- Lecture 8 - Laplace Transformation
- Lecture 9 - Laplace Transformation (Continued..)
- Lecture 10 - Applications Of Laplace Transformation
- Lecture 11 - Applications Of Laplace Transformation (Continued..)
- Lecture 12 - One Dimensional Wave Equation
- Lecture 13 - One Dimensional Heat Equation
- Lecture 14 - Introduction to Differential Equation
- Lecture 15 - First Order Differential Equations and Their Geometric Interpretation
- Lecture 16 - Differential Equations of First Order Higher Degree
- Lecture 17 - Linear Differential Equation of Second Order-Part - 1
- Lecture 18 - Linear Differential equation of Second Order-Part - 2
- Lecture 19 - Euler-Cauchy Theorem
- Lecture 20 - Higher Order Linear Differential Equations
- Lecture 21 - Higher Order Non homogeneous Linear Equations
- Lecture 22 - Boundary Value Problems
- Lecture 23 - Sturm Liouville boundary Value Problem
- Lecture 24 - Fourier Series-Part - 1
- Lecture 25 - Fourier Series-Part - 2
- Lecture 26 - Convergence of the Fourier Series
- Lecture 27 - Fourier Integrals
- Lecture 28 - Fourier Transforms
- Lecture 29 - Partial Differential Equation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - First Order Partial Differential Equation
- Lecture 31 - Second Order Partial Differential Equations - I
- Lecture 32 - Second Order Partial Differential Equations - II
- Lecture 33 - Solution of One Dimensional Wave Equation
- Lecture 34 - Solution of HomogeneousNon Homogeneous Equations
- Lecture 35 - Fourier Integral Transform Method for Heat Equation
- Lecture 36 - Three Dimensional Laplace Equation
- Lecture 37 - Solution of Drichlet Problem
- Lecture 38 - Numerical Method for Laplace Poisson equation
- Lecture 39 - ADI Method for Laplace and Poisson Equation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Concept of Management and Evolution of Management Tho

Subject Co-ordinator - Prof. K.B. Akhilesh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - Concept of Management
- Lecture 2 - Lecture 2
- Lecture 3 - Management By Objectives
- Lecture 4 - Organizing & Organization
- Lecture 5 - Organizing - II
- Lecture 6 - Coordinating
- Lecture 7 - Communication - I
- Lecture 8 - Communication - II
- Lecture 9 - Leadership
- Lecture 10 - Controlling
- Lecture 11 - Motivation and Organization Culture
- Lecture 12 - Japanese Management
- Lecture 13 - Comparison of Japanese and American Management
- Lecture 14 - Managerial Functions in International Business
- Lecture 15 - Marketing Functions
- Lecture 16 - Management and Society
- Lecture 17 - Social Responsibility and Ethics - II
- Lecture 18 - Functions of Personnel Management
- Lecture 19 - Manpower Planning
- Lecture 20 - Selection - I
- Lecture 21 - Selection - II
- Lecture 22 - Performance Appraisal - I
- Lecture 23 - Performance Appraisal - II
- Lecture 24 - Training and Development - I
- Lecture 25 - Training and Development - II
- Lecture 26 - Job Design and Payment Systems - I
- Lecture 27 - Job Design and Compensation Systems
- Lecture 28 - Organizational Development - I
- Lecture 29 - Organizational Development - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Organization Theory - I
- Lecture 31 - Organization Theory - II
- Lecture 32 - Group Dynamics - I
- Lecture 33 - Group Dynamics - II
- Lecture 34 - Group Dynamics - III
- Lecture 35 - Conflict Management - I
- Lecture 36 - Conflict Management - II
- Lecture 37 - Managing Creativity and Innovation
- Lecture 38 - Creativity and Managing Innovation Process - II
- Lecture 39 - Stress Management - I
- Lecture 40 - Stress Management - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mining Engineering - Fundamentals of Environmental Pollution and Control

Subject Co-ordinator - Prof. J. Bhattacharyya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - State of the Environment
- Lecture 2 - Environmental Movement
- Lecture 3 - Definitions of Environmental Terms
- Lecture 4 - Water Pollutants
- Lecture 5 - Water Pollutants (Continued...)
- Lecture 6 - Water Pollution Modelling-Surface Water
- Lecture 7 - Water Pollution Modelling-Surface Water(Continued...)
- Lecture 8 - BOD Modelling - Part 1
- Lecture 9 - BOD Modelling - Part 2
- Lecture 10 - Oxygen Demanding Waste in Streams - Part 1
- Lecture 11 - Oxygen Demanding Waste in Streams - Part 2
- Lecture 12 - Ground Water and its Contamination
- Lecture 13 - Ground Water and its Contamination (Continued...)
- Lecture 14 - Ground Water and its Contamination (Continued...)
- Lecture 15 - Waste Water Treatment
- Lecture 16 - Wastewater Treatment (Continued...)
- Lecture 17 - Wastewater Treatment (Continued...)
- Lecture 18 - Chemical Treatment
- Lecture 19 - Wetland Treatment and Bio-Technology Applications
- Lecture 20 - Introduction to Soil
- Lecture 21 - Parameters to Soil for Vegetative Growth
- Lecture 22 - Parameters to Soil for Vegetative Growth (Continued...)
- Lecture 23 - Soil Acidity
- Lecture 24 - Soil Erosion
- Lecture 25 - Mechanical Soil Erosion Control
- Lecture 26 - Soil Erosion Prediction
- Lecture 27 - Universal Soil Loss Equation
- Lecture 28 - Air Pollutants
- Lecture 29 - Health Effects of Air Pollutants - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Health Effects of Air Pollutants - Part 2
- Lecture 31 - Air Pollutants and Meteorology - Part 1
- Lecture 32 - Air Pollutants and Meteorology - Part 2
- Lecture 33 - The Point-Source Gaussian Plume Model
- Lecture 34 - Ground Level Concentration
- Lecture 35 - Emission Control
- Lecture 36 - EIA, EMP & EA



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mining Engineering - NOC:Drilling and Blasting Technology

Subject Co-ordinator - Prof. Kaushik Dey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Drilling Technology  
Lecture 2 - Introduction to Blasting Technology  
Lecture 3 - Rock Formation  
Lecture 4 - Rock Formation (Continued...)  
Lecture 5 - Rock Formation (Continued...)  
Lecture 6 - Rock Properties and Testing - 1  
Lecture 7 - Rock Properties and Testing - 2  
Lecture 8 - Drilling Mechanism  
Lecture 9 - Drillability of Rock  
Lecture 10 - Drilling Machines - 1  
Lecture 11 - Drilling Machines - 2  
Lecture 12 - Drilling Pattern - 1  
Lecture 13 - Drilling Pattern - 2  
Lecture 14 - Special Drilling Methods - I  
Lecture 15 - Special Drilling Methods - II  
Lecture 16 - Explosives - 1  
Lecture 17 - Explosives - 2  
Lecture 18 - Explosives accessories - 1  
Lecture 19 - Explosives accessories - 2  
Lecture 20 - Explosives accessories - 3  
Lecture 21 - Explosives properties - 1  
Lecture 22 - Explosives properties - 2  
Lecture 23 - Explosives properties - 3  
Lecture 24 - Basics of blasting - 1  
Lecture 25 - Basics of blasting - 2  
Lecture 26 - Explosive storage and transportation - 1  
Lecture 27 - Explosive storage and transportation - 2  
Lecture 28 - Surface blasting - 1  
Lecture 29 - Surface blasting - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Surface blast design
- Lecture 31 - Underground blast design - 1
- Lecture 32 - Underground blast design - 2
- Lecture 33 - Blasting results - 1
- Lecture 34 - Blasting results - 2
- Lecture 35 - Blasting results - 3
- Lecture 36 - Blasting results - 4
- Lecture 37 - Problems - 1
- Lecture 38 - Problems - 2
- Lecture 39 - Problems - 3
- Lecture 40 - Problems - 4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Landscape Architecture and Site Planning - Basic Fundamentals

Subject Co-ordinator - Prof. Uttam Kumar Bannerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview

Lecture 2 - Introduction to Landscape

Lecture 3 - Categories and Materials in Landscape

Lecture 4 - Objective and Professional Scope of Landscape Design

Lecture 5 - Objective and Professional Scope of Landscape Design (Continued...)

Lecture 6 - Introduction to History of Landscape Design

Lecture 7 - Introduction to History of Landscape Design (Continued...)

Lecture 8 - Introduction to History of Landscape Design (Continued...)

Lecture 9 - Introduction to History of Landscape Design (Continued...)

Lecture 10 - Introduction to History of Landscape Design (Continued...)

Lecture 11 - Introduction to History of Landscape Design (Continued...)

Lecture 12 - Introduction to History of Landscape Design (Continued...)

Lecture 13

Lecture 14

Lecture 15

Lecture 16 - Behavioral Principle

Lecture 17 - Behavioral Principle (Continued...)

Lecture 18 - Behavioral Principle (Continued...)

Lecture 19 - Behavioral Principle (Continued...)

Lecture 20 - Behavioral Principle (Continued...)

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25

Lecture 26

Lecture 27

Lecture 28

Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30
- Lecture 31 - Landform Design
- Lecture 32 - Landform Design (Continued...)
- Lecture 33 - Landform Design (Continued...)
- Lecture 34 - Landform Design (Continued...)
- Lecture 35 - Landform Design (Continued...)
- Lecture 36 - Planting Design
- Lecture 37 - Planting Design (Continued...)
- Lecture 38 - Planting Design (Continued...)
- Lecture 39 - Planting Design (Continued...)
- Lecture 40 - Planting Design (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Architectural Conservation and Historic Preservation

Subject Co-ordinator - Prof. Sanghamitra Basu

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Introduction (Continued...)

Lecture 3 - Need, Debate and Purpose

Lecture 4 - Heritage Significance and Values

Lecture 5 - Heritage Significance and Values (Continued...)

Lecture 6 - Assessing Heritage Values and Significance

Lecture 7 - Heritage Values and Significance (Continued...)

Lecture 8 - Assessing Heritage Significance Concept and Process

Lecture 9 - Assessing Heritage Significance Concept and Process (Continued...)

Lecture 10 - Divergent Approaches for Managing and Rehabilitating Heritage Properties

Lecture 11 - Divergent Approaches for Managing and Rehabilitating Heritage Properties

Lecture 12 - Divergent Approaches for Managing and Rehabilitating Heritage Properties

Lecture 13 - Ethics of Conservation

Lecture 14 - Evolution of Heritage Conservation

Lecture 15 - Evolution of Heritage Conservation (Continued...)

Lecture 16 - World Heritage Sites - Part 1

Lecture 17 - World heritage Sites - Part 2

Lecture 18 - World Heritage Sites - Part 3

Lecture 19 - World Heritage Sites - Part 4

Lecture 20 - World Heritage Sites - Part 5

Lecture 21 - Causes of decay in cultural property - Part 1

Lecture 22 - Causes of decay - Part 2

Lecture 23 - Causes of decay - Part 3

Lecture 24 - Causes of decay - Part 4

Lecture 25 - Documenting heritage properties

Lecture 26 - Documenting Heritage Properties

Lecture 27 - Investigation and Conservation of Historic Structures

Lecture 28 - Investigation and Conservation of Historic Structures

Lecture 29 - Investigation and Conservation of Historic Structures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Conservation of Historic Structures
- Lecture 31 - Conservation of Historic Structures
- Lecture 32 - Historic Cities and Heritage Areas
- Lecture 33 - Historic Cities and Heritage Areas (Continued...)
- Lecture 34 - Historic Cities and Heritage Areas (Continued...)
- Lecture 35 - Historic Cities and Heritage Areas (Continued...)
- Lecture 36 - Historic Cities and Heritage Zones - India
- Lecture 37 - Historic Areas and Heritage Zones - India (Continued...)
- Lecture 38 - New Buildings in Historic Settings
- Lecture 39 - Heritage Impact Assessment in Historic Settings
- Lecture 40 - Adaptive Reuse
- Lecture 41 - Legislative and Organizational Policies for India
- Lecture 42 - Heritage Regulations and Role of Voluntary Organisations
- Lecture 43 - Heritage Conservation - Issues and Potentials

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Architectural Acoustics

Subject Co-ordinator - Prof. Sumana Gupta, Prof. Sankha Pratim Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Historical Overview
- Lecture 2 - Introduction to Acoustical Physics
- Lecture 3 - Frequency and Octave
- Lecture 4 - Sound Pressure and Intensity Levels
- Lecture 5 - Near and Far Field Propagation and Loudness
- Lecture 6 - Room Acoustics - I
- Lecture 7 - Room Acoustics - II
- Lecture 8 - Indoor Acoustics, Reflection and Absorption
- Lecture 9 - Concept of Reverberation
- Lecture 10 - Application of Reverberation Time
- Lecture 11 - Introduction to Acoustical Absorbers
- Lecture 12 - Panel Absorbers and Resonators
- Lecture 13 - Absorption in spaces of different volumes
- Lecture 14 - Acoustical Absorbers
- Lecture 15 - Reverberation time and Intelligibility
- Lecture 16 - Acoustical Criteria and Space Design
- Lecture 17 - Acoustical Criteria and Space Design (Continued...)
- Lecture 18 - Acoustical Criteria and Space Design (Continued...)
- Lecture 19 - Acoustical Criteria and Space Design (Continued...)
- Lecture 20 - Acoustical Criteria and Space Design (Continued...)
- Lecture 21 - Introduction to Auditorium Design
- Lecture 22 - Introduction to Auditorium Design (Continued...)
- Lecture 23 - Introduction to Auditorium Design (Continued...)
- Lecture 24 - Introduction to Auditorium Design Balcony and ceiling design
- Lecture 25 - Introduction to Auditorium Design
- Lecture 26 - Electro Acoustics - I
- Lecture 27 - Electro Acoustics - II
- Lecture 28 - Meteorological conditions and propagation of sound
- Lecture 29 - Topography and sound propagation Historical contexts

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Open air Theatre considerations
- Lecture 31 - Air Borne Sound Transmission
- Lecture 32 - Air Borne Sound Transmission (Continued...)
- Lecture 33 - Air Borne Sound Transmission (Continued...)
- Lecture 34 - Structure Borne Sound Transmission
- Lecture 35 - Structure Borne Sound Transmission (Continued...)
- Lecture 36 - Environmental Acoustics - I
- Lecture 37 - Environmental Acoustics - II
- Lecture 38 - Urban Noise Control
- Lecture 39 - Urban Noise Control
- Lecture 40 - Urban Noise Control



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Housing Policy and Planning

Subject Co-ordinator - Prof. Uttam Kumar Roy

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Housing
- Lecture 2 - Housing Classifications
- Lecture 3 - Housing Situation
- Lecture 4 - Policy and Public intervention - 1
- Lecture 5 - Policy and Public intervention - 2
- Lecture 6 - Urban Reform
- Lecture 7 - Housing Policy
- Lecture 8 - Legal and Institutional Framework for Housing
- Lecture 9 - Land for Housing - 1
- Lecture 10 - Land for Housing - 2
- Lecture 11 - Affordability and Housing Finance
- Lecture 12 - Technology Systems in Housing Delivery - 1
- Lecture 13 - Technology Systems in Housing Delivery - 2
- Lecture 14 - Housing for All Mission (PMAY) and Technology Sub-mission
- Lecture 15 - Summing up of Part-1 (Policy) and Introduction to Housing Planning
- Lecture 16 - Urban and Regional Planning - 1
- Lecture 17 - Urban and Regional Planning - 2
- Lecture 18 - Development Controls
- Lecture 19 - Housing Infrastructure and Services-1
- Lecture 20 - Housing Infrastructure and Services-2
- Lecture 21 - Housing Infrastructure and Services-3
- Lecture 22 - Housing Strategy for City-1
- Lecture 23 - Housing Strategy for City-2
- Lecture 24 - Housing Strategy for City-3
- Lecture 25 - Planning for Plotted Housing
- Lecture 26 - Planning for Group Housing
- Lecture 27 - Community Development in Housing
- Lecture 28 - Cooperative Housing
- Lecture 29 - Institutional and rental housing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Working Person's hostel and Serviced Apartments
- Lecture 31 - Informal Housing Typologies
- Lecture 32 - Approaches in Improving Slums and Squatters
- Lecture 33 - Urban Village and Unauthorized Construction
- Lecture 34 - Pavement Dwellers and Night Shelters
- Lecture 35 - Old Age Home
- Lecture 36 - Disaster Resistant Housing
- Lecture 37 - Housing and Real Estate Development
- Lecture 38 - Housing Management
- Lecture 39 - Housing
- Lecture 40 - Course Summary and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Visual Communication Design for Digital Media

Subject Co-ordinator - Prof. Saptarshi Kolay

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Visual Communication Design for Digital Media

Lecture 2 - Elements of Design - Part 1

Lecture 3 - Elements of Design - Part 2

Lecture 4 - Principles of Design - Part 1

Lecture 5 - Principles of Design - Part 2

Lecture 6 - Types of digital media technology - an overview of the field

Lecture 7 - Typography - 1

Lecture 8 - Typography - 2

Lecture 9 - Semiotics - 1

Lecture 10 - Semiotics - 2

Lecture 11 - Visual perception

Lecture 12 - Contemporary Visual Language - 1

Lecture 13 - Contemporary Visual Language - 2

Lecture 14 - Technology Advancements in Digital Media

Lecture 15 - Visual Design Methodology - 1\_Generic Design

Lecture 16 - Visual Design Methodology - 2\_Generic Design

Lecture 17 - Visual Design Methodology - 3\_Animation

Lecture 18 - Visual Design Methodology - 4\_web design

Lecture 19 - Visual Design Methodology - 5\_graphic-design

Lecture 20 - Case Studies of Visual Design on Digital Paradigm

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Culturally Responsive Built Environments

Subject Co-ordinator - Prof. Ram Sateesh Pasupuleti

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A Place
- Lecture 2 - Place and Identity
- Lecture 3 - Habitus - A Sense of Place
- Lecture 4 - A Home - Introduction to Vernacular Architecture
- Lecture 5 - The New Vernacular
- Lecture 6 - Understanding Vernacular - Towards Anthropology
- Lecture 7 - Understanding Rock Shelters
- Lecture 8 - The Ecological and Sacred Dimension
- Lecture 9 - Winter Landscape and Urbanism
- Lecture 10 - Winter Cities
- Lecture 11 - Power in Built Form
- Lecture 12 - Spatial Analysis
- Lecture 13 - The Forbidden Space
- Lecture 14 - Religious Architecture
- Lecture 15 - Understanding Construction Workers' Housing
- Lecture 16 - Culture and Disasters - Towards Method and Framework
- Lecture 17 - Understanding Post Tsunami Response (Tamilnadu)
- Lecture 18 - Cultural Heritage
- Lecture 19 - Understanding the Cultural Context in Disasters and Development
- Lecture 20 - Culture, Climate Change Adaptation And Disaster Risk Reduction
- Lecture 21 - Conservation
- Lecture 22 - Conservation
- Lecture 23 - Learning from Vernacular
- Lecture 24 - Protection of the World Cultural and Natural Heritage
- Lecture 25 - Intangible Cultural Heritage
- Lecture 26 - City HRIDAY Plan of Badami
- Lecture 27 - Cultural planning Approaches
- Lecture 28 - Urban Transformations in Doha
- Lecture 29 - How The Other Half Builds?

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - How To/Not To Relocate Slums?
- Lecture 31 - Stone- as a Vernacular Building material
- Lecture 32 - Timber as Vernacular Building material
- Lecture 33 - Timber Construction (A journey from Advanced to Vernacular)
- Lecture 34 - How To Study Vernacular Architecture?
- Lecture 35 - Architecture with out Architects
- Lecture 36 - Social Change in India (Sanskritisation)
- Lecture 37 - Social Change in India (Westernization)
- Lecture 38 - Social Change in India (Modernization- Globalization)
- Lecture 39 - Pluralism in Built Environment Education
- Lecture 40 - Summary and Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Contemporary Architecture and Design

Subject Co-ordinator - Prof. Saptarshi Kolay

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - World Architecture and Design History
- Lecture 3 - Industrial Revolution and Beginning of Modern Era
- Lecture 4 - Post Industrial Revolution
- Lecture 5 - Post Industrial Revolution
- Lecture 6 - Post Industrial Revolution
- Lecture 7 - Post Industrial Revolution
- Lecture 8 - Evolution and Timeline of Modern Architecture and Design
- Lecture 9 - Phases of Modern Architecture - Bauhaus
- Lecture 10 - Phases of Modern Architecture - De Stijl
- Lecture 11 - Phases of Modern Architecture - Chicago School
- Lecture 12 - Phases of Modern Architecture - Chicago and Prairie School
- Lecture 13 - Phases of Modern Architecture - Prairie School
- Lecture 14 - Phases of Modern Architecture - Organic - Part 1
- Lecture 15 - Phases of Modern Architecture - Organic - Part 2
- Lecture 16 - Phases of Modern Architecture - Art Deco - Part 1
- Lecture 17 - Phases of Modern Architecture - Art Deco - Part 2
- Lecture 18 - Phases of Modern Architecture - Internationalism - Part 1
- Lecture 19 - Phases of Modern Architecture - Internationalism - Part 2
- Lecture 20 - Phases of Modern Architecture - Expressionism
- Lecture 21 - Phases of Modern Architecture - Monolithic Style
- Lecture 22 - Phases of Modern Architecture - Tensile and Steel Structures - Part 1
- Lecture 23 - Phases of Modern Architecture - Tensile and Steel Structures - Part 2
- Lecture 24 - Phases of Modern Architecture - Brutalism
- Lecture 25 - Phases of Modern Architecture - Metabolism
- Lecture 26 - Phases of Modern Architecture - Brutalism and Metabolism in India
- Lecture 27 - Phases of Modern Art - Part 1
- Lecture 28 - Phases of Modern Art - Part 2
- Lecture 29 - Phases of Post Modern Architecture - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Phases of Post Modern Architecture - Part II
- Lecture 31 - Phases of Post Modern Architecture - Historicism
- Lecture 32 - Phases of Post Modern Architecture - High Tech
- Lecture 33 - Phases of Post Modern Architecture - Neo Modern
- Lecture 34 - Phases of Post Modern Architecture - Critical Regionalism
- Lecture 35 - Phases of Post Modern Architecture - Memphis Milano
- Lecture 36 - Phases of Post Modern Architecture - Deconstructivism - Part I
- Lecture 37 - Phases of Post Modern Architecture - Deconstructivism - Part II
- Lecture 38 - Phases of Post Modern Architecture - Pop Art
- Lecture 39 - Evolution of Typography in Contemporary Era
- Lecture 40 - Phases of Post Modern Architecture - Industrial Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Role of Craft and Technology in Interior-Architecture

Subject Co-ordinator - Prof. Smriti Saraswat

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Interior-Architecture

Lecture 2 - Craft

Lecture 3 - Interior-Architecture and Craft and Technology

Lecture 4 - Interior-Architecture and Craft and Technology

Lecture 5 - Summary and Discourse - I

Lecture 6 - Interior-Architecture

Lecture 7 - Traditional Knowledge Systems and the Ingenious skills of the communities

Lecture 8 - Interior-Architecture

Lecture 9 - Traditional Knowledge Systems and the Indigenous materials; tools and techniques

Lecture 10 - Summary and Discourse - II

Lecture 11 - Creative and Cultural Industries

Lecture 12 - Building Crafts

Lecture 13 - Building Crafts

Lecture 14 - Building Crafts; Craft and Technology and its Role in Creating/Enhancing Interior-Architecture

Lecture 15 - Summary and Discourse - III

Lecture 16 - Best Studies related to the Craft Sector

Lecture 17 - Case Studies from Gujarat

Lecture 18 - Case Studies from Rajasthan

Lecture 19 - Case Studies from Uttarakhand

Lecture 20 - Summary and Discourse - IV

Lecture 21 - Craft and Technology in Interior Architecture

Lecture 22 - Craft and Technology in Interior Architecture; Decoding Systems

Lecture 23 - Craft and Technology in Interior Architecture

Lecture 24 - Craft and Technology in Interior Architecture; Transformation through Time

Lecture 25 - Summary and Discourse - V

Lecture 26 - Overview of the Craft Sector Today

Lecture 27 - Craft Sector

Lecture 28 - Craft Sector

Lecture 29 - Craft Sector

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Summary and Discourse - VI
- Lecture 31 - Continuity and Revival
- Lecture 32 - Continuity and Revival
- Lecture 33 - Continuity and Revival
- Lecture 34 - Continuity and Revival
- Lecture 35 - Summary and Discourse - VII
- Lecture 36 - Interventions
- Lecture 37 - Interventions
- Lecture 38 - Interventions
- Lecture 39 - Interventions
- Lecture 40 - Summary and Discourse - VIII

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Basic Crop Production Practices (BCPP)

Subject Co-ordinator - Prof. J. R. Yadav, Dr. Vinod Kumar, Dr. Sharwan Kumar Shukla

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Irrigation and irrigation needs
- Lecture 3 - Source of Irrigation
- Lecture 4 - Importance of crops and classification
- Lecture 5 - Crop rotation principle
- Lecture 6 - Importance of vegetable and classification
- Lecture 7 - Paddy crop production
- Lecture 8 - Sorghum crop production
- Lecture 9 - Pearl millet crop production
- Lecture 10 - Maize crop production
- Lecture 11 - Pigeon pea crop production
- Lecture 12 - Green gram crop production
- Lecture 13 - Black gram crop production
- Lecture 14 - Cowpea crop production
- Lecture 15 - Groundnut crop production
- Lecture 16 - Sesame crop production
- Lecture 17 - Soybean crop production
- Lecture 18 - Sunflower crop production
- Lecture 19 - Mango crop production
- Lecture 20 - Guava crop production
- Lecture 21 - Banana crop production
- Lecture 22 - Papaya crop production
- Lecture 23 - Tomato crop production
- Lecture 24 - Brinjal crop production
- Lecture 25 - Chili crop production
- Lecture 26 - Okra crop production

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:GIS in Ag-Essentials and Applications (GIS)

Subject Co-ordinator - Dr. Venkataraman Balaji, Dr. R. Nagarajan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Our Agriculture Practices and Lessons
- Lecture 3 - Climate and Scale of Change
- Lecture 4 - Course Corrections
- Lecture 5 - Modified Agriculture - Precision Agriculture
- Lecture 6 - Modified Agriculture Practice - Climate Smart Agriculture
- Lecture 7 - Maps and Information in Practice
- Lecture 8 - Geographical Information System (GIS)
- Lecture 9 - Types of input
- Lecture 10 - Analysis - Map overlay
- Lecture 11 - Buffering and Perspective View
- Lecture 12 - GIS Type and Available GIS Softwares
- Lecture 13 - Village Cadastral Map and Property Card
- Lecture 14 - Cadastral Maps and Contents
- Lecture 15 - Creation of Cadastral Information Base
- Lecture 16 - Land Information System
- Lecture 17 - Creation of Village Boundary Based Basin Analysis
- Lecture 18 - Village Information System
- Lecture 19 - Needs and Weather Forecast
- Lecture 20 - Cloud Types and Rain Bearing Clouds
- Lecture 21 - Weather Satellites and Cloud Pattern Reading
- Lecture 22 - Rainfall and Supplementary Irrigation
- Lecture 23 - Synergistic Use
- Lecture 24 - Surface Rainfall - Run off Assessment and Model
- Lecture 25 - Soil and Water Assessment Tools (SWAT) Model
- Lecture 26 - Groundwater Availability
- Lecture 27 - Groundwater Potential Mapping
- Lecture 28 - Water Storage and Water Availability and Release
- Lecture 29 - Growth of Crop Area in Command Area and Impact Climate Change

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Impact of Climate on Agriculture
- Lecture 31 - Crop Water Requirement and Distribution Loss
- Lecture 32 - Village Agriculture and Other Water Demand and Supply Source
- Lecture 33 - Water Security Assessment
- Lecture 34 - Land Degradation
- Lecture 35 - Water Logging
- Lecture 36 - Water Balance Under Different Rainfall
- Lecture 37 - Drought and Characteristics
- Lecture 38 - Drought Vulnerability and Risk Assessment
- Lecture 39 - Monitoring and Warning
- Lecture 40 - Drought Monitoring
- Lecture 41 - Drought Risk and Vulnerability Assessment
- Lecture 42 - GIS in Sustainable Agriculture
- Lecture 43 - Assessment of Existing Water Storage Structures and Rehabilitation
- Lecture 44 - Sustainable Development and Agriculture
- Lecture 45 - Climate Change and Drought
- Lecture 46 - GIS and Drought Management

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Integrated Pest Management (IPM)

Subject Co-ordinator - Prof. M. Bheemanna, Prof. B.V. Patil, Prof. Prabhuraj A

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Insect, abundance and diversity
- Lecture 3 - Insect classification based on economic importance
- Lecture 4 - Pest, causes for outbreaks and categories
- Lecture 5 - Pest, causes for outbreaks and categories (Continued...)
- Lecture 6 - Pest surveillance and methods of sampling
- Lecture 7 - Principles of Pest Management and History
- Lecture 8 - IPM, Definition and Concepts
- Lecture 9 - Ecological Methods of Pest Management - Legal and Cultural
- Lecture 10 - Ecological Methods of Pest Management - Cultural (Continued...)
- Lecture 11 - Ecological Methods of Pest Management - Cultural (Continued...)
- Lecture 12 - Ecological Methods of Pest Management - Physical
- Lecture 13 - Ecological Methods of Pest Management - Mechanical
- Lecture 14 - Host Plant Resistance
- Lecture 15 - Host Plant Resistance (Continued...)
- Lecture 16 - Biological Control - Predators
- Lecture 17 - Biological Control - Parasitoids
- Lecture 18 - Biological Control - Microbes
- Lecture 19 - Biological Control - Microbes
- Lecture 20 - Pest management by modifying insect behaviour
- Lecture 21 - Use of sex pheromones in pest management
- Lecture 22 - Use of attractants and repellants in pest management
- Lecture 23 - Pest management through radiation technology - Principles
- Lecture 24 - Sterile Insect Technique - case studies
- Lecture 25 - Pest management through botanicals
- Lecture 26 - Pest management through botanicals (Continued...)
- Lecture 27 - Chemical Control - History and classification
- Lecture 28 - Mode of Action of different insecticide groups
- Lecture 29 - Chemical Control - Considerations for Chemicals Integration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Insecticide Resistance and Management
- Lecture 31 - Insecticide as component of IPM
- Lecture 32 - Biotechnological Approaches in IPM
- Lecture 33 - Agro-ecosystem Analysis
- Lecture 34 - IPM in Paddy
- Lecture 35 - IPM in Paddy (Continued...)
- Lecture 36 - IPM in Pigeon pea
- Lecture 37 - IPM in Pigeon pea (Continued...)
- Lecture 38 - IPM in Groundnut
- Lecture 39 - IPM in Mustard and Soyabean
- Lecture 40 - IPM in Cotton
- Lecture 41 - IPM in Cotton (Continued...)
- Lecture 42 - IPM in Sugarcane
- Lecture 43 - IPM in Sugarcane (Continued...)
- Lecture 44 - IPM in Tomato
- Lecture 45 - IPM in Cabbage
- Lecture 46 - IPM in Mango
- Lecture 47 - IPM in Grapes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Nutrition, Therapeutics and Health (NM)

Subject Co-ordinator - Dr. V. Vijaya Lakshmi (Instructor Incharge)

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Relationship between Food, Nutrition and Health 1  
Lecture 3 - Relationship between Food, Nutrition and Health 2  
Lecture 4 - Digestion, absorption and utilization of Nutrients 1  
Lecture 5 - Digestion, absorption and utilization of Nutrients 2  
Lecture 6 - Recommended dietary allowances  
Lecture 7 - Carbohydrate  
Lecture 8 - Fiber  
Lecture 9 - Protein  
Lecture 10 - Protein - health significance  
Lecture 11 - Fat  
Lecture 12 - Energy 1  
Lecture 13 - Energy 2  
Lecture 14 - Energy 3  
Lecture 15 - Fat Soluble Vitamins 1  
Lecture 16 - Fat Soluble Vitamins 2  
Lecture 17 - Fat Soluble Vitamins 3  
Lecture 18 - Water Soluble Vitamins 1  
Lecture 19 - Water Soluble Vitamins 2  
Lecture 20 - Water soluble Vitamins 3  
Lecture 21 - Water soluble Vitamins 4  
Lecture 22 - Major minerals 1  
Lecture 23 - Major minerals 2  
Lecture 24 - Trace minerals 1  
Lecture 25 - Trace minerals 2  
Lecture 26 - Water  
Lecture 27 - Nutritional Disorders  
Lecture 28 - Balanced diet and food groups  
Lecture 29 - Food guide for selecting adequate diet, practical aspects of food selection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Meal planning
- Lecture 31 - Other aspects affecting food selection
- Lecture 32 - Food sanitation and hygiene
- Lecture 33 - Water Purification
- Lecture 34 - Therapeutic adaptation of normal diet
- Lecture 35 - Principles of therapeutic diet
- Lecture 36 - Diet during fevers
- Lecture 37 - Diet in lung disease
- Lecture 38 - Diet in GI disorders ^ constipation
- Lecture 39 - Diet during diarrhoea
- Lecture 40 - Diet in disorders of liver
- Lecture 41 - Diseases of gall bladder
- Lecture 42 - Diet in Diabetes
- Lecture 43 - Diseases of Heart and blood vessels
- Lecture 44 - Diet for myocardial infarction
- Lecture 45 - Diet in kidney disorders
- Lecture 46 - Diet in renal failure
- Lecture 47 - Diet in cancer
- Lecture 48 - Diet in metabolic disorders
- Lecture 49 - Diet in stress, burns and surgery



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Weather Forecast in Agriculture and Agro-advisory (WF)

Subject Co-ordinator - Dr. R. Nagarajan, Co Faculty, Dr.T.N.Balasubramanian (Rtd.), Instructor Incharge

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Basic aspects of Atmosphere, Climate, Weather

Lecture 3 - Basic aspects of Rainfall and their application in crop production

Lecture 4 - Basic aspects of Temperature and their application in crop production

Lecture 5 - Basic aspects of Relative humidity, Cloud cover and their application in crop production

Lecture 6 - Basic aspects of wind, wind direction and their application in crop production

Lecture 7 - Three weather codes and crop production

Lecture 8 - Crop production risks and their management

Lecture 9 - Weather sensitive crops, stages and farm operations

Lecture 10 - Crop-weather interactions and definition

Lecture 11 - Crop-Weather Interactions

Lecture 12 - Crop-Weather Interactions

Lecture 13 - Crop-Weather Interactions

Lecture 14 - Crop-Weather Interactions

Lecture 15 - Crop-Weather Interactions

Lecture 16 - Genesis of weather forecast in India and Abroad

Lecture 17 - Types of weather forecast and details

Lecture 18 - Types of weather forecast and details (Continued...)

Lecture 19 - Simple methods of verification of weather forecast with real event

Lecture 20 - Traditional knowledges on weather forecast and their validity

Lecture 21 - Weather thumb rules and their validity

Lecture 22 - Development and component of agro advisory for weather forecast

Lecture 23 - Development and component of agro advisory for weather forecast (Continued...)

Lecture 24 - Model agro advisories for selected five days weather forecast

Lecture 25 - Mass communication mode of agro advisories and their effectiveness

Lecture 26 - Discussion on weather forecast and agro advisory from different website

Lecture 27 - Role of climate manager on farm management decision based on weather forecast at village level a

Lecture 28 - Development of selected weather window for issuing agro advisory - case study from Tamil Nadu

Lecture 29 - Model of agro advisory for 54 selected weather window of Tamil Nadu for rice

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Response farming- a type of farm planning being practiced in Australia considering seasonal climate
- Lecture 31 - Case study in India on the adoption of weather based crop production - Crop management
- Lecture 32 - Case study in India on the adoption of weather based crop production - Pest and disease management
- Lecture 33 - Case study in India on the adoption of weather based animal production
- Lecture 34 - Cost benefit analysis for the case study done on crop management
- Lecture 35 - Cost benefit analysis for the case study done on animal management
- Lecture 36 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:ICT Basics

Subject Co-ordinator - Prof. T.V. Prabhakar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Highlights Week 0 and 1  
Lecture 3 - What is ICT?  
Lecture 4 - Architecture of a Computer  
Lecture 5 - Architecture of a Phone  
Lecture 6 - What is the Internet?  
Lecture 7 - What is WWW?  
Lecture 8 - Highlights Week 2  
Lecture 9 - Phones, Smart Phones, Phablets, Tablets  
Lecture 10 - Introduction to Android  
Lecture 11 - Network Architectures - Part-1 (Introduction to Computer Networks)  
Lecture 12 - Network Architectures - Part-2 (Overview of Network Architecture)  
Lecture 13 - Network Architectures - Part-3 (Architecture of Internet)  
Lecture 14 - Mobile Wireless Communications - Introduction (Module-1)  
Lecture 15 - Mobile Wireless Communication (Module-2)  
Lecture 16 - Highlights Week 3  
Lecture 17 - Adaptive and Responsive Websites  
Lecture 18 - Data management  
Lecture 19 - Knowledge Representation  
Lecture 20 - Knowledge Representation Techniques  
Lecture 21 - Expert Systems  
Lecture 22 - Highlights Week - 4  
Lecture 23 - Speech Recognition  
Lecture 24 - Speech Synthesis  
Lecture 25 - Identity Management - Part 1  
Lecture 26 - Identity Management - Part 2  
Lecture 27 - Location Recognition - Part 1  
Lecture 28 - Location Recognition - Part 2  
Lecture 29 - Parameter Sensing

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- Lecture 30 - Highlights Week-5
- Lecture 31 - Social Networking - Part 1
- Lecture 32 - Social Networking - Part 2
- Lecture 33 - Blogs
- Lecture 34 - Facebook
- Lecture 35 - Twitter
- Lecture 36 - 3G WCDMA (Module- 3)
- Lecture 37 - 4G Mobile Wireless WiMAX (Module-4)
- Lecture 38 - Advanced Wireless Technologies (Module-5)
- Lecture 39 - LTE, WLAN, Bluetooth and Future
- Lecture 40 - Highlights Week-6
- Lecture 41 - Introduction to Cloud Computing
- Lecture 42 - Introduction to Cloud Services
- Lecture 43 - Cloud Service Providers
- Lecture 44 - GIS Application in Agriculture - Part 1
- Lecture 45 - GIS Application in Agriculture - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Momentum Transfer in Process Engineering

Subject Co-ordinator - Prof. Tridib Kumar Goswami

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11 - Application of Navier Stokeâ s equation for finding out viscosity - Part 2

Lecture 12 - Application of Navier Stokeâ s equation for finding out viscosity - Part 3

Lecture 13 - Flow through pipes

Lecture 14 - Hagen-poiseuille equation from Navier stokes equation

Lecture 15 - Fanning friction factor

Lecture 16 - Moodyâ s chart

Lecture 17 - Laminar and turbulent flow in a pipe

Lecture 18 - Flow through flat and parallel plates

Lecture 19 - Flow of film or film flow

Lecture 20 - Problems and solution of falling film

Lecture 21 - Flow through annulus - Part 1

Lecture 22 - Flow through annulus - Part 2

Lecture 23 - Stokeâ s law

Lecture 24 - Flow through flat plates or slits

Lecture 25 - Problems and solution for flow through flat plates or slits

Lecture 26 - Compressible fluid flow

Lecture 27 - Flow through nozzle - I

Lecture 28 - Flow through nozzle - II

Lecture 29 - Flow through nozzle - problems and solutions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Nozzle flow- problems and solutions
- Lecture 31 - Sonic velocity
- Lecture 32 - Sonic velocity - Mach number
- Lecture 33 - Variable fluid flow
- Lecture 34 - Variable fluid flow - problems and solutions
- Lecture 35 - Variable fluid flow - problems and solutions (Continued...)
- Lecture 36 - Pneumatic conveying
- Lecture 37 - Problem on Pneumatic conveying - Part 1
- Lecture 38 - Problem on Pneumatic conveying - Part 2
- Lecture 39 - Non Newtonian fluid flow - Part 1
- Lecture 40 - Non Newtonian fluid flow - Part 2
- Lecture 41 - Velocity profile for Non Newtonian fluid
- Lecture 42 - Average velocity for Non Newtonian fluid
- Lecture 43 - Problems and solution of Non Newtonian fluid - Part 1
- Lecture 44 - Problems and solution of Non Newtonian fluid - Part 2
- Lecture 45 - Flow of Non Newtonian fluid through slit
- Lecture 46 - Generalized coefficient of Reynolds number
- Lecture 47 - Flow through packed beds
- Lecture 48 - Ergun's equation- derivation - Part 1
- Lecture 49 - Ergun's equation- derivation - Part 2
- Lecture 50 - Solving problems on Ergun's equation
- Lecture 51 - Solving problems on Ergun's equation
- Lecture 52 - Fluidization
- Lecture 53 - Fluidized bed flow
- Lecture 54 - Problem of Fluidized bed condition - Part 1
- Lecture 55 - Problem of Fluidized bed condition - Part 2
- Lecture 56 - Problem and solution
- Lecture 57 - Problem and solution
- Lecture 58 - Problem and solution
- Lecture 59 - Problem and solution
- Lecture 60 - Problem and solution with comprehension of course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Farm Machinery

Subject Co-ordinator - Prof. VK Tewari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Importance of Farm Machines in the Contest of Enhance Production, Multiple Cropping, Labour Scarce
- Lecture 2 - Ploughing and first opening of the soil, the design and component details
- Lecture 3 - Tractor, implement and soil force consideration for tillage implement design
- Lecture 4 - Tractor, implement and soil force consideration for tillage implement design
- Lecture 5 - Mechanics of rotavator or rotary tillers
- Lecture 6 - Design of a tractor PTO operated rotavator
- Lecture 7 - Tractor implement hitching systems
- Lecture 8 - Mechanics of tractor implement hitch system and traction prediction models
- Lecture 9 - Laboratory class on traction and tire testing
- Lecture 10 - Combination tillage implements for efficient land preparation
- Lecture 11 - LASER guided land leveller
- Lecture 12 - Introduction of seeding operation
- Lecture 13 - Types of seed metering devices and their operation
- Lecture 14 - Types of fertilizer metering, furrow opening and soil covering devices
- Lecture 15 - Equipment for seeding and planting
- Lecture 16 - Equipment for precision planting
- Lecture 17 - Equipment for Paddy Transplanting
- Lecture 18 - Microcontroller based uniform seed rate application system
- Lecture 19 - GPS based automatic Variable rate fertilizer applicator
- Lecture 20 - Embedded GPS integrated Variable Rate Fertilizer Applicator
- Lecture 21 - Design of a seeding equipment - PART 1
- Lecture 22 - Design of a seeding equipment - PART 2
- Lecture 23 - Design of a seeding equipment - PART 3
- Lecture 24 - Design a tractor drawn seed drill for a 40 hp tractor - I
- Lecture 25 - Design a tractor drawn seed drill for a 40 hp tractor - II
- Lecture 26 - Testing of tractor operated seeding equipment
- Lecture 27
- Lecture 28
- Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30
- Lecture 31
- Lecture 32 - Farm machines for interculture operation
- Lecture 33 - Performance of weeding blades of a push-pull weeder
- Lecture 34 - Advanced level machinery for inter and intra row weeding
- Lecture 35 - Tractor mounted contact type microcontroller based improved variable rate herbicide applicator
- Lecture 36 - Design of manually operated weeding equipment
- Lecture 37 - Plant protection equipment/machinery
- Lecture 38 - Selection and design of plant protection equipment/machinery
- Lecture 39 - Manually operated knapsack-cum-boom sprayer
- Lecture 40 - Performance evaluation of sprayer
- Lecture 41 - Testing and certification of spraying equipment
- Lecture 42 - Problems based on the design and selection of spraying equipment - I
- Lecture 43 - Problems based on the design and selection of spraying equipment - II
- Lecture 44 - Advanced level spraying equipment
- Lecture 45 - Advanced level spraying equipment
- Lecture 46 - Harvesting equipment
- Lecture 47 - Machines for harvesting cereal crops, root and fruit crops
- Lecture 48 - Combine Harvester
- Lecture 49 - Advanced technology approach for cotton harvesting
- Lecture 50 - Threshing operation and equipment
- Lecture 51 - Design of threshing equipment
- Lecture 52 - Performance evaluation and testing of thresher
- Lecture 53 - Conservation Agriculture
- Lecture 54 - Materials for construction of farm machinery
- Lecture 55 - Machinery for Land Drainage, Land Reclamation and Estate Maintenance Part - I
- Lecture 56 - Machinery for Land Drainage, Land Reclamation and Estate Maintenance Part - II
- Lecture 57 - Machinery for Land Drainage, Land Reclamation and Estate Maintenance Part - III
- Lecture 58 - Machinery Selection and Management - Part 1
- Lecture 59 - Machinery Selection and Management - Part 2
- Lecture 60 - Epilogue



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Irrigation and Drainage

Subject Co-ordinator - Prof. Damodhara Rao Mailapallli

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6 - Field water balance  
Lecture 7 - Evapotranspiration  
Lecture 8 - Crop water requirement  
Lecture 9 - Irrigation Scheduling  
Lecture 10 - Introduction  
Lecture 11 - Irrigation Water Conveyance  
Lecture 12 - Irrigation channel design  
Lecture 13 - Measurement of Irrigation Water  
Lecture 14 - Measurement of Irrigation Water  
Lecture 15 - Tutorial  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26 - Irrigation Wells  
Lecture 27 - Aquifer Properties  
Lecture 28 - Well Hydraulics - 1  
Lecture 29 - Well Hydraulics - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial
- Lecture 31 - Introduction
- Lecture 32 - Centrifugal Pump
- Lecture 33 - Centrifugal Pumps
- Lecture 34 - Pump Characteristic Curves
- Lecture 35 - Tutorial
- Lecture 36 - Management of salt affected soils
- Lecture 37 - Management of salt affected soils
- Lecture 38 - Agricultural Drainage
- Lecture 39 - Agricultural Drainage
- Lecture 40 - Tutorial
- Lecture 41
- Lecture 42
- Lecture 43
- Lecture 44
- Lecture 45
- Lecture 46 - Subsurface Drainage Design - 1
- Lecture 47 - Subsurface Drainage Design - 2
- Lecture 48 - Subsurface Drainage Design - 3
- Lecture 49 - Subsurface Drainage Design - 4
- Lecture 50 - Tutorial
- Lecture 51 - Surface drainage system design - 1
- Lecture 52 - Surface drainage system design - 2
- Lecture 53 - Non-conventional drainage
- Lecture 54 - Economics of drainage project
- Lecture 55 - Tutorial
- Lecture 56 - Case study of drainage system
- Lecture 57 - Drainage Model
- Lecture 58 - Irrigation Efficiency
- Lecture 59 - Irrigation Economics
- Lecture 60 - Irrigation model

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Fundamentals of Food Process Engineering

Subject Co-ordinator - Prof. Jayeeta Mitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Importance Of Rheology In Food
- Lecture 2 - Food Rheology
- Lecture 3 - Food Rheology
- Lecture 4 - Food Rheology
- Lecture 5 - Food Rheology
- Lecture 6 - Measurements of Rheological Properties
- Lecture 7 - Measurements of Rheological Properties
- Lecture 8 - Rheological Properties of Viscoelastic Food
- Lecture 9 - Rheological Properties of Viscoelastic Food
- Lecture 10 - Rheological Properties of Viscoelastic Food
- Lecture 11 - Thermal Processing And Microbial Death Kinetics
- Lecture 12 - Thermal processing and microbial death kinetics
- Lecture 13 - Thermal processing and microbial death kinetics (Continued...)
- Lecture 14 - Thermal processing and microbial death kinetics (Continued...)
- Lecture 15 - Thermal processing and microbial death kinetics (Continued...)
- Lecture 16 - Evaporation and concentration
- Lecture 17 - Evaporation and concentration
- Lecture 18 - Evaporation and concentration
- Lecture 19 - Evaporation and concentration
- Lecture 20 - Evaporation and concentration
- Lecture 21 - Heat Exchangers
- Lecture 22 - Heat Exchangers
- Lecture 23 - Heat Exchangers
- Lecture 24 - Heat Exchangers
- Lecture 25 - Heat Exchangers
- Lecture 26 - Drying Technology
- Lecture 27 - Drying Technology
- Lecture 28 - Drying Technology
- Lecture 29 - Drying Technology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Drying Technology
- Lecture 31 - Freezing and Freeze Drying
- Lecture 32 - Freezing and Freeze Drying
- Lecture 33 - Freezing and Freeze Drying
- Lecture 34 - Freezing and Freeze Drying
- Lecture 35 - Freezing and Freeze Drying
- Lecture 36 - Size Reduction
- Lecture 37 - Size Reduction (Continued...)
- Lecture 38 - Size Reduction (Continued...)
- Lecture 39 - Size Reduction (Continued...)
- Lecture 40 - Size Reduction (Continued...)
- Lecture 41 - Mechanical Separation Techniques
- Lecture 42 - Mechanical Separation Techniques
- Lecture 43 - Mechanical Separation Techniques
- Lecture 44 - Mechanical Separation Techniques
- Lecture 45 - Mechanical Separation Techniques
- Lecture 46 - Mixing and agitation
- Lecture 47 - Mixing and agitation (Continued...)
- Lecture 48 - Mixing and agitation (Continued...)
- Lecture 49 - Mixing and agitation (Continued...)
- Lecture 50 - Mixing and agitation (Continued...)
- Lecture 51 - Leaching and Extraction
- Lecture 52 - Leaching and Extraction (Continued...)
- Lecture 53 - Leaching and Extraction (Continued...)
- Lecture 54 - Leaching and Extraction (Continued...)
- Lecture 55 - Leaching and Extraction (Continued...)
- Lecture 56 - Non Thermal Processing
- Lecture 57 - Non Thermal Processing (Continued...)
- Lecture 58 - Non Thermal Processing (Continued...)
- Lecture 59 - Non Thermal Processing (Continued...)
- Lecture 60 - Non Thermal Processing (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Soil and Water Conservation Engineering

Subject Co-ordinator - Prof. Rajendra Singh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Soil erosion causes and types
- Lecture 3 - Factors affecting soil erosion and effects of soil erosion
- Lecture 4 - Soil erosion - Mechanics
- Lecture 5 - Water erosion control measures
- Lecture 6 - Soil loss estimation
- Lecture 7 - Erosivity and Erodibility
- Lecture 8 - Modification in Universal soil loss equation - Part I
- Lecture 9 - Modification in Universal soil loss equation - Part II
- Lecture 10 - Soil loss measurement
- Lecture 11 - Bunds - Introduction
- Lecture 12 - Contour Bunds
- Lecture 13 - Problems on Contour Bunds
- Lecture 14 - Graded Bunds
- Lecture 15 - Problems on Graded Bunds
- Lecture 16 - Terrace - Introduction
- Lecture 17 - Bench Terraces
- Lecture 18 - Problems on Bench Terraces
- Lecture 19 - Broad-base Terraces
- Lecture 20 - Problems on Broad-base Terraces
- Lecture 21 - Grassed Waterways
- Lecture 22 - Problems on Grassed Waterways
- Lecture 23 - Parabolic Grassed Waterways
- Lecture 24 - GATE Questions on Various Topics Covered
- Lecture 25 - Introduction-Gully Control Measures
- Lecture 26 - Gully Control Measures (Permanent Structures)
- Lecture 27 - Design Considerations- Permanent Gully Control Structures
- Lecture 28 - Basics of Open Channel Hydraulics - 1
- Lecture 29 - Basics of Open Channel Hydraulics - 2

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hydraulic Design of Drop Spillway
- Lecture 31 - Hydraulic Design of drop Spillway in different Flow Conditions
- Lecture 32 - Hydraulic Design Components
- Lecture 33 - Structural Design of Drop Spillway - 1
- Lecture 34 - Structural Design of Drop Spillway - 2
- Lecture 35 - Structural Design of Drop Spillway - 3
- Lecture 36 - Structural Design of Drop Spillway - 4
- Lecture 37 - GATE Question
- Lecture 38 - Drop Inlet Spillway
- Lecture 39 - Drop Inlet Spillway (Continued...)
- Lecture 40 - Introduction-Drop Inlet Spillway
- Lecture 41 - Drop Inlet Spillway Design - I
- Lecture 42 - Numerical Problems
- Lecture 43 - Ogee Spillway
- Lecture 44 - Chute Spillway
- Lecture 45 - Chute Spillway Design - I
- Lecture 46 - Chute Spillway Design - II
- Lecture 47 - Energy Dissipation
- Lecture 48 - Wind Erosion and Control Basics
- Lecture 49 - Design of Wind Breaks
- Lecture 50 - Design of Shelterbelts
- Lecture 51 - Formation of Sand Dunes
- Lecture 52 - Stabilization of Sand Dunes
- Lecture 53 - Land Capability Classes
- Lecture 54 - Improving Land Capability
- Lecture 55 - Sediment and Its Transportation
- Lecture 56 - Sediment Sampling

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Dairy and Food Process and Products Technology

Subject Co-ordinator - Prof. Tridib Kumar Goswami

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Preamble of the Subject
- Lecture 2 - What is Food and Nutrients
- Lecture 3 - Nutritional Value of the Nutrients
- Lecture 4 - Best Way of Storage of Food Materials
- Lecture 5 - Preservation Techniques
- Lecture 6 - Temperature Quotient and Its Impact
- Lecture 7 - Food Additives
- Lecture 8 - Quality of Food
- Lecture 9 - Quality of Food (Continued...)
- Lecture 10 - Emerging Technology
- Lecture 11 - Emerging Technology (Continued...)
- Lecture 12 - Food Laws - Why?
- Lecture 13 - Food Laws of India
- Lecture 14 - Standards in India
- Lecture 15 - Hygiene and Other Controls in India
- Lecture 16 - Physico-Chemical Properties of Milk
- Lecture 17 - Milk - What is it
- Lecture 18 - Milk - How it looks?
- Lecture 19 - Milk - Constituents
- Lecture 20 - Constituents of Milk
- Lecture 21 - Milk Fat
- Lecture 22 - Milk Fat (Continued...)
- Lecture 23 - Milk Fat (Continued...)
- Lecture 24 - Milk Fat (Continued...)
- Lecture 25 - Protein
- Lecture 26 - Protein (Continued...)
- Lecture 27 - Amino Acids
- Lecture 28 - Amino Acids (Continued...)
- Lecture 29 - Milk Protein

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Casein Micelle
- Lecture 31 - Whey Protein
- Lecture 32 - Whey Protein (Continued...)
- Lecture 33 - Lactoferrin
- Lecture 34 - Carbohydrates in Milk
- Lecture 35 - Small Constituents of Milk
- Lecture 36 - Enzymes in Milk
- Lecture 37 - Chemical and Microbial Spoilage of Milk and Milk Products
- Lecture 38 - Extrinsic Factors for Microbial Growth
- Lecture 39 - Natural or Other Type of Spoilage
- Lecture 40 - Packaging
- Lecture 41 - Milk Pasteurization
- Lecture 42 - Thermal Death Time
- Lecture 43 - Pasteurization Effectiveness
- Lecture 44 - Milk Pasteurization and Homogenization
- Lecture 45 - Milk Pasteurization and Homogenization (Continued...)
- Lecture 46 - Milk Homogenization
- Lecture 47 - Milk Centrifugation
- Lecture 48 - Types of Available Milk
- Lecture 49 - Types of Available Milk in the Market
- Lecture 50 - New Technologies in Dairy Industries
- Lecture 51 - Cheese
- Lecture 52 - Cheddar Cheese
- Lecture 53 - Ice Cream
- Lecture 54 - Process of Ice Cream Preparation
- Lecture 55 - Ice Cream Lilies
- Lecture 56 - Over Run and Calculation for Preparing Ice Cream Mix
- Lecture 57 - Transportation of Ice Cream vis a vis Frozen Foods
- Lecture 58 - Packaging of Food Materials
- Lecture 59 - Modified Atmosphere Packaging
- Lecture 60 - Flow Chart for Manufacturing Some Dairy and Food Products



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Organic Farming for Sustainable Agricultural Production

Subject Co-ordinator - Prof. Dilip Kumar Swain

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Organic Farming
- Lecture 2 - Organic Farming
- Lecture 3 - Organic Farming and its Components
- Lecture 4 - Organic Farming Concepts and Principles
- Lecture 5 - Organic Farming Concepts and Principles (Continued...)
- Lecture 6 - SWOT Analysis of Organic Farming
- Lecture 7 - Sustainable Agriculture
- Lecture 8 - Key Indicators of Sustainable Agriculture
- Lecture 9 - Organic Farming and Climate Change
- Lecture 10 - Organic Farming and Climate Change (Continued...)
- Lecture 11 - Principles of Compost Production
- Lecture 12 - Vermicompost Production Technology
- Lecture 13 - Vermicompost Production Technology (Continued...)
- Lecture 14 - Vermicompost Production Technology (Continued...)
- Lecture 15 - Enriched Vermicompost Production Technology
- Lecture 16 - Vermicompost Quality and Marketing
- Lecture 17 - Introduction to Pest and Disease Management
- Lecture 18 - Pest and Disease Management in Organic Farming
- Lecture 19 - Level C Pest and Disease Management
- Lecture 20 - Level C Pest and Disease Management (Continued...)
- Lecture 21 - Introduction to Organic Crop Management
- Lecture 22 - Introduction to Organic Crop Management (Continued...)
- Lecture 23 - Organic Vegetable Crop Management
- Lecture 24 - Organic Vegetable Crop Management (Cereals)
- Lecture 25 - Organic Vegetable Crop Management (Cereals) (Continued...)
- Lecture 26 - Organic Field Crop Management (Pulse and Oilseed Crop)
- Lecture 27 - Organic Plantation Crop Management
- Lecture 28 - Organic Meat Production
- Lecture 29 - Introduction on transition to organic crop production

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Crop planning and rotation design in organic system
- Lecture 31 - Crop planning and rotation design in organic system (Continued...)
- Lecture 32 - Integrated Farming System and Urban Agriculture
- Lecture 33 - Quality of Organic Food
- Lecture 34 - Natural Sources of Antioxidants for Health Defense
- Lecture 35 - Antioxidant Capacity of fruits and vegetables
- Lecture 36 - Organic Food and Human Health
- Lecture 37 - Organic Standard
- Lecture 38 - Organic Certification Process
- Lecture 39 - Operational Structure of Organic Certification
- Lecture 40 - Marketing of Organic Products

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Neuroscience of Human Movement

Subject Co-ordinator - Prof. Varadhan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 0 - Neuroscience of Human Movement  
Lecture 1 - Membrane Physiology - Part 1  
Lecture 2 - Membrane Physiology - Part 2  
Lecture 3 - Nernst Equation  
Lecture 4 - Goldman Equation  
Lecture 5 - Action Potential - Part 1  
Lecture 6 - Action Potential - Part 2  
Lecture 7 - Action Potential - Part 3  
Lecture 8 - Action Potential - Part 4  
Lecture 9 - Action Potential - Part 5  
Lecture 10 - Review of Action Potential and Neurotransmitters  
Lecture 11 - Neuromuscular Junction  
Lecture 12 - Disorders of Neuromuscular Junction  
Lecture 13 - Skeletal Muscles - Part 1  
Lecture 14 - Skeletal Muscles - Part 2  
Lecture 15 - Skeletal Muscles - Part 3  
Lecture 16 - Skeletal Muscles - Part 4  
Lecture 17 - Muscle force production  
Lecture 18 - Motor Units - Part 1  
Lecture 19 - Motor Units - Part 2  
Lecture 20 - Motor Units - PIC and EMG  
Lecture 21 - Receptors - Part 1  
Lecture 22 - Receptors - Part 2  
Lecture 23 - Spine and Spinal Cord  
Lecture 24 - Excitation and Inhibition within Spinal Cord - Part 1  
Lecture 25 - Excitation and Inhibition within Spinal Cord - Part 2  
Lecture 26 - Monosynaptic Reflexes - Part 1  
Lecture 27 - Monosynaptic Reflexes - Part 2  
Lecture 28 - Monosynaptic Reflexes - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Oligosynaptic and Polysynaptic Reflexes - Part 1
- Lecture 30 - Oligosynaptic and Polysynaptic Reflexes - Part 2
- Lecture 31 - Pre-Programmed Reactions - Part 1
- Lecture 32 - Pre-Programmed Reactions - Part 2
- Lecture 33 - Spinal Cord Injuries and Central Pattern Generators
- Lecture 34 - Animal Preparations for Neuroscience Experiments
- Lecture 35 - Overview of motor control system
- Lecture 36 - Terminology
- Lecture 37 - Primary Motor Cortex - Part 2
- Lecture 38 - Primary Motor Cortex - Part 3
- Lecture 39 - Primary Motor Cortex - Part 4
- Lecture 40 - Primary Motor Cortex - Part 5
- Lecture 41 - Primary Motor Cortex - Part 6
- Lecture 42 - Primary Motor Cortex - Part 7
- Lecture 43 - Primary Motor Cortex - Part 8
- Lecture 44 - Primary Motor Cortex - Part 9
- Lecture 45 - Primary Motor Cortex - Part 10
- Lecture 46 - Primary Motor Cortex - Part 11
- Lecture 47 - Primary Motor Cortex - Part 12
- Lecture 48 - Primary Motor Cortex - Part 13
- Lecture 49 - Primary Motor Cortex - Part 14
- Lecture 50 - Primary Motor Cortex - Part 15
- Lecture 51 - Cerebellum - Part 1
- Lecture 52 - Cerebellum - Part 2
- Lecture 53 - Cerebellum - Part 3
- Lecture 54 - Cerebellum - Part 4
- Lecture 55 - Cerebellum - Part 5
- Lecture 56 - Cerebellum - Part 6
- Lecture 57 - Cerebellum - Part 7
- Lecture 58 - Cerebellum - Part 8
- Lecture 59 - Cerebellum - Part 9
- Lecture 60 - Cerebellum - Part 10
- Lecture 61 - Cerebellum - Part 11
- Lecture 62 - Cerebellum - Part 12
- Lecture 63 - Basal Ganglia - Part 1
- Lecture 64 - Basal Ganglia - Pathways
- Lecture 65 - Basal Ganglia - Inputs
- Lecture 66 - Basal Ganglia - Outputs
- Lecture 67 - Basal Ganglia - Various Functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 68 - Basal Ganglia - Motor Functions
- Lecture 69 - Basal Ganglia - Motor Functions.
- Lecture 70 - Basal Ganglia - Dopamine and Acetylcholine
- Lecture 71 - Basal Ganglia - Disorders
- Lecture 72 - Parkinson's Disease - Intro
- Lecture 73 - Parkinson's Disease - Rate Model, Pathophysiology
- Lecture 74 - Parkinson's Disease - Current therapeutic approaches and the future
- Lecture 75 - Basal Ganglia - Various Disorders
- Lecture 76 - Neuropsychiatric disorders due to BG dysfunction
- Lecture 77 - Parietal and Premotor Cortex - Part 1
- Lecture 78 - Parietal and Premotor Cortex - Part 2
- Lecture 79 - Parietal and Premotor Cortex - Part 3
- Lecture 80 - Parietal and Premotor Cortex - Part 4
- Lecture 81 - Parietal and Premotor Cortex - Part 5
- Lecture 82 - Parietal and Premotor Cortex - Part 6

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Manage TB

Subject Co-ordinator - Dr. M S Jawahar, Dr.V.V.Banu Rekha, Prof. Mohan Natrajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - How is TB affecting public health Globally and Nationally

Lecture 2 - Epidemiology of TB-Session - 1

Lecture 3 - Epidemiology of TB-Session - 2

Lecture 4 - Pathogenesis of TB-Session - 1

Lecture 5 - Pathogenesis of TB-Session - 2

Lecture 6 - Clinical manifestations of TB-Session - 1

Lecture 7 - Clinical manifestations of TB-Session - 2

Lecture 8 - Clinical manifestations of TB-Session - 3

Lecture 9 - Bacteriological Diagnosis of Tuberculosis - Smear and Culture

Lecture 10 - Demonstration of processing of sputum specimen for culture for diagnosis of tuberculosis

Lecture 11 - Demonstration of sputum smear examination for diagnosis of tuberculosis

Lecture 12 - Demonstration of solid culture method for diagnosis of tuberculosis

Lecture 13 - Demonstration of liquid culture method for diagnosis of tuberculosis in sputum

Lecture 14 - Phenotypic drug susceptibility testing in Tuberculosis

Lecture 15 - Demonstration of drug susceptibility testing of first line anti-TB drugs by liquid culture

Lecture 16 - Molecular Diagnosis of Tuberculosis-Session - 1

Lecture 17 - Molecular Diagnosis of Tuberculosis-Session - 2

Lecture 18 - Demonstration of Xpert MTB-RIF assay for diagnosis of tuberculosis from sputum specimens

Lecture 19 - Demonstration of Line Probe Assay (LPA) (Direct detection of tuberculosis and resistance to isoniazid)

Lecture 20 - Radiology in diagnosis of Tuberculosis-Session - 1

Lecture 21 - Radiology in diagnosis of Tuberculosis-Session - 2

Lecture 22 - Radiology in diagnosis of Tuberculosis-Session - 3

Lecture 23 - Radiology in diagnosis of Tuberculosis-Session - 4

Lecture 24 - Approach to diagnosis of Pulmonary TB

Lecture 25 - Case Discussion-Approach to diagnosis of TB in a person with presumptive pulmonary TB

Lecture 26 - Case Discussion-Approach to diagnosis of pulmonary TB in a patient with negative sputum smear for TB

Lecture 27 - Approach to diagnosis of Extra-pulmonary TB

Lecture 28 - Case Discussion-Approach to diagnosis of TB in a person with swelling in the neck

Lecture 29 - Case Discussion-Approach to diagnosis of TB spine

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diagnosis of Childhood Tuberculosis-Session - 1
- Lecture 31 - Diagnosis of Childhood Tuberculosis-Session - 2
- Lecture 32 - Video demonstration of gastric fluid aspiration technique in a child
- Lecture 33 - Case Discussion-Approach to diagnosis of TB in a child with presumptive pulmonary TB
- Lecture 34 - Case Discussion-Approach to diagnosis of TB meningitis in a child
- Lecture 35 - Drugs for treating Tuberculosis and Principles of Chemotherapy-Session - 1
- Lecture 36 - Drugs for treating Tuberculosis and Principles of Chemotherapy-Session - 2
- Lecture 37 - Treatment of Drug Sensitive Pulmonary Tuberculosis
- Lecture 38 - Case discussion-Approach to treatment of drug sensitive TB
- Lecture 39 - Management of drug resistant Tuberculosis-Session - 1
- Lecture 40 - Management of drug resistant Tuberculosis-Session - 2
- Lecture 41 - Case discussion-Approach to treatment of Multi-drug resistant TB (MDR-TB)/ Extensively drug resistant TB
- Lecture 42 - Management of Extra-pulmonary Tuberculosis-Session - 1
- Lecture 43 - Management of Extra-pulmonary Tuberculosis-Session - 2
- Lecture 44 - Panel discussion-Practical difficulties in the management of Extra-pulmonary TB
- Lecture 45 - Management of patients with HIV-TB coinfection-Session - 1
- Lecture 46 - Management of patients with HIV-TB coinfection-Session - 2
- Lecture 47 - Case discussion-Approach to management of HIV-TB
- Lecture 48 - Management of TB in special situations
- Lecture 49 - Case discussion-Approach to management of TB in pregnancy
- Lecture 50 - Treatment of Pediatric Tuberculosis-Session - 1
- Lecture 51 - Treatment of Pediatric Tuberculosis-Session - 2
- Lecture 52 - Management of Adverse effects to anti-TB drugs-Session - 1
- Lecture 53 - Management of Adverse effects to anti-TB drugs-Session - 2
- Lecture 54 - Case discussion-Approach to management of jaundice during anti-TB treatment
- Lecture 55 - Case discussion-Approach to management of skin rashes during anti-TB treatment
- Lecture 56 - Non-tuberculous Mycobacteria- Diagnosis and Clinical management-Session - 1
- Lecture 57 - Non-tuberculous Mycobacteria - Diagnosis and Clinical Management Session - 2
- Lecture 58 - Newer Anti-TB drugs and regimens-Session - 1
- Lecture 59 - Newer Anti-TB drugs and regimens-Session - 2
- Lecture 60 - Management of Latent TB Infection-Session - 1
- Lecture 61 - Management of Latent TB Infection-Session - 2
- Lecture 62 - Airborne infection control in tuberculosis-Session - 1
- Lecture 63 - Airborne infection control in tuberculosis-Session - 2
- Lecture 64 - Vaccine for Tuberculosis-Session - 1
- Lecture 65 - Vaccine for Tuberculosis-Session - 2
- Lecture 66 - Services offered by Revised National TB Control Programme (RNTCP)-Session - 1
- Lecture 67 - Services offered by Revised National TB Control Programme (RNTCP)-Session - 2
- Lecture 68 - Services offered by Revised National TB Control Programme (RNTCP)-Session - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Services offered by Revised National TB Control Programme (RNTCP)-Session - 4
- Lecture 70 - Tuberculosis notification-Session - 1
- Lecture 71 - Tuberculosis notification-Session - 2
- Lecture 72 - Addressing Social Barriers in Tuberculosis Control-Session - 1
- Lecture 73 - Addressing Social Barriers in Tuberculosis Control-Session - 2
- Lecture 74 - Standards for TB Care in India-Session - 1
- Lecture 75 - Standards for TB Care in India-Session - 2
- Lecture 76 - Global Tuberculosis Control Strategies



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Ecology and Environment

Subject Co-ordinator - Dr. Abhijit P. Deshpande

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sustainability
- Lecture 2 - Dams
- Lecture 3 - Dams
- Lecture 4 - Adayar River
- Lecture 5 - Adayar River
- Lecture 6 - Urbanisation in Western Ghats and Biodiesel
- Lecture 7 - Use And Throw Plastic
- Lecture 8 - Nano Materials Information Technology
- Lecture 9 - Definition of Health Risk
- Lecture 10 - Transport Of Pollutants in the Environment
- Lecture 11 - Assesment of Risk
- Lecture 12 - Remediation and Liability
- Lecture 13 - Remendiation and Liability
- Lecture 14 - Life Cycle Analysis
- Lecture 15 - Energy and Environment module - 1
- Lecture 16 - Energy and Environment module - 2
- Lecture 17 - Energy and Environment module - 3
- Lecture 18 - Energy and Environment module - 4
- Lecture 19 - Energy and Environment module - 5
- Lecture 20 - Energy and Environment module - 6
- Lecture 21 - Energy and Environment module - 7
- Lecture 22 - Drinking Water Supply
- Lecture 23 - Drinking Water Supply
- Lecture 24 - Water Quality Standards And Philosophy of Water Treatment
- Lecture 25 - Water Treatment
- Lecture 26 - Wastewater Management in Developing Urban Environments
- Lecture 27 - Wastewater Recycling
- Lecture 28 - Sustainable Water Management In Urban Areas - Part 1
- Lecture 29 - Sustainable Water Management In Urban Areas - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ground Water Contamination
- Lecture 31 - Groundwater - Sanitation Nexus
- Lecture 32 - Chasing Sustainability - The Challenge - Part 1
- Lecture 33 - Chasing Sustainability - The Challenge - Part 2
- Lecture 34 - Developing Frame Works Of Action
- Lecture 35 - Developing Frame Works Of Action
- Lecture 36 - Social And sanitation
- Lecture 37 - Promoting Policies For Eco-Productive Cities in the global House - Part 1
- Lecture 38 - Promoting Policies For Eco-Productive Cities in the global House - Part 2
- Lecture 39 - The need to study ecology
- Lecture 40 - Ecosystem functions and services
- Lecture 41 - What is studied in ecology?
- Lecture 42 - Ecological footprint
- Lecture 43 - Energy and Material flow in ecosystems and ecological efficiency
- Lecture 44 - Energy flow, productivity and Biodiversity
- Lecture 45 - Biodiversity, population and ecological principles