

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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- 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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- 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
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Lecture 22 - Power Electronics
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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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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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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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- 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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- 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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- 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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- 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

- 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

- 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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- 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

- 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 - NOC:Fundamental of Power Electronics

Subject Co-ordinator - Prof. Vivek Agarwal

Co-ordinating Institute - IIT - Bombay

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

- Lecture 1 - Familiarization with Power Electronic Systems
- Lecture 2 - Overview of Basic Power Electronic Circuits from Laymans Point of View
- Lecture 3 - Applications, Definitions, and Nature of Power Electronic Circuits
- Lecture 4 - Components of a Power Electronic System
- Lecture 5 - Analysis of Switched Networks
- Lecture 6 - Review of engineering maths for power electronic circuit analysis
- Lecture 7 - Review of semiconductor physics
- Lecture 8 - P-N Junction
- Lecture 9 - Power Diodes
- Lecture 10 - Thyristors
- Lecture 11 - Motivation for rectifier capacitor filter
- Lecture 12 - Circuit Operation
- Lecture 13 - Designing the circuit
- Lecture 14 - Simulation setup for NgSpice and gEDA schematic capture
- Lecture 15 - Simulating the circuit
- Lecture 16 - Practicals
- Lecture 17 - Inrush current limiting - Intro
- Lecture 18 - Inrush current limiting - Resistor solution
- Lecture 19 - Inrush current limiting - Thermistor solution
- Lecture 20 - Inrush current limiting - Transformer solution
- Lecture 21 - Inrush current limiting - MOSFET solution
- Lecture 22 - Inrush current limiting - Relay, contactor
- Lecture 23 - Three phase rectifier capacitor filter
- Lecture 24 - Simulation - 3 phase rectifier capacitor filter
- Lecture 25 - Power factor - Motivation
- Lecture 26 - Power factor - Discussion
- Lecture 27 - Power factor - Sinusoidal
- Lecture 28 - Power factor for rectifier cap filter
- Lecture 29 - Passive power improvement circuit

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

- Lecture 30 - Simulation - power factor improvement
- Lecture 31 - Linear regulators - Intro
- Lecture 32 - Shunt regulator
- Lecture 33 - Example on shunt regulator
- Lecture 34 - Non-ideality and solution
- Lecture 35 - Applications of shunt regulator
- Lecture 36 - Series regulator
- Lecture 37 - Efficiency of series
- Lecture 38 - Negative and dual voltage regulators
- Lecture 39 - Over current limiting circuits
- Lecture 40 - Improvements to series regulator
- Lecture 41 - Regulator performance parameters
- Lecture 42 - Datasheet of few IC regulators
- Lecture 43 - Common IC regulator circuits
- Lecture 44 - Practicals 1
- Lecture 45 - Switched mode DC-DC converter intro
- Lecture 46 - Volt-sec and Amp-sec balance
- Lecture 47 - Input-output relationship
- Lecture 48 - Buck converter - operation and waveforms
- Lecture 49 - Buck converter - component selection
- Lecture 50 - Primary configurations
- Lecture 51 - Boost converter
- Lecture 52 - Buck-Boost converter
- Lecture 53 - Simulating the primary converters
- Lecture 54 - Forward converter
- Lecture 55 - Core reset in forward converter
- Lecture 56 - Simulating with lossy core reset
- Lecture 57 - Simulating with lossless core reset
- Lecture 58 - Flyback converter
- Lecture 59 - Simulating the flyback converter
- Lecture 60 - Octave mfile for design
- Lecture 61 - Magnetics design intro
- Lecture 62 - Magnetics review
- Lecture 63 - Permeance
- Lecture 64 - Inductor value and energy storage
- Lecture 65 - Inductor area product
- Lecture 66 - Inductor design
- Lecture 67 - Inductor example
- Lecture 68 - Transformer design

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- Lecture 69 - Transformer example
- Lecture 70 - Forward converter design mfile
- Lecture 71 - Pushpull converter
- Lecture 72 - Flux walking in pushpull
- Lecture 73 - PWM generation
- Lecture 74 - Simulation of pushpull converter
- Lecture 75 - Half bridge converter
- Lecture 76 - Simulation of halfbridge converter
- Lecture 77 - Full bridge converter
- Lecture 78 - Simulation of fullbridge converter
- Lecture 79 - Area products and mfiles
- Lecture 80 - Intro for drive circuits
- Lecture 81 - BJT base drive
- Lecture 82 - BJT base drive example
- Lecture 83 - Multi-stage base drive
- Lecture 84 - Base drive with speed-up circuit
- Lecture 85 - Base drive with isolation
- Lecture 86 - MOSFET gate drive
- Lecture 87 - MOSFET drive with isolation
- Lecture 88 - Over-current protection
- Lecture 89 - Snubber circuits
- Lecture 90 - Intro for close loop control
- Lecture 91 - Close looping dc-dc converters
- Lecture 92 - Simulation of close loop control
- Lecture 93 - Current control for battery charger application
- Lecture 94 - Instability in current control and slope compensation
- Lecture 95 - Slope compensated current control
- Lecture 96 - Simulation of current control
- Lecture 97 - Single phase inverter with sinusoidal pwm
- Lecture 98 - Simulation of sinusoidal PWM

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

NPTEL Video Course - Electrical Engineering - NOC:Electrical Equipment and Machines: Finite Element Analysis

Subject Co-ordinator - Prof. Shrikrishna V. Kulkarni

Co-ordinating Institute - IIT - Bombay

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

Lecture 1 - Course Outline and Introduction

Lecture 2 - Analytical and Numerical Methods

Lecture 3 - Revisiting EM Concepts

Lecture 4 - Revisiting EM Concepts

Lecture 5 - Revisiting EM Concepts

Lecture 6 - Revisiting EM Concepts

Lecture 7 - Revisiting EM Concepts

Lecture 8 - Revisiting EM Concepts

Lecture 9 - Revisiting EM Concepts

Lecture 10 - Revisiting EM Concepts

Lecture 11 - FEM

Lecture 12 - Finding Functional for PDEs

Lecture 13 - Whole Domain Approximation

Lecture 14 - 1D FEM

Lecture 15 - 1D FEM

Lecture 16 - 1D FEM

Lecture 17 - 2D FEM

Lecture 18 - 2D FEM

Lecture 19 - 2D FEM Scilab Code

Lecture 20 - 2D FEM Code

Lecture 21 - Computation of B and H Field and Method of Weighted Residuals

Lecture 22 - Galerkin Method

Lecture 23 - Calculation of Leakage Inductance of a Transformer

Lecture 24 - Calculation of Inductance of an Induction Motor and a Gapped-Core Shunt Reactor

Lecture 25 - Insulation Design Using FE Analysis

Lecture 26 - Quadratic Finite Elements

Lecture 27 - Time Harmonic FE Analysis

Lecture 28 - Calculation of Eddy Current Losses

Lecture 29 - Eddy Losses in Transformer Windings

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

- Lecture 30 - Torque Speed Characteristics of an Induction Motor and FE Analysis of Axisymmetric Problem
- Lecture 31 - Permanent Magnets
- Lecture 32 - Permanent Magnets
- Lecture 33 - Periodic and Antiperiodic Boundary Conditions in Rotating Machines
- Lecture 34 - FE Analysis of Rotating Machines
- Lecture 35 - Voltage Fed Coupled Circuit Field Analysis
- Lecture 36 - Current Fed Coupled Circuit Field Analysis
- Lecture 37 - Transient FE Analysis
- Lecture 38 - Nonlinear FE Analysis
- Lecture 39 - Computation of Forces using Maxwell Stress Tensor
- Lecture 40 - Computation of force using virtual work method

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

NPTEL Video Course - Electrical Engineering - NOC:Digital Signal Processing and its Applications

Subject Co-ordinator - Prof. V. M. Gadre

Co-ordinating Institute - IIT - Bombay

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

- Lecture 1 - Introduction: Digital signal processing and its objectives
- Lecture 2 - Introduction to sampling and Fourier Transform
- Lecture 3 - Sampling of sine wave and associate complication
- Lecture 4 - Review of Sampling Theorem
- Lecture 5 - Idealized Sampling, Reconstruction
- Lecture 6 - Filters And Discrete System
- Lecture 7 - Answering questions from previous lectures
- Lecture 8 - Desired requirements for discrete system
- Lecture 9 - Introduction to phasors
- Lecture 10 - Advantages of phasors in discrete systems
- Lecture 11 - What do we want from a discrete system?
- Lecture 12 - Linearity - Homogeneity and Additivity
- Lecture 13 - Shift Invariance and Characterization of LTI systems
- Lecture 14 - Characterization of LSI system using its impulse response
- Lecture 15 - Introduction to convolution
- Lecture 16 - Convolution: Deeper ideas and understanding
- Lecture 17 - Characterisation of LSI systems, Convolution-properties
- Lecture 18 - Response of LSI Systems to Complex Sinusoids
- Lecture 19 - Convergence of Convolution and Bibo Stability
- Lecture 20 - Commutativity and Associativity
- Lecture 21 - BIBO Stability of an LSI system
- Lecture 22 - Causality and memory of an LSI system
- Lecture 23 - Frequency response of an LSI system
- Lecture 24 - Introduction and conditions of Stability
- Lecture 25 - Vectors and Inner Product
- Lecture 26 - Interpretation of Frequency Response as Dot Product
- Lecture 27 - Interpretation of Frequency Response as Eigenvalues
- Lecture 28 - Discrete time fourier transform
- Lecture 29 - DTFT in LSI System and Convolution Theorem.

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

- Lecture 30 - Definitions of sequences and Properties of DTFT
- Lecture 31 - Introduction to DTFT, IDTFT
- Lecture 32 - Dual to convolution property
- Lecture 33 - Multiplication Property, Introduction to Parseval's theorem
- Lecture 34 - Introduction and Property of DTFT
- Lecture 35 - Review of Inverse DTFT
- Lecture 36 - Parseval's Theorem and energy and time spectral density
- Lecture 37 - Discussion on Unit Step
- Lecture 38 - Introduction to Z transform
- Lecture 39 - Example of Z transform
- Lecture 40 - Region of Convergence
- Lecture 41 - Properties of Z transform
- Lecture 42 - Z- Transform
- Lecture 43 - Rational System
- Lecture 44 - Introduction and Examples of Rational Z Transform and their Inverses
- Lecture 45 - Double Pole Examples and their Inverse Z Transform
- Lecture 46 - Partial Fraction Decomposition
- Lecture 47 - LSI System Examples
- Lecture 48 - Why are Rational Systems so important?
- Lecture 49 - Solving Linear constant coefficient difference equations which are valid over a finite range of
- Lecture 50 - Introduction to Resonance in Rational Systems
- Lecture 51 - Characterization of Rational LSI system
- Lecture 52 - Causality and stability of the ROC of the system function
- Lecture 53 - Recap of Rational Systems and Discrete Time Filters
- Lecture 54 - Specifications for Filter Design
- Lecture 55 - Four Ideal Piecewise Constant Filters
- Lecture 56 - Important Characteristics Of Ideal Filters
- Lecture 57 - Synthesis of Discrete Time Filters, Realizable specifications
- Lecture 58 - Realistic Specifications for low pass filter. Filter Design Process
- Lecture 59 - Introduction to Filter Design. Analog IIR Filter, FIR discrete-time filter, IIR discrete-time fil
- Lecture 60 - Analog to discrete transform
- Lecture 61 - Intuitive transforms, Bilinear Transformation
- Lecture 62 - Steps for IIR filter design
- Lecture 63 - Analog filter design using Butterworth Approximation
- Lecture 64 - Butterworth filter Derivation And Analysis of butterworth system function
- Lecture 65 - Chebychev filter Derivation
- Lecture 66 - Midsem paper review discussion
- Lecture 67 - The Chebyshev Approximation
- Lecture 68 - Next step in design: Obtain poles

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

- Lecture 69 - Introduction to Frequency Transformations in the Analog Domain
- Lecture 70 - High pass transformation
- Lecture 71 - Band pass transformation
- Lecture 72 - Frequency Transformation
- Lecture 73 - Different types of filters
- Lecture 74 - Impulse invariant method and ideal impulse response
- Lecture 75 - Design of FIR of length $(2N+1)$ by the truncation method, Plotting the function $V(w)$
- Lecture 76 - IIR filter using rectangular window, IIR filter using triangular window
- Lecture 77 - Proof that frequency response of an fir filter using rectangular window function centred at 0 is
- Lecture 78 - Introduction to window functions
- Lecture 79 - Examples of window functions
- Lecture 80 - Explanation of Gibb's Phenomenon and its application
- Lecture 81 - Comparison of FIR And IIR Filter's
- Lecture 82 - Comparison of FIR And IIR Filter's
- Lecture 83 - Comparison of FIR And IIR Filter's
- Lecture 84 - Introduction and approach to realization (causal rational system)
- Lecture 85 - Comprehension of Signal Flow Graphs and Achievement of Pseudo Assembly Language Code
- Lecture 86 - Introduction to IIR Filter Realization and Cascade Structure
- Lecture 87 - Cascade Parallel Structure
- Lecture 88 - Lattice Structure
- Lecture 89 - Recap And Review of Lattice Structure, Realization of FIR Function
- Lecture 90 - Backward recursion, Change in the recursive equation of lattice
- Lecture 91 - Lattice structure for an arbitrary rational system
- Lecture 92 - Example realization of lattice structure for rational system
- Lecture 93 - Introductory Remarks of Discrete Fourier Transform and Frequency Domain Sampling
- Lecture 94 - Principle of Duality, The Circular Convolution

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

NPTEL Video Course - Electrical Engineering - NOC:Stochastic Control and Communication

Subject Co-ordinator - Prof. Ankur A. Kulkarni

Co-ordinating Institute - IIT - Bombay

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

- Lecture 1 - Decision Making under Uncertainty
- Lecture 2 - Expected Utility Theory - I
- Lecture 3 - Expected Utility Theory - II
- Lecture 4 - Expected Utility Theory - III
- Lecture 5 - Role of Information in Decision Making
- Lecture 6 - State Space Modelling of Sequential Decision Making, Example of Inventory Control
- Lecture 7 - Inventory Control Problem (Continued...)
- Lecture 8 - Policy-A Closed Loop Solution to Stochastic Control Problem
- Lecture 9 - Introduction to Markov Decision Processes (MDP)
- Lecture 10 - Types of Policy in MDP
- Lecture 11 - Interpreting randomised decision rules
- Lecture 12 - Stationary Transition Probability: State Diagram Representation and example of Markov policies
- Lecture 13 - Example of History Dependent Policies
- Lecture 14 - Complexity of the problem using brute force approach
- Lecture 15 - Principle of Optimality
- Lecture 16 - Dynamic Programming Algorithm
- Lecture 17 - DP Algo applied to Inventory Control Problem
- Lecture 18 - DP Algo applied to Inventory Control Problem (Continued...)
- Lecture 19 - DP Algo applied to Inventory Control Problem (Continued...)
- Lecture 20 - Optimal Stopping Problem
- Lecture 21 - Optimal Stopping Example: Secretary Problem
- Lecture 22 - Optimal Stopping Example: Secretary Problem (Continued...)
- Lecture 23 - Optimal Stopping Example: Secretary Problem (Continued...)
- Lecture 24 - Linear System Quadratic Cost Problem
- Lecture 25 - Linear System Quadratic Cost Problem (Continued...)
- Lecture 26 - Solving it via DP algorithm (Continued...)
- Lecture 27 - Equivalence between Optimal HR Policy and optimal Markov Deterministic Policy
- Lecture 28 - Stochastic Control under incomplete state information
- Lecture 29 - Stochastic Control under incomplete state information (Continued...)

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

- Lecture 30 - Stochastic Control under incomplete state information: Example
- Lecture 31 - Stochastic Control under incomplete state information: Example (Continued...)
- Lecture 32 - Stochastic Control under incomplete state information: Example (Continued...)
- Lecture 33 - Stochastic Control under incomplete state information: Example (Continued...)
- Lecture 34 - LQ systems with Imperfect Information - I
- Lecture 35 - LQ systems with Imperfect Information - II
- Lecture 36 - LQ systems with Imperfect Information - III
- Lecture 37 - LQ systems with Imperfect Information - IV
- Lecture 38 - Filtering - I
- Lecture 39 - Filtering - II
- Lecture 40 - Kalman Filtering - I
- Lecture 41 - Kalman Filtering - II
- Lecture 42 - Kalman Filtering - III
- Lecture 43 - Belief State Formulation - I
- Lecture 44 - Belief State Formulation - II
- Lecture 45 - Information Structures - I
- Lecture 46 - Information Structures - II
- Lecture 47 - Witsenhausen Problem - I
- Lecture 48 - Witsenhausen Problem - II
- Lecture 49 - Witsenhausen Problem - III
- Lecture 50 - Witsenhausen Problem - IV
- Lecture 51 - Witsenhausen Problem - V
- Lecture 52 - Witsenhausen Problem - VI
- Lecture 53 - Witsenhausen Problem - VII
- Lecture 54 - Team Decision Theory - I
- Lecture 55 - Team Decision Theory - II
- Lecture 56 - Team Decision Theory - III
- Lecture 57 - Team Decision Theory - IV
- Lecture 58 - Team Decision Theory - V
- Lecture 59 - Team Decision Theory - VI
- Lecture 60 - Team Decision Theory - VII
- Lecture 61 - Communication Theory - I
- Lecture 62 - Communication Theory - II
- Lecture 63 - Communication Theory - III
- Lecture 64 - Communication Theory - IV
- Lecture 65 - Communication Theory - V

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

NPTEL Video Course - Electrical Engineering - NOC:Applied Linear Algebra (2024)

Subject Co-ordinator - Prof. Dwaipayan Mukherjee

Co-ordinating Institute - IIT - Bombay

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

Lecture 1 - Introduction - Part A
Lecture 2 - Introduction - Part B
Lecture 3 - Introduction - Part C
Lecture 4 - Equivalent Systems - Part A
Lecture 5 - Equivalent Systems - Part B
Lecture 6 - Equivalent Systems - Part C
Lecture 7 - Solution of $Ax = b$ - Part A
Lecture 8 - Solution of $Ax = b$ - Part B
Lecture 9 - Solution of $Ax = b$ - Part C
Lecture 10 - Rings, Integral Domains and Fields - Part A
Lecture 11 - Rings, Integral Domains and Fields - Part B
Lecture 12 - Rings, Integral Domains and Fields - Part C
Lecture 13 - Vector Spaces and Subspaces - Part A
Lecture 14 - Vector Spaces and Subspaces - Part B
Lecture 15 - Vector Spaces and Subspaces - Part C
Lecture 16 - Unions, Intersection, Sums of Subspaces - Part A
Lecture 17 - Unions, Intersection, Sums of Subspaces - Part B
Lecture 18 - Generating sets, Linear independence and basis - Part A
Lecture 19 - Generating sets, Linear independence and basis - Part B
Lecture 20 - Generating sets, Linear independence and basis - Part C
Lecture 21 - Ordered basis and co-ordinates - Part A
Lecture 22 - Ordered basis and co-ordinates - Part B
Lecture 23 - Ordered basis and co-ordinates - Part C
Lecture 24 - Rank-Nullity Theorem (Matrices) - Part A
Lecture 25 - Rank-Nullity Theorem (Matrices) - Part B
Lecture 26 - Rank-Nullity Theorem (Matrices) - Part C
Lecture 27 - Rank-Nullity Theorem (Linear Transformation) - Part A
Lecture 28 - Rank-Nullity Theorem (Linear Transformation) - Part B
Lecture 29 - Rank-Nullity Theorem (Linear Transformation) - Part C

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

- Lecture 30 - Isomorphism and Inverses - Part A
- Lecture 31 - Isomorphism and Inverses - Part B
- Lecture 32 - Isomorphism and Inverses - Part C
- Lecture 33 - Dual Basis and Annihilator - Part A
- Lecture 34 - Dual Basis and Annihilator - Part B
- Lecture 35 - Dual Basis and Annihilator - Part C
- Lecture 36 - Dual maps and double dual - Part A
- Lecture 37 - Dual maps and double dual - Part B
- Lecture 38 - Dual maps and double dual - Part C
- Lecture 39 - Quotient spaces and quotient map - Part A
- Lecture 40 - Quotient spaces and quotient map - Part B
- Lecture 41 - Quotient spaces and quotient map - Part C
- Lecture 42 - Inner Product Spaces - Part A
- Lecture 43 - Inner Product Spaces - Part B
- Lecture 44 - Inner Product Spaces - Part C
- Lecture 45 - Gram Schmidt Procedure - Part A
- Lecture 46 - Gram Schmidt Procedure - Part B
- Lecture 47 - Gram Schmidt Procedure - Part C
- Lecture 48 - Best Approximation of a Vector - Part A
- Lecture 49 - Best Approximation of a Vector - Part B
- Lecture 50 - Best Approximation of a Vector - Part C
- Lecture 51 - Projection map and summary of $Ax = b$ - Part A
- Lecture 52 - Projection map and summary of $Ax = b$ - Part B
- Lecture 53 - Projection map and summary of $Ax = b$ - Part C
- Lecture 54 - Linear Differential Equations - Part A
- Lecture 55 - Linear Differential Equations - Part B
- Lecture 56 - Introduction to Eigen values and Eigen vectors - Part A
- Lecture 57 - Introduction to Eigen values and Eigen vectors - Part B
- Lecture 58 - Introduction to Eigen values and Eigen vectors - Part C
- Lecture 59 - Singular Value Decomposition - Part A
- Lecture 60 - Singular Value Decomposition - Part B
- Lecture 61 - Singular Value Decomposition - Part C
- Lecture 62 - Algebraic and geometric multiplicities - Part A
- Lecture 63 - Algebraic and geometric multiplicities - Part B
- Lecture 64 - A-Invariant Subspaces - Part A
- Lecture 65 - A-Invariant Subspaces - Part B
- Lecture 66 - A-Invariant Subspaces - Part C
- Lecture 67 - Minimal Polynomial-I - Part A
- Lecture 68 - Minimal Polynomial-I - Part B

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

- Lecture 69 - Minimal Polynomial-I - Part C
- Lecture 70 - Minimal Polynomial-I - Part D
- Lecture 71 - Minimal Polynomial-II - Part A
- Lecture 72 - Minimal Polynomial-II - Part B
- Lecture 73 - Minimal Polynomial-II - Part C
- Lecture 74 - Minimal Polynomial-II - Part D
- Lecture 75 - Cayley Hamilton Theorem - Part A
- Lecture 76 - Cayley Hamilton Theorem - Part B
- Lecture 77 - Cayley Hamilton Theorem - Part C
- Lecture 78 - Jordan Canonical Form - Part A
- Lecture 79 - Jordan Canonical Form - Part B
- Lecture 80 - Jordan Canonical Form - Part C
- Lecture 81 - Algebraic Graph Theory and Consensus - Part A
- Lecture 82 - Algebraic Graph Theory and Consensus - Part B
- Lecture 83 - Algebraic Graph Theory and Consensus - Part C
- Lecture 84 - Positive Matrices and Leontieff's Model - Part A
- Lecture 85 - Positive Matrices and Leontieff's Model - Part B

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

NPTEL Video Course - Electrical Engineering - NOC:Digital Communication using GNU Radio

Subject Co-ordinator - Prof. Kumar Appaiah

Co-ordinating Institute - IIT - Bombay

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

- Lecture 1 - Introduction to Digital Communication
- Lecture 2 - Understanding GNU Radio features for Digital Communication: Basic blocks, input and output
- Lecture 3 - Understanding GNU Radio features for Digital Communication: Advanced blocks, hardware interfacing
- Lecture 4 - Fundamentals of Digital Communication: Signal Processing methods, vectors, and relevant GNU Radio
- Lecture 5 - Fundamentals of Digital Communication: Signal Processing methods, vectors, and relevant GNU Radio
- Lecture 6 - Complex Baseband Signal Representation
- Lecture 7 - Real Passband Signal Representation, Up and Down Conversion of Complex Baseband Signals
- Lecture 8 - Random Variables and Random Processes
- Lecture 9 - Fundamentals of Digital Modulation
- Lecture 10 - Linear Modulation Methods: Amplitude Shift Keying (ASK)
- Lecture 11 - Linear Modulation Methods: Phase Shift Keying (PSK)
- Lecture 12 - Linear Modulation Methods: Quadrature Amplitude Modulation (QAM) and Frequency Shift Keying (FSK)
- Lecture 13 - Pulse Shaping for ISI Free Signaling
- Lecture 14 - ASK using Raised Cosine (RC) and Root-Raised Cosine (RRC) Pulse Shaping
- Lecture 15 - Basics of Detection: Properties of Gaussian Random Variables
- Lecture 16 - Basics of Detection: Gaussian Random Vectors and Hypothesis Testing
- Lecture 17 - Optimal Receivers for M-ary Signaling
- Lecture 18 - Gram-Schmidt Orthogonalisation
- Lecture 19 - Optimal Reception of M-ary Signals in AWGN
- Lecture 20 - Detection and Optimal Decision for On-Off Signaling in AWGN Channel
- Lecture 21 - Detection and Optimal Decision for M-ary Signaling
- Lecture 22 - Python for GNU Radio
- Lecture 23 - Extending GNU Radio Features using Python
- Lecture 24 - Constructing and Visualising Constellations using GNU Radio
- Lecture 25 - Understanding matched filtering using GNU Radio
- Lecture 26 - Histograms in GNU Radio
- Lecture 27 - Visualising Symbol Error Rate in GNU Radio
- Lecture 28 - Signal-to-Noise Ratio and Symbol Error Probability - Part 1
- Lecture 29 - Signal-to-Noise Ratio and Symbol Error Probability - Part 2

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

- Lecture 30 - Symbol error rate and Bit error rate
- Lecture 31 - Computing bit error rates in GNU Radio
- Lecture 32 - End-to-end Digital Communication System Simulation in GNU Radio
- Lecture 33 - Parameter Estimation for Practical Receivers - Part 1
- Lecture 34 - Parameter Estimation for Practical Receivers - Part 2
- Lecture 35 - Phase Locked Loop and Differential Modulation
- Lecture 36 - Maximum Likelihood delay estimate for a single symbol in GNU Radio
- Lecture 37 - Maximum Likelihood delay estimate for multiple symbols in GNU Radio
- Lecture 38 - Phase offset estimation in GNU Radio
- Lecture 39 - Phase Locked Loop in GNU Radio
- Lecture 40 - Costas Loop and Differential PSK in GNU Radio
- Lecture 41 - Channel Equalisation
- Lecture 42 - Detection Strategy for Dispersive Channels
- Lecture 43 - Maximum Likelihood sequence estimation: Viterbi Algorithm
- Lecture 44 - Suboptimal Channel Equalisation: Zero-forcing Receiver
- Lecture 45 - Zero forcing Receiver in GNU Radio
- Lecture 46 - Suboptimal Channel Equalisation: Linear Minimum mean-square error receiver
- Lecture 47 - LMMSE Receiver in GNU Radio
- Lecture 48 - Parallelising Frequency Selective Channels
- Lecture 49 - Orthogonal Frequency Division Multiplexing (OFDM)
- Lecture 50 - OFDM in the presence of dispersive channels
- Lecture 51 - Equalisation using OFDM in GNU Radio
- Lecture 52 - Error Control Coding: Parity Check Codes
- Lecture 53 - Error Control Coding: Repetition Codes
- Lecture 54 - Error Control Coding: Linear Block Codes
- Lecture 55 - Repetition Codes in GNU Radio
- Lecture 56 - Error Control Coding: Perfect Codes
- Lecture 57 - Error Control Coding: Hamming Codes
- Lecture 58 - (7,4) Hamming Code in GNU Radio
- Lecture 59 - Rate and error-free Communication
- Lecture 60 - Quantisation
- Lecture 61 - Visualising Quantisation in GNU Radio
- Lecture 62 - Course Summary

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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- 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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- 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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- 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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- 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

- 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 Amplifiers
- 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 Differential and Power Amplifiers
- Lecture 29 - Introduction to Feedback Amplifiers

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

- 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

- Lecture 30 - Demodulation of DPSK and M^{ary} Signals
- Lecture 31 - Performance of M^{ary} Digital Modulations
- Lecture 32 - Performance of M^{ary} 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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NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

- 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

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

- 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 - Engineering Electromagnetics

Subject Co-ordinator - Prof. Sheel Aditya

Co-ordinating Institute - IIT - Delhi

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

Lecture 1 - Introduction

Lecture 2 - Transmission Lines

Lecture 3 - Transmission Lines

Lecture 4 - Transmission Lines

Lecture 5 - Transmission Lines

Lecture 6 - Transmission Lines

Lecture 7 - Transmission Lines

Lecture 8 - Transmission Lines

Lecture 9 - Transmission Lines

Lecture 10 - Transmission Lines

Lecture 11 - Transmission Lines

Lecture 12 - Wave Propagation

Lecture 13 - Wave Propagation (Continued...)

Lecture 14 - Wave Propagation

Lecture 15 - Wave Propagation

Lecture 16 - Wave Propagation

Lecture 17 - Wave Propagation

Lecture 18 - Reflection and Refraction of waves

Lecture 19 - Reflection and Refraction of waves (Continued...)

Lecture 20 - Reflection and Refraction of waves (Continued...) - 1

Lecture 21 - Reflection and Refraction of waves (Continued...); The Plane slab

Lecture 22 - Reflection and Refraction of waves (Continued...); Transmission Line Analogy for Planes Waves

Lecture 23 - Wave Guides

Lecture 24 - Wave Guides (Continued...) Parallel plane Guide, Transverse Electric Waves, Field Distribution, Sup

Lecture 25 - Wave Guides (Continued...)

Lecture 26 - Wave Guides (Continued...) Parallel plane Guide, Characteristics of TE and Tm Waves, TEM Waves, Wav

Lecture 27 - Wave Guides (Continued...) - 1

Lecture 28 - Wave Guides (Continued...) - 2

Lecture 29 - Wave Guides (Continued...) Rectangular Wave Guides

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

- Lecture 30 - Wave Guides (Continued...)
- Lecture 31 - Wave Guides (Continued...) Rectangular Wave Guides - 1
- Lecture 32 - Resonators General Properties
- Lecture 33 - Resonators (Continued...) Transmission Line Resonators
- Lecture 34 - Resonators (Continued...) Wave Guide Resonators
- Lecture 35 - Radiation
- Lecture 36 - Radiation (Continued...)
- Lecture 37 - Radiation (Continued...) - 1
- Lecture 38 - Radiation (Continued...) - 2
- Lecture 39 - Radiation (Continued...) Monopole Antennas half Wave Dipole Antenna
- Lecture 40 - Radiation (Continued...)
- Lecture 41 - Radiation (Continued...) 2 - Element Arrays, Yagi-Uda Array

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

NPTEL Video Course - Electrical Engineering - NOC:Principles of Digital Communications (2018)

Subject Co-ordinator - Prof. Abhishek Dixit

Co-ordinating Institute - IIT - Delhi

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

Lecture 1 - Introduction
Lecture 2 - Signal Spaces
Lecture 3 - Inner Product and Orthogonal Expansion
Lecture 4 - Signal Spaces
Lecture 5 - Signal Spaces
Lecture 6 - Signal Spaces
Lecture 7 - Random Variables and Random Processes
Lecture 8 - Random Variables and Random Processes
Lecture 9 - Random Variables and Random Processes
Lecture 10 - Random Variables and Random Processes
Lecture 11 - Random Variables and Random Processes
Lecture 12 - Random Variables and Random Processes
Lecture 13 - Random Variables and Random Processes
Lecture 14 - Random Variables and Random Processes
Lecture 15 - Random Variables and Random Processes
Lecture 16 - Random Variables and Random Processes
Lecture 17 - Random Variables and Random Processes
Lecture 18 - Waveform Coding
Lecture 19 - Modulation
Lecture 20 - Modulation
Lecture 21 - Modulation
Lecture 22 - Modulation
Lecture 23 - Modulation
Lecture 24 - Modulation
Lecture 25 - Modulation
Lecture 26 - Modulation
Lecture 27 - Modulation
Lecture 28 - Modulation
Lecture 29 - Modulation

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

Lecture 30 - Detection
Lecture 31 - Detection
Lecture 32 - Detection
Lecture 33 - Detection
Lecture 34 - Detection
Lecture 35 - Detection
Lecture 36 - Detection
Lecture 37 - Detection
Lecture 38 - Detection

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

NPTEL Video Course - Electrical Engineering - NOC:Electric Vehicles - Part 1

Subject Co-ordinator - Prof. Amit Jain

Co-ordinating Institute - IIT - Delhi

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

- Lecture 1 - Introduction - EV Historical Background
- Lecture 2 - Introduction - EV Benefits of Using EVs
- Lecture 3 - Introduction - EV Overview of types of EVs and its Challenges
- Lecture 4 - Introduction - EV Motor Drive Technologies
- Lecture 5 - Introduction - EV Energy Source Technologies
- Lecture 6 - Introduction - EV Battery Charging Technologies
- Lecture 7 - Introduction - EV Vehicle to Grid
- Lecture 8 - Introduction - EV Subsystems and Configurations
- Lecture 9 - Introduction - HEV Subsystems and Configurations
- Lecture 10 - Introduction - HEV Subsystems and Modes of Operation
- Lecture 11 - Vehicle Dynamics Introduction and tractive effort
- Lecture 12 - Vehicle Dynamics and dynamic equation
- Lecture 13 - Vehicle Dynamics simulation dynamic equation constant Fte
- Lecture 14 - Vehicle Dynamics dynamic equation variable Fte
- Lecture 15 - Vehicle Dynamics simulation dynamic equation variable Fte
- Lecture 16 - Vehicle Dynamics Modelling and simulation in Simulink
- Lecture 17 - Summary Electric Vehicles Part 1 Course
- Lecture 18 - Basics of DC Motor Drive
- Lecture 19 - Realization of DC Chopper
- Lecture 20 - Open Loop Operation of Chopper Fed DC Motor Drive
- Lecture 21 - Review of Control Theory
- Lecture 22 - Modeling and Current Controller Design for Separately Excited DC Motor Drive
- Lecture 23 - Speed Controller Design and Performance Evaluation of DC Motor Drive
- Lecture 24 - Fundamentals of Three Phase Induction Motor
- Lecture 25 - Equivalent Circuit and Torque-Speed Characteristics of Induction Motor
- Lecture 26 - Starting and Speed Control of Induction Motor
- Lecture 27 - Realisation of DC to AC Power Converter
- Lecture 28 - Impact of Non-Sinusoidal Voltage on Induction Motor
- Lecture 29 - Selective Harmonic Elimination and Optimal Pulse Width Modulation Techniques

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

- Lecture 30 - Switching Energy Losses and Sine-Triangle PWM
- Lecture 31 - Analysis of Sine-Triangle PWM
- Lecture 32 - Simulation Studies on Open Loop Induction Motor Drive

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

NPTEL Video Course - Electrical Engineering - NOC:Power Electronics

Subject Co-ordinator - Prof. G.Bhuvaneshwari

Co-ordinating Institute - IIT - Delhi

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

- Lecture 1 - Introduction to Power Electronics
- Lecture 2 - Power Devices
- Lecture 3 - Power Devices
- Lecture 4 - Power Devices
- Lecture 5 - Single-phase Uncontrolled Rectifiers
- Lecture 6 - Single-phase Controlled Rectifiers - I
- Lecture 7 - Single-phase Controlled Rectifiers - II
- Lecture 8 - Three Phase Rectifiers - I
- Lecture 9 - Numericals on devices and Single-phase Rectifiers
- Lecture 10 - Three Phase Rectifiers - II
- Lecture 11 - Dual Converter and Communication Overlap
- Lecture 12 - Communication Overlap - II and AC-AC Converter-Introduction
- Lecture 13 - Single-Phase and Three-Phase AC Voltage Controllers
- Lecture 14 - Three-Phase AC Voltage Controllers and Cycloconverters
- Lecture 15 - Non-Isolated DC-DC Converters - I
- Lecture 16 - Non-Isolated DC-DC Converters - II
- Lecture 17 - Isolated DC-DC Converters - I
- Lecture 18 - Isolated DC-DC Converters - II and Cuk Converters
- Lecture 19 - Voltage Source Inverters
- Lecture 20 - VSI PWM Techniques - I
- Lecture 21 - VSI PWM Techniques - II
- Lecture 22 - SPWM and SVM Technique
- Lecture 23 - Current Source Inverter
- Lecture 24 - Power Electronics Applications

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

NPTEL Video Course - Electrical Engineering - NOC:Electrical Machines

Subject Co-ordinator - Prof. G.Bhuvaneshwari

Co-ordinating Institute - IIT - Delhi

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

- Lecture 1 - Introduction to Electrical Machines - I
- Lecture 2 - Single-phase and Three-phase AC Circuits, Magnetic circuits
- Lecture 3 - Magnetic Circuit - II
- Lecture 4 - Magnetic Circuit - III
- Lecture 5 - Transformers - Introduction
- Lecture 6 - Transformers - Amp-Turn Balance, Ideal and practical transformers
- Lecture 7 - Transformer Equivalent circuit and Reducing leakage
- Lecture 8 - Transformer equivalent circuit parameter determination
- Lecture 9 - Transformers - Voltage regulation and efficiency
- Lecture 10 - Auto-transformers
- Lecture 11 - PU notation and Introduction to Instrument transformers
- Lecture 12 - Instrument Transformers and All Day Efficiency
- Lecture 13 - Three Phase Transformers - I
- Lecture 14 - Three Phase Transformers - II
- Lecture 15 - Electromechanical Energy Conversion - I
- Lecture 16 - Electromechanical Energy Conversion - II
- Lecture 17 - Electromechanical Energy Conversion - III
- Lecture 18 - DC Machines-Introduction, Constructional Features
- Lecture 19 - DC Machines - EMF and Torque Equations and Generator Operation
- Lecture 20 - DC Machines - OCC and Load Characteristics Classification
- Lecture 21 - DC Machines - Armature Reaction
- Lecture 22 - DC Machines - Voltage Build-up and Load Characteristics
- Lecture 23 - DC Generator Characteristics and Introduction to DC Motors
- Lecture 24 - DC Motors
- Lecture 25 - DC Motor
- Lecture 26 - DC Motor
- Lecture 27 - DC Machine
- Lecture 28 - DC Machine
- Lecture 29 - 3 Phase Induction Machine

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

- Lecture 30 - 3 Phase Induction Machine
- Lecture 31 - 3 Phase Induction Machine
- Lecture 32 - Testing of Induction Motor
- Lecture 33 - 3 Phase Induction Machine
- Lecture 34 - Synchronous Machines
- Lecture 35 - Synchronous Machines
- Lecture 36 - Numerical Session
- Lecture 37 - Synchronization of Alternators
- Lecture 38 - Synchronous Machines
- Lecture 39 - Synchronous Machines
- Lecture 40 - Synchronous Machines
- Lecture 41 - Single Phase Induction Motors

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

NPTEL Video Course - Electrical Engineering - Special Electromechanical Systems

Subject Co-ordinator - Prof. S.S. Murthy

Co-ordinating Institute - IIT - Delhi

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

Lecture 1 - Special Electromechanical Systems (Introduction)

Lecture 2 - Classification of Machines

Lecture 3 - Single and Two-Phase Motors

Lecture 4 - Single-Phase Induction Motors-Analysis

Lecture 5 - Starting of Single-Phase Induction Motors

Lecture 6 - Single-Phase Induction Motors Analysis

Lecture 7 - Induction Motors Analysis by Symmetrical Components

Lecture 8 - Modelling of 1-Phase Induction Motor (One and Two Windings)

Lecture 9 - Asymmetrical Induction Motor Generalized Rotating Field Theory

Lecture 10 - Generalized Rotating Field Theory (Continued...)

Lecture 11 - Generalized Rotating Field Theory (Continued...)

Lecture 12 - Generalized Rotating Field Theory (Continued...)

Lecture 13 - Analysis of Asymmetrical Machine by Generalized Rotating Field Theory

Lecture 14 - Analysis of Asymmetrical Machine

Lecture 15 - Analysis of Asymmetrical Induction Machine

Lecture 16 - Generalised Rotating-Field Theory of Wound Rotor Ind. Machine Having Asymmetry in Stator and Rotor

Lecture 17 - Generalised Rotating-Field Theory of Wound Rotor Ind. Machine Having Asymmetry in Stator and Rotor

Lecture 18 - Testing of Small Electrical Machines

Lecture 19 - Testing of 1-Phase Induction Motors

Lecture 20 - Variable Reluctance (VR) Motors

Lecture 21 - Switched Reluctance Motor (Continued...)

Lecture 22 - Switched Reluctance Motor (Continued...)

Lecture 23 - Switched Reluctance Motor (Continued...)

Lecture 24 - Stepper Motors

Lecture 25 - Stepper Motors (Continued...)

Lecture 26 - Induction Generators

Lecture 27 - Induction Generators (Continued...)

Lecture 28 - Doubly Fed Induction Generators

Lecture 29 - Self Excited Induction Generators

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

- Lecture 30 - Self Excited Induction Generators (Continued...)
- Lecture 31 - Permanent Magnet Machines
- Lecture 32 - Squarewave Permanent Magnet Brushless Motor Drive
- Lecture 33 - Sine Wave Permanent Magnet Brushless Motor Drives
- Lecture 34 - Permanent Magnet Synchronous Motors

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

NPTEL Video Course - Electrical Engineering - NOC:High Power Multilevel Converters - Analysis, Design and Operation

Subject Co-ordinator - Prof. Anand Rup

Co-ordinating Institute - IIT - Delhi

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

- Lecture 1 - Basic Understanding of Converter (Introduction to Power Converters)
- Lecture 2 - Basic Understanding of Converter (Half Bridge and Full Bridge Circuit Operation)
- Lecture 3 - Basic Understanding of Converter (Sinusoidal Pulse width Modulation and Three Phase Circuit)
- Lecture 4 - Basic Understanding of Converter (Harmonics in Sinusoidal PWM)
- Lecture 5 - Third harmonic addition in Sine PWM
- Lecture 6 - Introduction to Space Vectors
- Lecture 7 - Space Vector PWM - Timing Calculation
- Lecture 8 - Space Vector PWM - Switching Sequence
- Lecture 9 - Space Vector PWM - Using Carriers
- Lecture 10 - Basic Introduction to Power Devices
- Lecture 11 - Introduction to Multilevel Converters
- Lecture 12 - Cascaded H-bridge Multilevel Converters
- Lecture 13 - Output Voltage Waveform Synthesis in CHB Converter and Basic of Asymmetrical CHB Converters
- Lecture 14 - Cascaded H-Bridge Converters
- Lecture 15 - Cascaded H-Bridge Converters
- Lecture 16 - Fault Tolerant Operation of Cascaded H-Bridge Converter - Part I
- Lecture 17 - Fault Tolerant Operation of Cascaded H-Bridge Converter - Part II
- Lecture 18 - Modular Multilevel Converter - Topology and Operation
- Lecture 19 - Modular Multilevel Converter - Arm and Cell Voltage Ratings
- Lecture 20 - Modular Multilevel Converter - Arm Currents
- Lecture 21 - Modular Multilevel Converter - Arm Energy Balancing
- Lecture 22 - Modular Multilevel Converter - Different Circuit Topologies
- Lecture 23 - Modular Multilevel Converter - PWM Technique and Capacitor Voltage Balancing
- Lecture 24 - Modular Multilevel Converter - Fault Tolerant Operation and Commercial Production
- Lecture 25 - Design of Components in MMC
- Lecture 26 - Neutral Point Clamped Converter - Circuit Topology - Part I
- Lecture 27 - Neutral Point Clamped Converter - Circuit Topology - Part II
- Lecture 28 - Neutral Point Clamped Converter - Space Vector Diagram
- Lecture 29 - Neutral Point Clamped Converter - Space Vector PWM

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

- Lecture 30 - NPC - Sinusoidal PWM and Space Vector PWM using Single Carrier Strategy
- Lecture 31 - Neutral Point Clamped Converter - Mid-point Voltage Fluctuations
- Lecture 32 - Neutral Point Clamped Converter - Capacitor Voltage Balancing
- Lecture 33 - Neutral Point Clamped Converter - Another Strategy of Capacitor Voltage Balancing
- Lecture 34 - Other Topologies of NPC Converters - Higher Level NPC, TNPC and Active NPC
- Lecture 35 - Multipulse Transformer - Part I
- Lecture 36 - Multipulse Transformer - Part II
- Lecture 37 - A Case Study on MMC and CHB
- Lecture 38 - Basics of Gate Driver Circuits
- Lecture 39 - Gate Driver Circuits - Turn-on and Turn-off Process
- Lecture 40 - Gate Driver Circuits - Features of Gate Drivers and Basics of Bootstrap Functionality
- Lecture 41 - Condition Monitoring of Converters
- Lecture 42 - Other Converter Topologies
- Lecture 43 - Summary of the Course

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

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Embedded System Design

Subject Co-ordinator - Prof. Badri N Subudhi, Prof.Dhananjay V. Gadre

Co-ordinating Institute - IIT - Jammu

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

- Lecture 1 - Introduction
- Lecture 2 - Introduction continued with Project demos
- Lecture 3 - Modular Approach to ESD
- Lecture 4 - Modular Approach to ESD (Continued...)
- Lecture 5 - Salient Features of Modern Microcontrollers
- Lecture 6 - Salient Features of Modern Microcontrollers (Continued...)
- Lecture 7 - Elements of Microcontroller Ecosystem
- Lecture 8 - Elements of Microcontroller Ecosystem (Continued...)
- Lecture 9 - Power Supply for Embedded Systems
- Lecture 10 - Power Supply for Embedded Systems (Continued...)
- Lecture 11 - Introduction to MSP430
- Lecture 12 - MSP430 Architecture
- Lecture 13 - MSP430 Architecture- (Continued...) And Introduction to Lunchbox
- Lecture 14 - Programming Methods for MSP430
- Lecture 15 - Physical Interfacing - 1
- Lecture 16 - Physical Interfacing - 2
- Lecture 17 - Physical Interfacing - 3
- Lecture 18 - Physical Interfacing - 4
- Lecture 19 - Physical Interfacing - 5
- Lecture 20 - Physical Interfacing - 6
- Lecture 21 - GIT, CCS Installation and Embedded C
- Lecture 22 - MSP430 Digital I/O
- Lecture 23 - MSP430 Digital I/O
- Lecture 24 - MSP430 Clock System and Reset
- Lecture 25 - Interrupts in MSP430
- Lecture 26 - Interrupts in MSP430 (Continued...)
- Lecture 27 - Interfacing Seven Segment Displays with MSP430; Low Power Modes in MSP430
- Lecture 28 - Interfacing Liquid Crystal Displays (LCD)
- Lecture 29 - MSP430 Timer Module

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

- Lecture 30 - Pulse Width Modulation, PWM using Timer Capture
- Lecture 31 - Analog to Digital Converter in the MSP430
- Lecture 32 - ADC and DAC using R2R Ladder and Random number generation using LFSR
- Lecture 33 - Serial Communication Protocols, USCI Module in MSP430
- Lecture 34 - MSP430 Timer in Capture Mode
- Lecture 35 - Coding Ninja
- Lecture 36 - Building an Electronics Project
- Lecture 37 - Circuit Prototyping Techniques
- Lecture 38 - Single Purpose Computers
- Lecture 39 - Single Purpose Computers (Continued...)
- Lecture 40 - Recap of Course Coverage and Project Demonstration from Concept to Final

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

NPTEL Video Course - Electrical Engineering - NOC:Power Quality

Subject Co-ordinator - Prof. Bhim Singh

Co-ordinating Institute - IIT - Delhi

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

- Lecture 1 - Power Quality - An Introduction
- Lecture 2 - Power Quality Standards and Monitoring
- Lecture 3 - Power Quality Standards and Monitoring (Continued...)
- Lecture 4 - Passive Shunt and Series Compensations
- Lecture 5 - Passive Shunt and Series Compensations (Continued...)
- Lecture 6 - Passive Shunt and Series Compensations (Continued...)
- Lecture 7 - Active Shunt Compensation
- Lecture 8 - Active Shunt Compensation (Continued...)
- Lecture 9 - Active Shunt Compensation (Continued...)
- Lecture 10 - Active Series Compensation
- Lecture 11 - Active Series Compensation (Continued...)
- Lecture 12 - Unified Power Quality Compensators
- Lecture 13 - Unified Power Quality Compensators (Continued...)
- Lecture 14 - Unified Power Quality Compensators (Continued...)
- Lecture 15 - Loads Which Cause Power Quality Problems
- Lecture 16 - Loads Which Cause Power Quality Problems (Continued...)
- Lecture 17 - Passive Power Filters
- Lecture 18 - Passive Power Filters (Continued...)
- Lecture 19 - Passive Power Filters (Continued...)
- Lecture 20 - Shunt Active Power Filters
- Lecture 21 - Shunt Active Power Filters (Continued...)
- Lecture 22 - Shunt Active Power Filters (Continued...)
- Lecture 23 - Active Series Power Filters
- Lecture 24 - Active Series Power Filters (Continued...)
- Lecture 25 - Active Series Power Filters (Continued...)
- Lecture 26 - Hybrid Power Filters
- Lecture 27 - Hybrid Power Filters (Continued...)
- Lecture 28 - Hybrid Power Filters (Continued...)
- Lecture 29 - AC-DC Converters That Cause Power Quality

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

- Lecture 30 - Improved Power Quality Converters - AC-DC Boost Converters
- Lecture 31 - Improved Power Quality Converters - AC-DC Boost Converters (Continued...)
- Lecture 32 - Improved Power Quality Converters - AC-DC Buck Converters
- Lecture 33 - Improved Power Quality Converters - AC-DC Buck-Boost Converters
- Lecture 34 - Improved Power Quality Converters - AC-DC Buck-Boost Converters (Continued...)
- Lecture 35 - Improved Power Quality Converters - AC-DC Buck-Boost Converters (Continued...)
- Lecture 36 - Three Phase AC-DC Improved Power Quality Converters
- Lecture 37 - Multipulse Converters
- Lecture 38 - Multipulse Converters (Continued...)
- Lecture 39 - Multipulse Converters (Continued...)
- Lecture 40 - Power Quality Improvement in Solar Energy Conversion System
- Lecture 41 - Power Quality Improvement in Solar Energy Conversion System (Continued...)
- Lecture 42 - Power Quality Improvement in Wind Energy Conversion System
- Lecture 43 - Power Quality Improvement in Diesel Generator Set Based Power Supply System
- Lecture 44 - Power Quality Improvement in Diesel Generator Set Based Power Supply System (Continued...)
- Lecture 45 - Power Quality Improvement in Distributed Generation Sources Based Microgrids

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

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Electrical Engineering

Subject Co-ordinator - Prof. Bhim Singh

Co-ordinating Institute - IIT - Delhi

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

Lecture 1
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Lecture 5
Lecture 6
Lecture 7
Lecture 8
Lecture 9
Lecture 10
Lecture 11
Lecture 12
Lecture 13
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Lecture 22
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Lecture 27
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Lecture 29

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Lecture 30
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Lecture 41
Lecture 42

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

NPTEL Video Course - Electrical Engineering - NOC:Transducers for Instrumentation

Subject Co-ordinator - Ankur Gupta

Co-ordinating Institute - IIT - Delhi

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

Lecture 30
Lecture 31
Lecture 32
Lecture 33
Lecture 34
Lecture 35
Lecture 36

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

NPTEL Video Course - Electrical Engineering - NOC:Computer-Aided Design of Electrical Machines

Subject Co-ordinator - Prof. Bhim Singh

Co-ordinating Institute - IIT - Delhi

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

Lecture 1 - Course Outline and Introduction
Lecture 2 - Fundamental - I
Lecture 3 - Equivalent Circuit Approach to Design
Lecture 4 - Transformer Design - I
Lecture 5 - Transformer Design - II
Lecture 6 - Transformer Design - III
Lecture 7 - Transformer Design - IV
Lecture 8 - Windings in Electrical Machines
Lecture 9 - Design of DC Machine - I
Lecture 10 - Design of DC Machine - II
Lecture 11 - Design of DC Machine - III
Lecture 12 - Design of Three-Phase Induction Motors - I
Lecture 13 - Design of Three-Phase Induction Motors - II
Lecture 14 - Design of Three-Phase Induction Motors - III
Lecture 15 - Design of Three-Phase Induction Motors - IV
Lecture 16 - Design of Single-Phase Induction Machine - I
Lecture 17 - Design of Single-Phase Induction Machine - II
Lecture 18 - Design of Single-Phase Induction Machine - III
Lecture 19 - Design of Three-Phase Synchronous Machines - I
Lecture 20 - Design of Three-Phase Synchronous Machines - II
Lecture 21 - Design of Three-Phase Synchronous Machines - III
Lecture 22 - Design of Three-Phase Synchronous Machines - IV
Lecture 23 - Design of Synchronous Reluctance Machines - I
Lecture 24 - Design of Synchronous Reluctance Machines - II
Lecture 25 - Design of Synchronous Reluctance Machines - III
Lecture 26 - Design of Brushless PM Machines - I
Lecture 27 - Design of Brushless PM Machines - II
Lecture 28 - Design of Brushless PM Machines - III
Lecture 29 - Design of Brushless PM Machines - IV

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

- Lecture 30 - Design of Brushless PM Machines - V
- Lecture 31 - Design of Switched Reluctance Machines - I
- Lecture 32 - Design of Switched Reluctance Machines - II
- Lecture 33 - Design of Switched Reluctance Machines - III
- Lecture 34 - Design of Stepper Machines - I
- Lecture 35 - Design of Stepper Machines - II
- Lecture 36 - Design of Axial Flux Machines - I
- Lecture 37 - Design of Axial Flux Machines - II
- Lecture 38 - Computer Aided Design and Analysis Method - I
- Lecture 39 - Computer Aided Design and Analysis Method - II
- Lecture 40 - Case Studies and Tutorials - I and II
- Lecture 41 - Tutorial-III : Determination of Transformer Operating Point
- Lecture 42 - Tutorial-IV

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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- 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 - NOC: Microwave Engineering

Subject Co-ordinator - Dr. Ratnajit Bhattacharjee

Co-ordinating Institute - IIT - Guwahati

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

- Lecture 1 - Introduction to Microwave Engineering
- Lecture 2 - Introduction to Transmission Line Theory
- Lecture 3 - Lossy Transmission Line
- Lecture 4 - Smith Chart
- Lecture 5 - Introduction to Waveguides and Rectangular Waveguide
- Lecture 6 - Circular Waveguide
- Lecture 7 - Attenuation Waveguide
- Lecture 8 - N-port microwave networks and equivalent voltages and currents
- Lecture 9 - Scattering Matrix (S-Parameters) Part-1
- Lecture 10 - Scattering Matrix (S-parameters) Part-2 and Transmission Matrix (ABCD-Parameters)
- Lecture 11 - Impedance Matching Using L-Section and Series Stub Networks
- Lecture 12 - Impedance Matching Using Shunt Stub, Double Stub and Quarter wave Transformer
- Lecture 13 - Multisection Matching Networks and Tapered Lines
- Lecture 14 - Series and Parallel RLC Resonators
- Lecture 15 - Transmission Line Resonators
- Lecture 16 - Waveguide Resonators
- Lecture 17 - Introduction to power dividers
- Lecture 18 - Directional couplers
- Lecture 19 - Microwave Filters - Part 1
- Lecture 20 - Microwave Filters - Part 2
- Lecture 21 - Characteristics of Microwave BJT and FET
- Lecture 22 - PIN Diodes and Control Circuits
- Lecture 23 - Schottky Diodes and Detectors and Tunnel Diodes
- Lecture 24 - Gunn Diodes, IMPATT Diodes and Varactor Diodes
- Lecture 25 - Two-Port Power Gain and Stability
- Lecture 26 - Design of single stage transistor amplifier (for maximum gain, specified gain, low noise)
- Lecture 27 - RF oscillator
- Lecture 28 - Limitations of Conventional Tubes at Microwave Ranges
- Lecture 29 - Introduction to Klystron

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

- Lecture 30 - Reflex Klystron, Magnetron and TWT
- Lecture 31 - Ferrite Devices
- Lecture 32 - Planar transmission lines for MIC
- Lecture 33 - Lumped elements for MIC
- Lecture 34 - Lumped inductor, HMIC and MMIC
- Lecture 35 - Overview of Radar
- Lecture 36 - Cellular Communication
- Lecture 37 - Satellite Communication and Applications of Microwave

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

NPTEL Video Course - Electrical Engineering - NOC:Microprocessors and Interfacing

Subject Co-ordinator - Prof. Shaik Rafi Ahamed

Co-ordinating Institute - IIT - Guwahati

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

- Lecture 1 - Microprocessor Operations
- Lecture 2 - 8086 Flags
- Lecture 3 - Functional Diagram of 8086
- Lecture 4 - 8086 Common and Minimum Mode Signals
- Lecture 5 - 8086 Maximum Mode Signals
- Lecture 6 - 8086 Data Transfer Instructions
- Lecture 7 - 8086 Arithmetic Instructions - I
- Lecture 8 - 8086 Arithmetic Instructions - II
- Lecture 9 - 8086 Logical Instructions
- Lecture 10 - 8086 Branch and String Instructions
- Lecture 11 - 8086 Interrupt and Machine Control Instructions
- Lecture 12 - Sum of Products, Multi-byte addition
- Lecture 13 - Largest number, 2's complement Programs
- Lecture 14 - Programs on Subroutines
- Lecture 15 - ROM, RAM
- Lecture 16 - Example I
- Lecture 17 - Example II
- Lecture 18 - Architecture, Interfacing to Simple I/O
- Lecture 19 - Keyboard Interface
- Lecture 20 - 7-segment Display Interface
- Lecture 21 - Multiplexed 7-segment Display Interface
- Lecture 22 - Stepper motor, Liquid level control
- Lecture 23 - Traffic light control, A/D converter
- Lecture 24 - D/A converter
- Lecture 25 - Electronic weighing machine
- Lecture 26 - Programmable Interval Timer (8254)
- Lecture 27 - Modes of 8254
- Lecture 28 - Architecture of 8259
- Lecture 29 - Initialization command words of 8259

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

- Lecture 30 - Operational command words of 8259
- Lecture 31 - 8237 Architecture, interfacing and Programming
- Lecture 32 - Basic Concepts of serial I/O
- Lecture 33 - Basic Concepts of serial I/O (Continued...)
- Lecture 34 - Architecture of 8251

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

NPTEL Video Course - Electrical Engineering - NOC:Statistical Signal Processing

Subject Co-ordinator - Prof. Prabin Kumar Bora

Co-ordinating Institute - IIT - Guwahati

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

- Lecture 1 - Overview of Statistical Signal Processing
- Lecture 2 - Probability and Random Variables
- Lecture 3 - Linear Algebra of Random Variables
- Lecture 4 - Random Processes
- Lecture 5 - Linear Shift Invariant Systems with Random Inputs
- Lecture 6 - White Noise and Spectral Factorization Theorem
- Lecture 7 - Linear Models of Random Signals
- Lecture 8 - Estimation Theory - 1
- Lecture 9 - Estimation Theory - 2
- Lecture 10 - Cramer Rao Lower Bound 2
- Lecture 11 - MVUE through Sufficient Statistic - 1
- Lecture 12 - MVUE through Sufficient Statistic - 2
- Lecture 13 - Method of Moments and Maximum Likelihood Estimators
- Lecture 14 - Properties of Maximum Likelihood Estimator (MLE)
- Lecture 15 - Bayesian Estimators - 1
- Lecture 16 - Bayesian Estimators - 2
- Lecture 17 - Optimal linear filters
- Lecture 18 - FIR Wiener filter
- Lecture 19 - Non-Causal IIR Wiener Filter
- Lecture 20 - Causal IIR Wiener Filter
- Lecture 21 - Linear Prediction of Signals - 1
- Lecture 22 - Linear Prediction of Signals - 2
- Lecture 23 - Linear Prediction of Signals - 3
- Lecture 24 - Review Assignment - 1
- Lecture 25 - Adaptive Filters - 1
- Lecture 26 - Adaptive Filters - 2
- Lecture 27 - Adaptive Filters - 3
- Lecture 28 - Review Assignment - 2
- Lecture 29 - Adaptive Filters - 4

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

- Lecture 30 - Adaptive Filters - 4 (Continued...)
- Lecture 31 - Review Assignment - 3
- Lecture 32 - Recursive Least Squares (RLS) Adaptive Filter - 1
- Lecture 33 - Recursive Least Squares (RLS) Adaptive Filter - 2
- Lecture 34 - Review Assignment - 4
- Lecture 35 - Kalman Filter - 1
- Lecture 36 - Vector Kalman Filter
- Lecture 37 - Linear Models of Random Signals
- Lecture 38 - Review - 1
- Lecture 39 - Review - 2

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

NPTEL Video Course - Electrical Engineering - NOC:Computer Vision and Image Processing - Fundamentals and App

Subject Co-ordinator - Prof. M. K. Bhuyan

Co-ordinating Institute - IIT - Guwahati

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

- Lecture 1 - Introduction to Digital Image Processing
- Lecture 2 - Introduction to Computer Vision
- Lecture 3 - Introduction to Computer Vision and Basic Concepts of Image Formation
- Lecture 4 - Shape From Shading
- Lecture 5 - Image Formation: Geometric Camera Models - I
- Lecture 6 - Image Formation: Geometric Camera Models - II
- Lecture 7 - Image Formation: Geometric Camera Models - III
- Lecture 8 - Image Formation in a Stereo Vision Setup
- Lecture 9 - Image Reconstruction from a Series of Projections
- Lecture 10 - Image Reconstruction from a Series of Projections
- Lecture 11 - Image Transforms - I
- Lecture 12 - Image Transforms - II
- Lecture 13 - Image Transforms - III
- Lecture 14 - Image Transforms - IV
- Lecture 15 - Image Enhancement
- Lecture 16 - Image Filtering - I
- Lecture 17 - Image Filtering - II
- Lecture 18 - Colour Image Processing - I
- Lecture 19 - Colour Image Processing - II
- Lecture 20 - Image Segmentation
- Lecture 21 - Image Features and Edge Detection
- Lecture 22 - Edge Detection
- Lecture 23 - Hough Transform
- Lecture 24 - Image Texture Analysis - I
- Lecture 25 - Image Texture Analysis - II
- Lecture 26 - Object Boundary and Shape Representations - I
- Lecture 27 - Object Boundary and Shape Representations - II
- Lecture 28 - Interest Point Detectors
- Lecture 29 - Image Features - HOG and SIFT

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

- Lecture 30 - Introduction to Machine Learning - I
- Lecture 31 - Introduction to Machine Learning - II
- Lecture 32 - Introduction to Machine Learning - III
- Lecture 33 - Introduction to Machine Learning - IV
- Lecture 34 - Introduction to Machine Learning - V
- Lecture 35 - Artificial Neural Network for Pattern Classification - I
- Lecture 36 - Artificial Neural Network for Pattern Classification - II
- Lecture 37 - Introduction to Deep Learning
- Lecture 38 - Gesture Recognition
- Lecture 39 - Background Modelling and Motion Estimation
- Lecture 40 - Object Tracking
- Lecture 41 - Programming Examples

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

NPTEL Video Course - Electrical Engineering - NOC: System Design through VERILOG

Subject Co-ordinator - Prof. Shaik Rafi Ahamed

Co-ordinating Institute - IIT - Guwahati

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

- Lecture 1 - Verilog Operators and Modules
- Lecture 2 - Verilog Ports, Data types and Assignments
- Lecture 3 - Basics of gate level modeling
- Lecture 4 - Half adder, full adder and ripple carry adder
- Lecture 5 - Parallel adder/subtractor
- Lecture 6 - Multiplier and comparator
- Lecture 7 - Decoder, encoder and multiplexer
- Lecture 8 - Demultiplexer, read only memory
- Lecture 9 - Review of flip-flops
- Lecture 10 - Verilog modeling of flip-flops
- Lecture 11 - Modeling of CMOS gates and Boolean functions
- Lecture 12 - Modeling using transmission gates, CMOS delay times
- Lecture 13 - Signal strengths
- Lecture 14 - Basics of dataflow modeling
- Lecture 15 - Examples of dataflow modeling
- Lecture 16 - Basics of behavioral modeling
- Lecture 17 - Examples of behavioral modeling
- Lecture 18 - Verilog modeling of counters
- Lecture 19 - Verilog modeling of sequence detector
- Lecture 20 - Verilog modeling FSMs and shift registers
- Lecture 21 - Combinational circuit examples
- Lecture 22 - Sequential circuit examples
- Lecture 23 - Arithmetic and Logic Unit (ALU)
- Lecture 24 - Static RAM and Braun Multiplier
- Lecture 25 - FIR filter implementation
- Lecture 26 - Baugh-Wooley signed multiplier architecture
- Lecture 27 - IIR filter implementation

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NPTEL Video Course - Electrical Engineering - NOC:Usability Engineering

Subject Co-ordinator - Prof. Debayan Dhar

Co-ordinating Institute - IIT - Guwahati

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

Lecture 1 - Introduction to Usability
Lecture 2 - Usability - Historical Foundations
Lecture 3 - Standard Terminologies
Lecture 4 - Elements of User Experience
Lecture 5 - Usability in software development - I
Lecture 6 - Usability in software development - II
Lecture 7 - User Centered Design Process - I
Lecture 8 - User Centered Design Process - II
Lecture 9 - User Centered Design Process - III
Lecture 10 - Requirement Analysis - I (A)
Lecture 11 - Requirement Analysis - I (B)
Lecture 12 - Requirement Analysis - I (C)
Lecture 13 - Requirement Analysis - I (D)
Lecture 14 - Requirement Analysis - I (E)
Lecture 15 - Requirement Analysis - I (F)
Lecture 16 - Requirement Analysis - II (A)
Lecture 17 - Requirement Analysis - II (B)
Lecture 18 - Requirement Analysis - II (C)
Lecture 19 - Requirement Analysis - II (D)
Lecture 20 - Requirement Analysis - III (A)
Lecture 21 - Eye Tracker
Lecture 22 - Demonstration of an Eye tracking device
Lecture 23 - Requirement Analysis - III (B)
Lecture 24 - Mapping Experiences
Lecture 25 - Cognitive Issues - I
Lecture 26 - Cognitive Issues - II
Lecture 27 - Cognitive Issues - III
Lecture 28 - Cognitive Issues - IV
Lecture 29 - Competitive analysis and preparing for design briefing - I

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- Lecture 30 - Competitive analysis and preparing for design briefing - II
- Lecture 31 - Conceptualization and Prototyping - I (A)
- Lecture 32 - Conceptualization and Prototyping - I (B)
- Lecture 33 - Conceptualization and Prototyping - I (C)
- Lecture 34 - Conceptualization and Prototyping - II (A)
- Lecture 35 - Conceptualization and Prototyping - II (B)
- Lecture 36 - Usability heuristics and testing - I
- Lecture 37 - Usability heuristics and testing - II
- Lecture 38 - Usability heuristics and testing - III
- Lecture 39 - Usability Testing (A)
- Lecture 40 - Usability Testing (B)
- Lecture 41 - Usability Testing (C)
- Lecture 42 - UI/UX design based on Garret model: a case study
- Lecture 43 - Effective contextual enquiry
- Lecture 44 - Contextual enquiry: case study

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

NPTEL Video Course - Electrical Engineering - NOC:Probability and Random Processes

Subject Co-ordinator - Prof. Ribhu, Prof. Rohit Sinha

Co-ordinating Institute - IIT - Guwahati

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

Lecture 1 - Introduction
Lecture 2 - Algebra of Events
Lecture 3 - Axioms of Probability
Lecture 4 - Example 1
Lecture 5 - Example 2
Lecture 6 - Example 3
Lecture 7 - Example 4
Lecture 8 - Example 5
Lecture 9 - Conditional Probability
Lecture 10 - Bayes Theorem 1
Lecture 11 - Bayes Theorem 2
Lecture 12 - A Brief Review
Lecture 13 - Example 1
Lecture 14 - Example 2
Lecture 15 - Example 3
Lecture 16 - Example 4
Lecture 17 - Example 5
Lecture 18 - Independent Events
Lecture 19 - A Brief Review
Lecture 20 - Example 1
Lecture 21 - Example 2
Lecture 22 - Example 3
Lecture 23 - Example 4
Lecture 24 - Discrete Random Variables
Lecture 25 - Expectation
Lecture 26 - Moments
Lecture 27 - Variance
Lecture 28 - Binomial Random Variables
Lecture 29 - Poisson Random Variables

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- Lecture 30 - More on Poission Random Variables
- Lecture 31 - Properties of the CDF
- Lecture 32 - A Brief Review - I
- Lecture 33 - A Brief Review - II
- Lecture 34 - Example 1
- Lecture 35 - Example 2
- Lecture 36 - Example 3
- Lecture 37 - Example 4
- Lecture 38 - Example 5
- Lecture 39 - Example 6
- Lecture 40 - Example 7
- Lecture 41 - Example 8
- Lecture 42 - Example 9
- Lecture 43 - Continuous Random Variables
- Lecture 44 - Expectation of Continuous random variables
- Lecture 45 - The uniform and the Gaussian Random variables
- Lecture 46 - The mean and variance of a Gaussian Random Variable
- Lecture 47 - The exponential random variable and other continuous distributions
- Lecture 48 - A Brief Review
- Lecture 49 - Example 1
- Lecture 50 - Example 2
- Lecture 51 - Example 3
- Lecture 52 - Example 4
- Lecture 53 - Example 5
- Lecture 54 - Functions of a random variable
- Lecture 55 - Functions of a random variable
- Lecture 56 - The moment generating function
- Lecture 57 - Conditional Distributions
- Lecture 58 - Bivariate Distributions
- Lecture 59 - Independence of Random Variables
- Lecture 60 - Jointly Gaussian Random Variables and Circular symmetry
- Lecture 61 - Jointly Discrete Random Variables
- Lecture 62 - One Function of two random variables
- Lecture 63 - Order Statistics
- Lecture 64 - Two functions of two random variables
- Lecture 65 - Joint Moments
- Lecture 66 - Joint Charactristic Functions
- Lecture 67 - Conditional Distributions for multiple random variables
- Lecture 68 - Conditional Expectations

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- Lecture 69 - Examples
- Lecture 70 - Random Vectors
- Lecture 71 - Independence of Random Variables
- Lecture 72 - Complex Random Variables
- Lecture 73 - Covariance Matrices
- Lecture 74 - Conditional Densities
- Lecture 75 - Gaussianity
- Lecture 76 - Chi Squared Densities
- Lecture 77 - Examples
- Lecture 78 - Estimation Theory
- Lecture 79 - Measurements
- Lecture 80 - Sequences of Random Variables
- Lecture 81 - Laws of large numbers
- Lecture 82 - Random processes
- Lecture 83 - Stationarity, Cyclostationarity, Ergodicity
- Lecture 84 - Random Processes as Signals (PSD and LTI Response)
- Lecture 85 - White and Gaussian Processes Noise

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

NPTEL Video Course - Electrical Engineering - NOC:Simulation of Communication Systems using Matlab

Subject Co-ordinator - Dr. Ribhu

Co-ordinating Institute - IIT - Guwahati

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

Lecture 1 - Introduction
Lecture 2 - Basics of MATLAB
Lecture 3 - Data Types
Lecture 4 - Floating Point Numbers
Lecture 5 - Scripts and Flow of Control
Lecture 6 - The For Loop
Lecture 7 - Arrays
Lecture 8 - Indexing
Lecture 9 - Some Results from Linear Algebra
Lecture 10 - Matrix Multiplication
Lecture 11 - Eigenvalues and Eigenvectors
Lecture 12 - Complex Numbers
Lecture 13 - Hermitian Matrices
Lecture 14 - Matrix Inversion
Lecture 15 - Signals
Lecture 16 - Convolution
Lecture 17 - Probability
Lecture 18 - Bayes Theorem
Lecture 19 - Random Variables
Lecture 20 - Clinical Trials - I
Lecture 21 - Clinical Trials - II
Lecture 22 - Random Numbers
Lecture 23 - Random Distributions
Lecture 24 - Histograms - I
Lecture 25 - Histograms - II
Lecture 26 - Functions of Random Variables
Lecture 27 - Generating Random Distributions
Lecture 28 - Laws of Large numbers
Lecture 29 - Random Processes

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

- Lecture 30 - Properties of Random Processes
- Lecture 31 - Power Spectra
- Lecture 32 - Signals and Noise
- Lecture 33 - Stochastic Models
- Lecture 34 - The AR-1 Process
- Lecture 35 - Stochastic Models II
- Lecture 36 - Yule Walker Equations
- Lecture 37 - Markov Chains - I
- Lecture 38 - Markov Chains - II
- Lecture 39 - Markov Chains - III
- Lecture 40 - Analog to Digital Conversion
- Lecture 41 - K Means
- Lecture 42 - Correlation
- Lecture 43 - Predictive Coding
- Lecture 44 - Image Compression
- Lecture 45 - Transform Domain Compression
- Lecture 46 - Multi Resolution Coding
- Lecture 47 - Introduction to Communications
- Lecture 48 - Low Pass and BandPass Signals
- Lecture 49 - Signal Spaces
- Lecture 50 - PAM
- Lecture 51 - Detection
- Lecture 52 - Effects of AWGN
- Lecture 53 - ML Detection - I
- Lecture 54 - ML Detection - II
- Lecture 55 - The Union Bound
- Lecture 56 - Symbol Error Rates
- Lecture 57 - Choosing Constellations
- Lecture 58 - Orthogonal Signalling
- Lecture 59 - Non-Coherent Detection - 1
- Lecture 60 - Non-Coherent Detection - 2
- Lecture 61 - DPSK - I
- Lecture 62 - DPSK - II
- Lecture 63 - Introduction to Wireless Communications
- Lecture 64 - Conclusion

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

NPTEL Video Course - Electrical Engineering - NOC:Machine Learning and Deep Learning - Fundamentals and Appli

Subject Co-ordinator - Prof. M.K. Bhuyan

Co-ordinating Institute - IIT - Guwahati

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

- Lecture 1 - Introduction to Machine Learning
- Lecture 2 - Performance Measures of Classification
- Lecture 3 - Bias-Variance Tradeoff
- Lecture 4 - Regression
- Lecture 5 - Bayesian Decision Theory - 1
- Lecture 6 - Bayesian Decision Theory - 2
- Lecture 7 - Bayes Decision Theory - Binary Features
- Lecture 8 - Bayesian Decision Theory - 3
- Lecture 9 - Bayesian Decision Theory - 4
- Lecture 10 - Bayesian Belief Networks
- Lecture 11 - Parameter Estimation and Maximum Likelihood Estimation
- Lecture 12 - Parameter Estimation and Bayesian Estimation
- Lecture 13 - Concept of non-parametric techniques
- Lecture 14 - Density Estimation by Parzen Window
- Lecture 15 - Parzen Window and K nearest neighbor algorithm
- Lecture 16 - Linear Discriminant Functions and Perceptron Criteria - Part I
- Lecture 17 - Linear Discriminant Functions and Perceptron Criteria - Part II
- Lecture 18 - Linear Discriminant Functions and Perceptron Criteria - Part III
- Lecture 19 - Support Vector Machine - Part I
- Lecture 20 - Support Vector Machine - Part II
- Lecture 21 - Logistic Regression
- Lecture 22 - Decision Tree
- Lecture 23 - Hidden Markov Model (HMM)
- Lecture 24 - Ensemble Classifiers - Part I
- Lecture 25 - Ensemble Classifiers - Part II
- Lecture 26 - Dimensionality Problem and Principal Component Analysis
- Lecture 27 - Principal Component Analysis
- Lecture 28 - Linear Discriminant Analysis (LDA) - Part I
- Lecture 29 - Linear Discriminant Analysis (LDA) - Part II

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

- Lecture 30 - Gaussian Mixture Model and EM Algorithm
- Lecture 31 - K-means clustering.
- Lecture 32 - Fuzzy K-means clustering
- Lecture 33 - Hierarchical Agglomerative Clustering and Mean-shift Clustering
- Lecture 34 - Artificial Neural Networks for Pattern Classification - Part 1
- Lecture 35 - Artificial Neural Networks for Pattern Classification - Part 2
- Lecture 36 - Artificial Neural Networks for Pattern Classification - Part 3
- Lecture 37 - Introduction to Deep Learning and Convolutional Neural Network (CNN)
- Lecture 38 - Vanishing and Exploding Gradients in Deep Neural Networks
- Lecture 39 - CNN Architectures - LeNet-5 and AlexNet
- Lecture 40 - CNN Architectures - VGG 16, GoogLeNet and ResNet
- Lecture 41 - Generative Adversarial Networks (GAN) - Fundamentals and Applications
- Lecture 42 - U-Net: Convolutional Networks for Image Segmentation
- Lecture 43 - Introduction to Autoencoder and Recurrent Neural Networks (RNN)
- Lecture 44 - Programming Concepts - 1
- Lecture 45 - Programming Concepts - 2
- Lecture 46 - Problem Solving Session - 1
- Lecture 47 - Problem Solving Session - 2
- Lecture 48 - Problem Solving Session - 3

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

NPTEL Video Course - Electrical Engineering - NOC: Integrated Circuits and Applications

Subject Co-ordinator - Prof. Shaik Rafi Ahamed

Co-ordinating Institute - IIT - Guwahati

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

- Lecture 1 - Introduction to Integrated Circuits
- Lecture 2 - Summing and Difference Amplifiers
- Lecture 3 - Instrumentation Amplifier
- Lecture 4 - Integrator and Differentiator
- Lecture 5 - Precision Half Wave and Full Wave Rectifiers
- Lecture 6 - Clipper and Clamper circuits
- Lecture 7 - Logarithmic and Anti-logarithmic Amplifiers
- Lecture 8 - DC Characteristics (Offset Currents and Voltages)
- Lecture 9 - AC Characteristics (Frequency Response)
- Lecture 10 - AC Characteristics (Compensation Techniques and Slew Rate)
- Lecture 11 - Examples on Design of Adder and Subtractor Circuits
- Lecture 12 - Examples on Transfer Function Computation
- Lecture 13 - Examples on Instrumentation Amplifier
- Lecture 14 - Examples on CMRR Computation
- Lecture 15 - First Order Low Pass Filter
- Lecture 16 - Second Order Low Pass Filter
- Lecture 17 - Design of Butterworth Low Pass Filter
- Lecture 18 - Design of Butterworth High Pass Filter
- Lecture 19 - Design of Band Pass Filter
- Lecture 20 - Design of Band Stop Filter
- Lecture 21 - All Pass Filter
- Lecture 22 - RC Phase Shift Oscillator
- Lecture 23 - Wien Bridge, Colpitt's and Hartley Oscillators
- Lecture 24 - Comparator and Schmitt Trigger Circuits
- Lecture 25 - Square Wave and Triangular Waveform Generators
- Lecture 26 - Monostable operation
- Lecture 27 - Monostable applications - I
- Lecture 28 - Monostable applications - II
- Lecture 29 - Astable operation

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

- Lecture 30 - Phase detectors
- Lecture 31 - Voltage Controlled oscillator
- Lecture 32 - PLL IC 565 operation
- Lecture 33 - PLL Applications
- Lecture 34 - Fixed Voltage Regulator
- Lecture 35 - Adjustable Voltage Regulator
- Lecture 36 - Switching Regulators
- Lecture 37 - Weighted Resistor D/A Converter
- Lecture 38 - R-2R Ladder D/A Converter
- Lecture 39 - Inverted R-2R Ladder D/A Converter
- Lecture 40 - Analog to Digital Converters
- Lecture 41 - CMOS Inverter
- Lecture 42 - CMOS NAND Gate
- Lecture 43 - Transient Response of CMOS NAND and NOR Gates
- Lecture 44 - Boolean function Realization using CMOS and Sizing

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
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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
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
Lecture 10 - High Voltage DC Transmission
Lecture 11 - High Voltage DC Transmission
Lecture 12 - High Voltage DC Transmission
Lecture 13 - High Voltage DC Transmission
Lecture 14 - High Voltage DC Transmission
Lecture 15 - High Voltage DC Transmission
Lecture 16 - High Voltage DC Transmission
Lecture 17 - High Voltage DC Transmission
Lecture 18 - High Voltage DC Transmission
Lecture 19 - High Voltage DC Transmission
Lecture 20 - High Voltage DC Transmission
Lecture 21 - High Voltage DC Transmission
Lecture 22 - High Voltage DC Transmission
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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 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

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

- 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 Intervals
- Lecture 44 - Companding for Non-Uniform Quantization, μ -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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- 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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- 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

- 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

- 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

- 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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- 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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- 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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- 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 - NOC:Electromagnetic Waves in Guided and Wireless Media

Subject Co-ordinator - Dr. Pradeep Kumar K

Co-ordinating Institute - IIT - Kanpur

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

- Lecture 1 - Introduction and Types of Transmission Lines
- Lecture 2 - Distributed Circuit Model of Uniform Transmission Line
- Lecture 3 - Voltage and Current Equation of the Transmission line
- Lecture 4 - Sinusoidal Excitation of Transmission Line (Propagation constant, Characteristic Impedance)
- Lecture 5 - Properties of Transmission Line (Reflection Coefficient, Input Impedance, Standing Wave Ratio)
- Lecture 6 - Power Calculations and Introduction to Smith Chart
- Lecture 7 - Smith Chart
- Lecture 8 - Additional Applications of Smith Chart
- Lecture 9 - Time domain Analysis of Transmission Line - I
- Lecture 10 - Time domain Analysis of Transmission Line - II
- Lecture 11 - Usage of Lattice Diagrams
- Lecture 12 - TDR analysis of Transmission Lines
- Lecture 13 - Introduction to Propagation of Electromagnetic Waves
- Lecture 14 - Uniform Plane Waves - I
- Lecture 15 - Uniform Plane Waves - II
- Lecture 16 - Poynting Vector, Average Power, Polarization
- Lecture 17 - Uniform Plane Waves in Lossy Medium
- Lecture 18 - Normal Incidence of Plane Waves
- Lecture 19 - Oblique Incidence of Plane Waves - I
- Lecture 20 - Oblique Incidence of Plane Waves - II
- Lecture 21 - Total Internal Reflection
- Lecture 22 - Slab Waveguides
- Lecture 23 - Optical Fibers
- Lecture 24 - Parallel Plate Waveguides
- Lecture 25 - Rectangular Waveguides
- Lecture 26 - Modes of Rectangular Waveguides
- Lecture 27 - Waveguides summary and Introduction to Radiation
- Lecture 28 - Solution to Electric Scalar Potential and Magnetic Vector Potential Equations
- Lecture 29 - Further discussion on Magnetic Vector Potential and Elementary Hertzian Dipole

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

- Lecture 30 - Near field and Far-field Antenna and Properties of Antennas
- Lecture 31 - Linear antenna - I
- Lecture 32 - Linear antenna - II and Properties of Transmitting and Receiving Antenna
- Lecture 33 - Friis Transmission Formula
- Lecture 34 - Antenna Array
- Lecture 35 - Wireless Channel
- Lecture 36 - Further discussion on Wireless Channel Modelling
- Lecture 37 - Diffraction - I
- Lecture 38 - Diffraction - II
- Lecture 39 - Distribution of Laser Beam
- Lecture 40 - Interference (Double slit experiment, Fabry Perot Interferometer)
- Lecture 41 - Summary

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

NPTEL Video Course - Electrical Engineering - NOC:Basic Electric Circuits

Subject Co-ordinator - Prof. Ankush Sharma

Co-ordinating Institute - IIT - Kanpur

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

Lecture 1 - Basic Concepts
Lecture 2 - Sinusoids and Phasors
Lecture 3 - Circuit Elements - Part 1
Lecture 4 - Circuit Elements - Part 2
Lecture 5 - AC Power Analysis
Lecture 6 - RMS Voltage and Current
Lecture 7 - Topology
Lecture 8 - Star-Delta Transformation and Mesh Analysis
Lecture 9 - Mesh Analysis.
Lecture 10 - Nodal Analysis
Lecture 11 - Linearity Property and Superposition Theorem
Lecture 12 - Source Transformation
Lecture 13 - Duality
Lecture 14 - Thevenin's Theorem - 1
Lecture 15 - Thevenin's Theorem - 2
Lecture 16 - Norton's Theorem - 1
Lecture 17 - Norton's Theorem - 2
Lecture 18 - Maximum Power Transfer Theorem - 1
Lecture 19 - Maximum Power Transfer Theorem - 2
Lecture 20 - Reciprocity and Compensation Theorem
Lecture 21 - First Order RC Circuits
Lecture 22 - First Order RL Circuits
Lecture 23 - Singularity Functions
Lecture 24 - Step Response of RC and RL Circuits
Lecture 25 - Second Order Response
Lecture 26 - Step Response of Second Order Circuits-First Order and Second Order Circuits (Continued...)
Lecture 27 - Step Response of Parallel RLC Circuit-First Order and Second Order Circuits (Continued...)
Lecture 28 - Definition of the Laplace Transform
Lecture 29 - Properties of the Laplace Transform

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

- Lecture 30 - Inverse Laplace Transform
- Lecture 31 - Laplace Transform of Circuit Elements
- Lecture 32 - Transfer Function
- Lecture 33 - Convolution Integral
- Lecture 34 - Graphical Approach of Convolution Integral
- Lecture 35 - Network Stability and Network Synthesis
- Lecture 36 - Impedance Parameters
- Lecture 37 - Admittance Parameters
- Lecture 38 - Hybrid Parameters
- Lecture 39 - Transmission Parameters
- Lecture 40 - Interconnection of Networks
- Lecture 41 - Nodal and Mesh Analysis
- Lecture 42 - Superposition Theorem and Source Transformation
- Lecture 43 - Thevenin's, Norton's and, Maximum Power Transfer Theorem
- Lecture 44 - Magnetically Coupled Circuits
- Lecture 45 - Energy in Coupled Circuits and Ideal Transformer
- Lecture 46 - Ideal Transformer and Introduction to Three-Phase Circuits
- Lecture 47 - Balanced Three-Phase Connections
- Lecture 48 - Balanced Wye-Delta and Delta-Delta Connections
- Lecture 49 - Balanced Delta-Wye Connection and Power in Balanced Three-Phase System
- Lecture 50 - Unbalanced Three-Phase System and Three-Phase Power Measurement
- Lecture 51 - Introduction to Graphical Models
- Lecture 52 - State Equations
- Lecture 53 - State Diagram
- Lecture 54 - State Transition Matrix
- Lecture 55 - State Variable Method to Circuit Analysis
- Lecture 56 - Characteristic Equation, Eigenvalues, and Eigenvectors-State Variable Analysis (Continued...)
- Lecture 57 - Modeling of Mechanical Systems
- Lecture 58 - Modeling of The Rotational Motion of Mechanical Systems
- Lecture 59 - Modeling of Electrical Systems
- Lecture 60 - Solving Analogous Systems

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

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Electric Drives

Subject Co-ordinator - Prof. Shyama Prasad Das

Co-ordinating Institute - IIT - Kanpur

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

- Lecture 1 - Introduction to Electric Drives
- Lecture 2 - Dynamics of Electric Drives, Four Quadrant Operation, Equivalent Drive Parameters
- Lecture 3 - Equivalent Drive Parameters, Friction Components, Nature of Load Torque
- Lecture 4 - Steady State Stability, Load Equalization
- Lecture 5 - Load Equalization, Characteristics of DC Motor
- Lecture 6 - Speed Torque Characteristics of Separately Excited DC Motor and Series DC Motor
- Lecture 7 - Field Control of Series Motor, Motoring and Braking of Separately Excited and Series DC motors
- Lecture 8 - Speed Control of Separately Excited DC Motor Using Controlled Rectifiers
- Lecture 9 - Analysis of Single Phase Full Controlled Converter-fed Separately Excited DC Motor
- Lecture 10 - Speed Torque Characteristics of Full Controlled Converter-fed Separately Excited DC Motor, Analy
- Lecture 11 - Analysis of Single Phase Half Controlled Converter-fed Separately Excited DC Motor.
- Lecture 12 - Three Phase Full Controlled Converter-fed Separately Excited DC Motor, Multi-quadrant Operation
- Lecture 13 - Dual Converter-fed DC Motor, Multi-quadrant Operation Using Field Current Reversal
- Lecture 14 - DC Chopper-fed Separately Excited DC Motor for Motoring and Braking
- Lecture 15 - Two-quadrant DC Chopper, Four-quadrant DC Chopper
- Lecture 16 - Dynamic Braking of DC Motor by Chopper Controlled Resistor, Closed-loop Operation of DC Drives,
- Lecture 17 - Speed Torque Characteristics of Induction Motor, Operation of Induction Motor from Non-sinusoidal
- Lecture 18 - Operation of Induction Motor from Non-sinusoidal Supply
- Lecture 19 - Stator Current of Induction Motor with Non-sinusoidal Supply, Operation of Induction Motor with
- Lecture 20 - Single Phasing of Induction Motor, Braking of Induction Motor
- Lecture 21 - Dynamic braking of induction motor, AC dynamic braking, DC dynamic braking
- Lecture 22 - Analysis of DC dynamic braking of induction motor
- Lecture 23 - Self-excited dynamic braking of induction motor, Speed control of induction motor using stator v
- Lecture 24 - Variable voltage variable frequency control of induction motor, Open loop V/F control
- Lecture 25 - Slip speed control of induction motor, Constant Volt/Hz control with slip speed regulation
- Lecture 26 - Closed-loop Volt/Hz control of induction motor with slip speed regulation, Multi-quadrant operat
- Lecture 27 - Current Source Inverter (CSI) fed induction motor drive
- Lecture 28 - Closed-loop operation of current source inverter (CSI) fed induction motor drive, Control of sli
- Lecture 29 - Closed-loop operation of slip ring induction motor with static rotor resistance control, Slip po

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- Lecture 30 - Static Kramer drive and its closed-loop control, Introduction to synchronous motor
- Lecture 31 - Various types of synchronous motors, Equivalent circuit and phasor diagram of cylindrical synchronous motor
- Lecture 32 - Phasor diagram of salient pole synchronous motor, Expression of power and torque for a salient pole synchronous motor
- Lecture 33 - Open-loop V/f control, Torque-speed characteristics, Self controlled synchronous motor drive employing V/f control
- Lecture 34 - Detailed analysis of commutation of load commutated thyristor inverter, Derivation of overlap angle
- Lecture 35 - Low cost brushless DC motor (BLDCM), Trapezoidal permanent magnet AC motor
- Lecture 36 - Trapezoidal permanent magnet AC motor, Derivation of power and torque, Closed-loop control of trapezoidal permanent magnet AC motor
- Lecture 37 - Construction and operating principle of switched reluctance motor
- Lecture 38 - Current/ voltage control for switched reluctance motor, operating modes of switched reluctance motor
- Lecture 39 - Current collector for mainline trains, Nature of traction load, Duty cycle of traction drives
- Lecture 40 - Duty cycle of traction drives, Distance between two stops, Calculation of total tractive effort

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

NPTEL Video Course - Electrical Engineering - NOC:Fuzzy Sets, Logic and Systems and Applications

Subject Co-ordinator - Prof. Nishchal K Verma

Co-ordinating Institute - IIT - Kanpur

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

- Lecture 1 - Introduction
- Lecture 2 - Introduction
- Lecture 3 - Fuzzy Sets and Fuzzy Logic Toolbox in MATLAB - I
- Lecture 4 - Fuzzy Sets and Fuzzy Logic Toolbox in MATLAB - II
- Lecture 5 - Membership Functions - I
- Lecture 6 - Membership Functions - II
- Lecture 7 - Nomenclatures used in Fuzzy Set Theory - I
- Lecture 8 - Nomenclatures used in Fuzzy Set Theory - II
- Lecture 9 - Nomenclatures used in Fuzzy Set Theory - III
- Lecture 10 - Set Theoretic Operations on Fuzzy Sets - I
- Lecture 11 - Set Theoretic Operations on Fuzzy Sets - II
- Lecture 12 - Properties of Fuzzy Sets - I
- Lecture 13 - Properties of Fuzzy Sets - II
- Lecture 14 - Properties of Fuzzy Sets - III
- Lecture 15 - Properties of Fuzzy Sets - IV
- Lecture 16 - Properties of Fuzzy Sets - V
- Lecture 17 - Distance between Fuzzy Sets - I
- Lecture 18 - Distance between Fuzzy Sets - II
- Lecture 19 - Distance between Fuzzy Sets - III
- Lecture 20 - Arithmetic Operations on Fuzzy Numbers - I
- Lecture 21 - Arithmetic Operations on Fuzzy Numbers - II
- Lecture 22 - Arithmetic Operations on Fuzzy Numbers - III
- Lecture 23 - Complement of Fuzzy Sets
- Lecture 24 - T-norm Operators
- Lecture 25 - S-norm Operators
- Lecture 26 - Parameterized T-Norm Operators
- Lecture 27 - Parameterized S-Norm Operators
- Lecture 28 - Fuzzy Relation - I
- Lecture 29 - Fuzzy Relation - II

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- Lecture 30 - Operations on Crisp and Fuzzy Relations
- Lecture 31 - Projection of Fuzzy Relation Set
- Lecture 32 - Cylindrical Extension of Fuzzy Set
- Lecture 33 - Properties of Fuzzy Relation - I
- Lecture 34 - Properties of Fuzzy Relation - II
- Lecture 35 - Extension Principle
- Lecture 36 - Composition of Fuzzy Relations
- Lecture 37 - Properties of Composition of Fuzzy Relations
- Lecture 38 - Fuzzy Tolerance and Equivalence Relations - I
- Lecture 39 - Fuzzy Tolerance and Equivalence Relations - II
- Lecture 40 - Fuzzy Tolerance and Equivalence Relations - III
- Lecture 41 - Linguistic Hedges
- Lecture 42 - Linguistic Hedges and Negation/ Complement and Connectives
- Lecture 43 - Concentration and Dilation and Composite Linguistic Term and Some Examples
- Lecture 44 - Dilation and Composite Linguistic Term and Some Examples
- Lecture 45 - Some Examples on Composite Linguistic Terms
- Lecture 46 - Contrast Intensification of Fuzzy Sets
- Lecture 47 - Orthogonality of Fuzzy Sets
- Lecture 48 - Fuzzy Rules and Fuzzy Reasoning - I
- Lecture 49 - Fuzzy Rules and Fuzzy Reasoning - II
- Lecture 50 - Fuzzy Inference System
- Lecture 51 - Mamdani Fuzzy Model - I
- Lecture 52 - Mamdani Fuzzy Model - II
- Lecture 53 - Mamdani Fuzzy Model - III
- Lecture 54 - Example on Mamdani Fuzzy Model for Single Antecedent with Three Rules
- Lecture 55 - Example on Mamdani Fuzzy Model for Two Antecedents with Four Rules
- Lecture 56 - Larsen Fuzzy Model - I
- Lecture 57 - Larsen Fuzzy Model - II
- Lecture 58 - Larsen Fuzzy Model - III
- Lecture 59 - Tsukamoto Fuzzy Model
- Lecture 60 - TSK Fuzzy Model

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

NPTEL Video Course - Electrical Engineering - NOC:Peer to Peer Networks

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 Peer to Peer Networks
- Lecture 2 - Peer to Peer Network in Telephony
- Lecture 3 - Building DHT Networks
- Lecture 4 - Logarithmic Partitioning of Node ID Space and Index Entry Authenticity
- Lecture 5 - Implementation of Voice over Internet Telephony in P2P Way
- Lecture 6 - Leaf Nodes, Core Nodes and Type of Messages in DHT Networks
- Lecture 7 - Static and Dynamic Partitioning of Node ID Space
- Lecture 8 - PASTRY Protocol
- Lecture 9 - Understanding the PASTRY Protocol through Example
- Lecture 10 - Kademlia
- Lecture 11 - Tapestry
- Lecture 12 - Understanding the Tapestry Protocol through Example
- Lecture 13 - Multi-dimensional Distributed Hash Table
- Lecture 14 - Multi-Layer DHT
- Lecture 15 - Keeping <Key, Value> Pairs at Correct Root Nodes
- Lecture 16 - Abrupt and Graceful Exit of Root Node
- Lecture 17 - Resilience of <Key, Value> Pairs
- Lecture 18 - A P2P Distributed File System
- Lecture 19 - Storage Space Problem and Incentives to Share Storage
- Lecture 20 - P2P Nodes Communications Challenges in Heterogeneous Network Environments
- Lecture 21 - P2P Overlaid Multicast
- Lecture 22 - P2P Overlaid Multicast
- Lecture 23 - A Design of P2P Email System
- Lecture 24 - P2P Mailing List Services
- Lecture 25 - P2P Mailing List Services
- Lecture 26 - P2P Web
- Lecture 27 - P2P Web Search Engine
- Lecture 28 - P2P Internet
- Lecture 29 - P2P in Blockchain

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

- Lecture 30 - P2P Anonymous Communication
- Lecture 31 - The Anonymous Communication on the Internet through TOR Network
- Lecture 32 - An Introduction To TOR Browser
- Lecture 33 - Hidden Services on TOR Network
- Lecture 34 - MOOC Wrap-Up

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

NPTEL Video Course - Electrical Engineering - NOC:Applied Linear Algebra for Signal Processing, Data Analytics

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

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

- Lecture 1 - Vector Properties: Addition, Linear Combination, Inner Product, Orthogonality, Norm
- Lecture 2 - Vectors: Unit Norm Vector, Cauchy-Schwarz inequality, Radar Application
- Lecture 3 - Inner Product Application: Beamforming in Wireless Communication Systems
- Lecture 4 - Matrices, Definition, Addition and Multiplication of Matrices
- Lecture 5 - Matrix: Column Space, Linear Independence, Rank of Matrix, Gaussian Elimination
- Lecture 6 - Matrix: Determinant, Inverse Computation, Adjoint, Cofactor Concepts
- Lecture 7 - Applications of Matrices: Solution of System of Linear equations, MIMO Wireless Technology
- Lecture 8 - Applications of Matrices: Electric Circuits, Traffic flows
- Lecture 9 - Applications of Matrices: Graph Theory, Social Networks, Dominance Directed Graph, Influential Nodes
- Lecture 10 - Null Space of Matrix: Definition, Rank-Nullity Theorem, Application in Electric Circuits
- Lecture 11 - Gram-Schmidt Orthogonalization
- Lecture 12 - Gaussian Random Variable: Definition, Mean, Variance, Multivariate Gaussian, Covariance Matrix
- Lecture 13 - Linear Transformation of Gaussian Random Vectors
- Lecture 14 - Machine Learning Application: Gaussian Classification
- Lecture 15 - Eigenvalue: Definition, Characteristic Equation, Eigenvalue Decomposition
- Lecture 16 - Special Matrices: Rotation and Unitary Matrices, Application: Alamouti Code
- Lecture 17 - Positive Semi-definite (PSD) Matrices: Definition, Properties, Eigenvalue Decomposition
- Lecture 18 - Positive Semidefinite Matrix: Example and Illustration of Eigenvalue Decomposition
- Lecture 19 - Machine Learning Application: Principle Component Analysis (PCA)
- Lecture 20 - Computer Vision Application: Face Recognition, Eigenfaces
- Lecture 21 - Least Squares (LS) Solution, Pseudo-Inverse Concept
- Lecture 22 - Least Squares (LS) via Principle of Orthogonality, Projection Matrix, Properties
- Lecture 23 - Application: Pseudo-Inverse and MIMO Zero Forcing (ZF) Receiver
- Lecture 24 - Wireless Application: Multi-Antenna Channel Estimation
- Lecture 25 - Machine Learning Application: Linear Regression
- Lecture 26 - Computation Mathematics Application: Polynomial Fitting
- Lecture 27 - Least Norm Solution
- Lecture 28 - Wireless Application: Multi-user Beamforming
- Lecture 29 - Singular Value Decomposition (SVD): Definition, Properties, Example

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- Lecture 30 - SVD Application in MIMO Wireless Technology: Spatial-Multiplexing and High Data Rates
- Lecture 31 - SVD for MIMO wireless optimization, water-filling algorithm, optimal power allocation
- Lecture 32 - SVD application for Machine Learning: Principal component analysis (PCA)
- Lecture 33 - Multiple signal classification (MUSIC) algorithm: system model
- Lecture 34 - MUSIC algorithm for Direction of Arrival (DoA) estimation
- Lecture 35 - Linear minimum mean square error (LMMSE) principle
- Lecture 36 - LMMSE estimate and error covariance matrix
- Lecture 37 - LMMSE estimation in linear systems
- Lecture 38 - LMMSE application: Wireless channel estimation and example
- Lecture 39 - Time-series prediction via auto-regressive (AR) model
- Lecture 40 - Recommender system: design and rating prediction
- Lecture 41 - Recommender system: Illustration via movie rating prediction example
- Lecture 42 - Fast Fourier transform (FFT) and Inverse fast Fourier transform (IFFT)
- Lecture 43 - IFFT/ FFT application in Orthogonal Frequency Division Multiplexing (OFDM) wireless technology
- Lecture 44 - OFDM system: Circulant matrices and properties
- Lecture 45 - OFDM system model: Transmitter and receiver processing
- Lecture 46 - Single-carrier frequency division for multiple access (SC-FDMA) technology
- Lecture 47 - Linear dynamical systems: definition and solution via matrix exponential
- Lecture 48 - Linear dynamical systems: matrix exponential via SVD
- Lecture 49 - Machine Learning application: Support Vector Machines (SVM)
- Lecture 50 - Support Vector Machines (SVM): Problem formulation via maximum hyperplane separation
- Lecture 51 - Sparse regression: problem formulation and relation to Compressive Sensing (CS)
- Lecture 52 - Sparse regression: solution via the Orthogonal Matching Pursuit (OMP) algorithm
- Lecture 53 - OMP Example for Sparse Regression
- Lecture 54 - Machine Learning Application: Clustering
- Lecture 55 - K-Means Clustering algorithm
- Lecture 56 - Introduction to Stochastic Processes and Markov Chains
- Lecture 57 - Discrete Time Markov Chains and Transition Probability Matrix
- Lecture 58 - Discrete Time Markov Chain Examples
- Lecture 59 - m-STEP Transition Probabilities for Discrete Time Markov Chains
- Lecture 60 - Limiting Behavior of Discrete Time Markov Chains
- Lecture 61 - Least Squares Revisited: Rank Deficient Matrix
- Lecture 62 - Least Squares using SVD
- Lecture 63 - Weighted Least Squares
- Lecture 64 - Weighted Least Squares Example
- Lecture 65 - Woodbury Matrix Identity - Matrix Inversion Lemma
- Lecture 66 - Woodbury Matrix Identity - Proof
- Lecture 67 - Conditional Gaussian Density - Mean
- Lecture 68 - Conditional Gaussian Density - Covariance

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Lecture 69 - Scalar Linear Model for Gaussian Estimation

Lecture 70 - MMSE Estimate and Covariance for the Scalar Linear Model

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

NPTEL Video Course - Electrical Engineering - NOC:Economic Operations and Control of Power Systems

Subject Co-ordinator - Prof. Gururaj Mirle Vishwanath, Prof. Narayana Prasad Padhy

Co-ordinating Institute - IIT - Kanpur

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

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Lecture 60

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

NPTEL Video Course - Electrical Engineering - NOC:Digital Switching

Subject Co-ordinator - Prof. Yatindra N Singh

Co-ordinating Institute - IIT - Kanpur

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

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

NPTEL Video Course - Electrical Engineering - NOC:Analog VLSI Design

Subject Co-ordinator - Prof. Imon Mondal

Co-ordinating Institute - IIT - Kanpur

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

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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

- 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

- 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- α Framework
- Lecture 60 - Control Problem Statement in H - α 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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- 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

- 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

- 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

- 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

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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- 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

- 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

- 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

- 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 Controller Tuning
- Lecture 14 - PID Controller 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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- 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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- 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

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

- 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

- 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

- 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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- 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

- 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 - Kharagpur

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 (Continued...)
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

- 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
- Lecture 49 - FFT Architecture
- Lecture 50 - FFT Architecture (Continued...)
- Lecture 51 - Timing analysis Basics
- Lecture 52 - Timing analysis Basics (Continued...)
- Lecture 53 - Timing analysis Basics (Continued...)
- Lecture 54 - Timing Issuesin Digital IC Design
- Lecture 55 - Timing Issuesin Digital IC Design (Continued...)
- Lecture 56 - Timing Issuesin Digital IC Design (Continued...)
- Lecture 57 - Timing Issuesin Digital IC Design (Continued...)
- Lecture 58 - Architectural Design of Digital Integrated Circuits
- Lecture 59 - Design Tips for Basic Circuits Design (Continued...)
- Lecture 60 - Design Tips for Basic Circuits Design (Continued...)
- Lecture 61 - Design Tips for Basic Circuits Design (Continued...)
- Lecture 62 - Low Power Digital Design
- Lecture 63 - Low Power Digital Design (Continued...)
- Lecture 64 - Low Power Digital Design
- Lecture 65 - Low Power Digital Design (Continued...)
- Lecture 66 - Hardware for Machine Learning
- Lecture 67 - Hardware for Machine Learning

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

NPTEL Video Course - Electrical Engineering - NOC:Electrical Machines-II

Subject Co-ordinator - Prof.Tapas Kumar Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Inductance, Self and Mutual
- Lecture 2 - Relationship of Inductances in Transformer
- Lecture 3 - Equivalent Circuit from Circuit KVL Equations
- Lecture 4 - Co-efficient of Coupling , Energy Stored in Coupled Coils
- Lecture 5 - A Single Conductor Generator and Motor
- Lecture 6 - Analysis of Single Conductor Generator and Motor
- Lecture 7 - Analysis of Single Conductor Generator and Motor (Continued...)
- Lecture 8 - Flux Density Distribution in Space and Nature emf
- Lecture 9 - Flux Density Distribution in Space and Nature emf (Continued...)
- Lecture 10 - From Linear to Rotating Machine
- Lecture 11 - From Linear to Rotating Machine (Continued...)
- Lecture 12 - Basic Underlying Principle of Operation of Rotating Machine
- Lecture 13 - Basic Underlying Principle of Operation of Rotating Machine (Continued...)
- Lecture 14 - Flux Density Distribution along the Air Gap
- Lecture 15 - Flux Density Distribution along the Air Gap (Continued...)
- Lecture 16 - Induced Voltage in a Coil in a Rotating Machine
- Lecture 17 - Induced Voltage in a Coil in a Rotating Machine (Continued...)
- Lecture 18 - Induced Voltage in a Coil in a Rotating Machine (Continued...)
- Lecture 19 - Induced Voltage due to Fundamental and Harmonic Components of Flux Density Distribution
- Lecture 20 - Distributed Coils Connected in Series Resultant Voltage
- Lecture 21 - Distribution Factor
- Lecture 22 - Pitch Factor and Winding Factor
- Lecture 23 - How to decide about Short Pitch Angle $\tilde{\alpha} \cdot \hat{\mu}$
- Lecture 24 - Double Layer 3-phase Winding - An Introduction
- Lecture 25 - Winding Table for 3-phase Distributed Winding
- Lecture 26 - Winding Table for 3-phase Distributed Winding with Examples
- Lecture 27 - Winding Table for 3-phase Distributed Winding with Examples (Continued...)
- Lecture 28 - 120 degree Phase Spread Winding with Examples
- Lecture 29 - Winding Table of 120 degree Phase Spread Coils and Group Connection

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

- Lecture 30 - Introduction to Rotating Magnetic Field
- Lecture 31 - Rotating Magnetic Field (Continued...), Mechanical and Electrical Speed
- Lecture 32 - Speed and Direction of Rotating Field
- Lecture 33 - Synchronous Speed and How to Calculate Induced Voltage in a Coil
- Lecture 34 - Introduction to Induction Motor
- Lecture 35 - Introduction to Induction Motor (Continued...)
- Lecture 36 - General Expression of Torque in Terms of Stator and Rotor Fields
- Lecture 37 - Torque Angle and Torque Expression
- Lecture 38 - How to Fix Up Positions of Net Field, Rotor Field and Stator Field
- Lecture 39 - Slip
- Lecture 40 - Equivalent Circuit of 3-Phase Induction Motor
- Lecture 41 - Equivalent Circuit of 3-Phase Induction Motor (Continued...)
- Lecture 42 - Equivalent Circuit of 3-Phase Induction Motor (Continued...)
- Lecture 43 - Expression for Electromagnetic Torque in terms of Equivalent Circuit Parameters
- Lecture 44 - Maximum Electromagnetic Torque and Slip at Which it Occurs
- Lecture 45 - Typical Torque Slip Characteristic and Operating Point
- Lecture 46 - Change in Torque-slip Characteristic as Supply Voltage and Rotor Resistance are Varied
- Lecture 47 - Types of Induction Motor - Slip Ring Type
- Lecture 48 - Introduction to Cage Induction Motor
- Lecture 49 - Cage Motor Can Operate for Different Stator Poles
- Lecture 50 - Core Loss in Induction Motor and Simplified Equivalent Circuit
- Lecture 51 - Torque Expression from Simplified Equivalent Circuit and Introduction to Circle Diagram
- Lecture 52 - Circle Diagram (Continued...)
- Lecture 53 - Exact Power Flow Diagram and Circle Diagram
- Lecture 54 - Circle Diagram (Continued...)
- Lecture 55 - Circle Diagram
- Lecture 56 - Circle Diagram from Test Data
- Lecture 57 - Starting of 3 Phase Induction Motor - Introduction
- Lecture 58 - DOL and Reactor Starting
- Lecture 59 - DOL and Auto Transformer Starting
- Lecture 60 - Introduction to Speed Control
- Lecture 61 - Idea of VVVF Speed Control of Induction Motor
- Lecture 62 - Speed Control Using Two Motors
- Lecture 63 - Electrical Braking of 3 Phase Induction Motor
- Lecture 64 - Braking (Continued...)
- Lecture 65 - Introduction to Single Phase Induction Motor - Sequence Currents
- Lecture 66 - Development of Equivalent Circuit
- Lecture 67 - Development of Equivalent Circuit (Continued...)
- Lecture 68 - Torque-slip Ch. of 1 ph. I-M Running on Single Winding

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

- Lecture 69 - Introduction to Starting of 1ph. Induction Motor
- Lecture 70 - Expression for Starting Torque and Need for Phase Splitting
- Lecture 71 - Resistor Split 1 ph. Induction Motor
- Lecture 72 - Capacitor Split 1 ph Induction Motor
- Lecture 73 - Starting of 1 ph. Induction Motor (Continued...)
- Lecture 74 - Synchronous Machine Construction
- Lecture 75 - Synchronous Generator - Introduction
- Lecture 76 - Synchronisation
- Lecture 77 - Expression for Induced Voltage and O.C. Phasor Diagram
- Lecture 78 - Loaded Synchronous Generator - Resultant Field
- Lecture 79 - Armature Reaction and Synchronous Reactance. Basic Phasor Diagram
- Lecture 80 - General Mode of Operation - Retro Field, Stator Field and Resultant Field
- Lecture 81 - Complete Phasor Diagram and Expression for Complex Power
- Lecture 82 - Synchronous Motor Operation, Phasor Diagram and Power Expression
- Lecture 83 - Effect of Variation of Field Current in Generator
- Lecture 84 - Effect of Variation Field Current in Synchronous Motor, Introduction to Salient Pole Machine
- Lecture 85 - Analysis of Salient Pole Synchronous Machine
- Lecture 86 - Phasor Diagram of Salient Pole Synchronous Machine for Generator and Motor Mode
- Lecture 87 - Expression for Load Angle and Expression for Power
- Lecture 88 - Phasor Diagrams of Salient Pole Synchronous Generator under Various Conditions
- Lecture 89 - Phasor Diagrams of Salient Pole Synchronous Motor under Various Conditions
- Lecture 90 - O.C and S.C Test on Synchronous Generator

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

NPTEL Video Course - Electrical Engineering - NOC:Digital Electronic Circuits

Subject Co-ordinator - Prof. Goutam Saha

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Introduction
- Lecture 2 - Transistor as a switch
- Lecture 3 - Performance Issues and Introduction to TTL
- Lecture 4 - Transistor Transistor Logic (TTL)
- Lecture 5 - CMOS Logic
- Lecture 6 - Basic Gates and their representations
- Lecture 7 - Fundamentals of Boolean Algebra
- Lecture 8 - Boolean Function to Truth Table and Implementaion Issues
- Lecture 9 - Truth Table to Boolean Function and Implementaion Issues
- Lecture 10 - Karnugh Map and Digital Circuit Realization
- Lecture 11 - Karnaugh Map to Entered Variable Map
- Lecture 12 - Quine - McClusky (QM) Algorithm
- Lecture 13 - Cost Criteria and Minimization of Multiple Output Functions
- Lecture 14 - Static 1 Hazard
- Lecture 15 - Static 0 Hazard and Dynamic Hazard
- Lecture 16 - Multiplexer
- Lecture 17 - Multiplexer
- Lecture 18 - Demultiplexer / Decoder
- Lecture 19 - Decoder with BCD Input and Encoder
- Lecture 20 - Parity Generator and Checker
- Lecture 21 - Number System
- Lecture 22 - Negative Number and 2s Complement Arithmetic
- Lecture 23 - Arithmetic Building Blocks - I
- Lecture 24 - Arithmetic Building Blocks - II
- Lecture 25 - Overflow Detection and BCD Arithmetic
- Lecture 26 - Magnitude Comparator
- Lecture 27 - Arithmetic Logic Unit (ALU)
- Lecture 28 - Unweighted Code
- Lecture 29 - Error Detection and Correction Code

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

- Lecture 30 - Multiplication and Division
- Lecture 31 - SR Latch and Introduction to Clocked Flip-Flop
- Lecture 32 - Edge-Triggered Flip-Flop
- Lecture 33 - Representations of Flip-Flops
- Lecture 34 - Analysis of Sequential Logic Circuit
- Lecture 35 - Conversion of Flip-Flops and Flip-Flop Timing Parameters
- Lecture 36 - Register and Shift Register
- Lecture 37 - Shift Register
- Lecture 38 - Application of Shift Register
- Lecture 39 - Linear Feedback Shift Register
- Lecture 40 - Serial Addition, Multiplication and Division
- Lecture 41 - Asynchronous Counter
- Lecture 42 - Decoding Logic and Synchronous Counter
- Lecture 43 - Cascading
- Lecture 44 - Counter Design with Asynchronous Reset and Preset
- Lecture 45 - Counter Design as Synthesis Problem and Few Other Uses of Counter
- Lecture 46 - Synthesis of Sequential Logic Circuit
- Lecture 47 - Moore Model and Mealy Model
- Lecture 48 - Algorithmic State Machine (ASM) Chart and Synthesis of Sequential Logic Circuit
- Lecture 49 - Circuit Realization from ASM Chart and State Minimization
- Lecture 50 - State Minimization by Implication Table and Partitioning Method
- Lecture 51 - Digital to Analog Conversion - I
- Lecture 52 - Digital to Analog Conversion - II
- Lecture 53 - Analog to Digital Conversion - I
- Lecture 54 - Analog to Digital Conversion - II
- Lecture 55 - Certain Performance Issue of ADC and DAC
- Lecture 56 - Introduction to Memory
- Lecture 57 - Static Random Access Memory (SRAM)
- Lecture 58 - Dynamic RAM (DRAM) and Memory Expansion
- Lecture 59 - Read Only Memory (ROM)
- Lecture 60 - PAL, PLA, CPLD, FPGA

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

NPTEL Video Course - Electrical Engineering - NOC:Power System Dynamics, Control and Monitoring

Subject Co-ordinator - Prof. Debapriya Das

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Power System stability
- Lecture 2 - Power System stability (Continued...)
- Lecture 3 - Power System stability (Continued...)
- Lecture 4 - Power System stability (Continued...)
- Lecture 5 - Power System stability (Continued...)
- Lecture 6 - Power System Stability (Continued...)
- Lecture 7 - Power System Stability (Continued...)
- Lecture 8 - Power System Stability (Continued...)
- Lecture 9 - Power System Stability (Continued...)
- Lecture 10 - Power System Stability (Continued...)
- Lecture 11 - Power System Stability (Continued...)
- Lecture 12 - Power System Stability (Continued...)
- Lecture 13 - Power System Stability (Continued...)
- Lecture 14 - Power System Stability (Continued...)
- Lecture 15 - Power System Stability (Continued...)
- Lecture 16 - Power System Stability (Continued...)
- Lecture 17 - Power System Stability (Continued...)
- Lecture 18 - Power System Stability (Continued...)
- Lecture 19 - Power System Stability (Continued...)
- Lecture 20 - Power System Stability (Continued...)
- Lecture 21 - Power System stability (Continued...)
- Lecture 22 - Power System stability, Eigen properties of the state matrix
- Lecture 23 - Power System stability, Eigen properties of the state matrix (Continued...)
- Lecture 24 - Power System stability, Eigen properties of the state matrix (Continued...)
- Lecture 25 - Power System stability, Eigen properties of the state matrix (Continued...)
- Lecture 26 - Power System stability, Eigen properties of the state matrix (Continued...)
- Lecture 27 - Power System stability, Eigen properties of the state matrix, Transient stability
- Lecture 28 - Transient stability
- Lecture 29 - Transient stability (Continued...)

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

- Lecture 30 - Transient stability (Continued...)
- Lecture 31 - Transient stability
- Lecture 32 - Transient stability, Automatic generation control conventional scenario
- Lecture 33 - Automatic generation control conventional scenario
- Lecture 34 - Automatic generation control conventional scenario
- Lecture 35 - Automatic generation control conventional scenario
- Lecture 36 - Automatic generation control conventional scenario
- Lecture 37 - Automatic generation control conventional scenario
- Lecture 38 - Automatic generation control conventional scenario
- Lecture 39 - Automatic generation control conventional scenario
- Lecture 40 - Automatic generation control conventional scenario
- Lecture 41 - AGC in deregulated system
- Lecture 42 - AGC in deregulated system (Continued...)
- Lecture 43 - AGC in deregulated system (Continued...)
- Lecture 44 - AGC in deregulated system (Continued...)
- Lecture 45 - AGC in deregulated system (Continued...)
- Lecture 46 - AGC in deregulated system (Continued...)
- Lecture 47 - AGC in deregulated system (Continued...)
- Lecture 48 - AGC in deregulated system (Continued...)
- Lecture 49 - AGC in deregulated system, Reactive power and voltage control
- Lecture 50 - Reactive power and voltage control
- Lecture 51 - Reactive power and voltage control, State estimation in power system
- Lecture 52 - State estimation in power system
- Lecture 53 - State estimation in power system (Continued...)
- Lecture 54 - State estimation in power system (Continued...)
- Lecture 55 - State estimation in power system (Continued...)
- Lecture 56 - State estimation in power system (Continued...)
- Lecture 57 - Hydraulic turbine modelling
- Lecture 58 - Hydraulic turbine modelling (Continued...)
- Lecture 59 - Subsynchronous oscillation
- Lecture 60 - Subsynchronous oscillation, Windup and non windup limits

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

NPTEL Video Course - Electrical Engineering - NOC:Evolution of Air Interface towards 5G

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
- Lecture 2 - Evolution of wireless Communication Standards From 2G to 5G
- Lecture 3 - Evolution of wireless Communication Standards From 2G to 5G (Continued...)
- Lecture 4 - Evolution of wireless Communication Standards From 2G to 5G (Continued...)
- Lecture 5 - Evolution of wireless Communication Standards From 2G to 5G (Continued...)
- Lecture 6 - Requirements and operating scenarios of 5G
- Lecture 7 - Requirements and operating scenarios of 5G (Continued....)
- Lecture 8 - 5G scenarios
- Lecture 9 - Ultra reliable low latency communication
- Lecture 10 - Designing 5G new radio
- Lecture 11 - Fundamental Framework for waveform analysis
- Lecture 12 - Fundamental Framework for waveform analysis (Continued...)
- Lecture 13 - Waveform Design Aspects of 2G
- Lecture 14 - Waveforms in 3G
- Lecture 15 - Waveforms in 3G (Continued...)
- Lecture 16 - Waveform in 4G and 5G (OFDM)
- Lecture 17 - Waveform in 4G and 5G (OFDM) (Continued...)
- Lecture 18 - Waveform in 4G and 5G (OFDM) (Continued...)
- Lecture 19 - Waveform in 4G and 5G (OFDMA)
- Lecture 20 - Waveform in 4G and 5G (OFDMA, SCFDMA, SCFDE)
- Lecture 21 - Waveform in 4G and 5G (SCFDMA Continued...)
- Lecture 22 - Waveform in 5G
- Lecture 23 - Waveform in 5G Numerology
- Lecture 24 - Frame Structure in 5G NR
- Lecture 25 - Numerology in 5G and adaptive subcarrier bandwidth
- Lecture 26 - Numerology in 5G (Continued...)
- Lecture 27 - Waveforms beyond 5G
- Lecture 28 - Waveforms beyond 5G (Continued...)
- Lecture 29 - Waveforms beyond 5G (Continued...)

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

- Lecture 30 - Waveforms beyond 5G (Continued...)
- Lecture 31 - Waveform beyond 5G (Precoded GFDM)
- Lecture 32 - Comparison of waveforms
- Lecture 33 - Channel models for performance evaluation - Part I
- Lecture 34 - Channel models for performance evaluation - Part II
- Lecture 35 - Channel models for performance evaluation - Part III
- Lecture 36 - MIMO Signal Processing (Receive Diversity)
- Lecture 37 - MIMO Signal Processing
- Lecture 38 - MIMO Signal Processing (Capacity)
- Lecture 39 - MIMO Signal Processing (Capacity and Massive MIMO)
- Lecture 40 - Hybrid beamforming (mmWave)

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

NPTEL Video Course - Electrical Engineering - NOC:Electrical Measurement and Electronic Instruments

Subject Co-ordinator - Prof. Avishek Chatterjee

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - PMMC Instruments
- Lecture 2 - Electrodynamic Instrument
- Lecture 3 - Demonstration of PMMC and Electrodynamic Instruments
- Lecture 4 - Features of PMMC and Electrodynamic Instruments
- Lecture 5 - Moving Iron Instruments
- Lecture 6 - Demonstration of Moving Iron Instrument
- Lecture 7 - Electrostatic Instrument
- Lecture 8 - Derivation of Deflecting Torque in Electrodynamic, Electrostatic and Moving Iron Instrument
- Lecture 9 - Damping and Eddy Current Damping
- Lecture 10 - Dynamics of the Moving Coil and Damping
- Lecture 11 - Dynamics of the Moving Coil and Damping (Continued...)
- Lecture 12 - Ballistic Galvanometer
- Lecture 13 - Ammeter - I
- Lecture 14 - Ammeter - II
- Lecture 15 - Voltmeter
- Lecture 16 - Ohmmeters - I
- Lecture 17 - Ohmmeters - II
- Lecture 18 - Rectifier based Voltmeters and Ammeter - I
- Lecture 19 - Rectifier based Voltmeters and Ammeter - II
- Lecture 20 - Resistance measurement with a Voltmeter and an Ammeter
- Lecture 21 - Four-Terminal Resistance
- Lecture 22 - Problems
- Lecture 23 - Error Calculation
- Lecture 24 - Sensitivity, Accuracy, and Resolution of Wheatstone Bridge
- Lecture 25 - Kelvin Double Bridge
- Lecture 26 - High Resistance Measurement
- Lecture 27 - Wattmeter Connection and Compensated Wattmeter
- Lecture 28 - Single Phase Energy Meter
- Lecture 29 - Demonstration

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

- Lecture 30 - Single Phase Energy Meter (Continued...)
- Lecture 31 - Connection of Energy Meter, Wattmeter, and Three Phase Supply
- Lecture 32 - DC Potentiometer
- Lecture 33 - AC Potentiometer
- Lecture 34 - Polar potentiometer and phase shifter
- Lecture 35 - Polar potentiometer
- Lecture 36 - Co-ordinate potentiometer
- Lecture 37 - Kelvin-Varley potential divider
- Lecture 38 - Impedance measurement
- Lecture 39 - AC bridges - I
- Lecture 40 - AC bridges - II
- Lecture 41 - AC bridges - III
- Lecture 42 - Current transformer and potential transformer
- Lecture 43 - Review of transformer and magnetic circuit
- Lecture 44 - Errors in Instrument transformer
- Lecture 45 - Flux density measurement with Ballistic Galvanometer
- Lecture 46 - Flux density measurement with Ballistic Galvanometer (Continued...)
- Lecture 47 - Background
- Lecture 48 - Background
- Lecture 49 - Background
- Lecture 50 - Background
- Lecture 51 - Background
- Lecture 52 - Background
- Lecture 53 - Inverting amplifier versus Schmitt Trigger
- Lecture 54 - Non-inverting amplifier versus Schmitt Trigger
- Lecture 55 - Difference amplifier - I
- Lecture 56 - Difference amplifier - II
- Lecture 57 - Difference amplifier - III
- Lecture 58 - Digital frequency meter
- Lecture 59 - Digital frequency meter and Schmitt Trigger
- Lecture 60 - Schmitt Trigger
- Lecture 61 - Schmitt Trigger
- Lecture 62 - Digital frequency meter
- Lecture 63 - Linear ramp type digital voltmeter
- Lecture 64 - Dual slope digital voltmeter - I
- Lecture 65 - Dual slope digital voltmeter - II
- Lecture 66 - Dual slope digital voltmeter and Integrator circuit
- Lecture 67 - Digital ramp type voltmeter
- Lecture 68 - Digital ramp type voltmeter and Successive approximation type voltmeter

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

- Lecture 69 - ADC and DAC - I
- Lecture 70 - ADC and DAC - II
- Lecture 71 - Why we need electronic Instruments
- Lecture 72 - Instruments with op-amp based amplifiers - I
- Lecture 73 - Instruments with op-amp based amplifiers - II
- Lecture 74 - Instruments with op-amp based amplifiers - III
- Lecture 75 - Instrumentation Amplifier
- Lecture 76 - Function generator
- Lecture 77 - 555-Timer circuit
- Lecture 78 - Astable and monostable oscillator circuits
- Lecture 79 - Pulse generator
- Lecture 80 - Oscilloscope - I
- Lecture 81 - Oscilloscope - II
- Lecture 82 - Emitter follower voltmeter
- Lecture 83 - Linear ohmmeter
- Lecture 84 - Ramp generator

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

NPTEL Video Course - Electrical Engineering - NOC:Principles and Techniques of Modern Radar Systems

Subject Co-ordinator - Dr. Amitabha Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Historical Development and Application
- Lecture 2 - Radar Bands and System Modeling
- Lecture 3 - Radar Equation
- Lecture 4 - Some Basic Concepts of Pulsed Radar
- Lecture 5 - Some Basic Concepts of Pulsed Radar (Continued...)
- Lecture 6 - Some Basic Concepts of Pulsed Radar (Continued...)
- Lecture 7 - Some Basic Concepts of Pulsed Radar (Continued...)
- Lecture 8 - Tutorial Problems on Basic Concepts of Radar - Part I
- Lecture 9 - Tutorial Problems on Basic Concepts of Radar - Part II
- Lecture 10 - CW Radar
- Lecture 11 - CW Radar Mathematical Model and Applications
- Lecture 12 - FM-CW Radar
- Lecture 13 - Double Frequency CW Radar
- Lecture 14 - Pulsed Radar
- Lecture 15 - MTI Filter
- Lecture 16 - Clutter and Single DLC
- Lecture 17 - Double DLC and Recursive MTI Filter
- Lecture 18 - Multiple prf MTI Radar
- Lecture 19 - Multiple prf MTI Radar and Clutter Attenuation
- Lecture 20 - MTI Improvement Factor
- Lecture 21 - Tutorial Problems on CW and Pulsed Radar - Part I
- Lecture 22 - Tutorial Problems on CW and Pulsed Radar - Part II
- Lecture 23 - Pulsed Doppler Radar
- Lecture 24 - Pulsed Doppler Radar (Continued...) and Search Radar
- Lecture 25 - Tracking Radar
- Lecture 26 - Tracking Radar (Continued...)
- Lecture 27 - Tracking Radar (Continued...)
- Lecture 28 - Tracking Radar (Continued...)
- Lecture 29 - Tracking Radar (Continued...)

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

- Lecture 30 - Tracking Radar (Continued...)
- Lecture 31 - Tracking Radar (Continued...)
- Lecture 32 - Tutorial Problems on Search and Tracking Radar
- Lecture 33 - Detection in Radar Receiver
- Lecture 34 - Detection in Radar Receiver (Continued...)
- Lecture 35 - Detection in Radar Receiver (Continued...)
- Lecture 36 - Detection in Radar Receiver (Continued...)
- Lecture 37 - Detection in Radar Receiver (Continued...)
- Lecture 38 - Detection in Radar Receiver (Continued...)
- Lecture 39 - Detection in Radar Receiver (Continued...)
- Lecture 40 - Detection in Radar Receiver (Continued...)
- Lecture 41 - Detection in Radar Receiver (Continued...)
- Lecture 42 - Detection in Radar Receiver (Continued...)
- Lecture 43 - Detection in Radar Receiver (Continued...)
- Lecture 44 - Detection in Radar Receiver (Continued...)
- Lecture 45 - Detection in Radar Receiver (Continued...)
- Lecture 46 - Detection in Radar Receiver (Continued...)
- Lecture 47 - Tutorial Problems on Detection in Radar Receiver
- Lecture 48 - SAR Processing
- Lecture 49 - SAR Processing (Continued...)
- Lecture 50 - SAR Processing (Continued...)
- Lecture 51 - SAR Processor
- Lecture 52 - Tutorial
- Lecture 53 - Statistical Detection Theory
- Lecture 54 - Statistical Detection Theory (Continued...)
- Lecture 55 - Statistical Detection Theory (Continued...)
- Lecture 56 - Statistical Detection Theory (Continued...)
- Lecture 57 - Statistical Detection Theory (Continued...)
- Lecture 58 - Tutorial
- Lecture 59 - Ground Penetrating Radar
- Lecture 60 - GPR Measurements and Microwave Tomography

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

NPTEL Video Course - Electrical Engineering - NOC:Electrical Machines-I

Subject Co-ordinator - Prof.Tapas Kumar Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Magnetic Circuit and Transformer
- Lecture 2 - Magnetising Current from B-H Curve
- Lecture 3 - Ideal Transformer, Dot Convention and Phasor Diagram
- Lecture 4 - Operation of Ideal Operation with Load Connected
- Lecture 5 - Equivalent Circuit of Ideal Transformer
- Lecture 6 - Rating of Single Phase Transformer
- Lecture 7 - Transformer with Multiple Coils
- Lecture 8 - Modelling of Practical Transformer - I
- Lecture 9 - Modelling of Practical Transformer - II
- Lecture 10 - Modelling of Practical Transformer - III
- Lecture 11 - Core Loss - Eddy Current Loss
- Lecture 12 - Factors on Eddy Current Loss Depends
- Lecture 13 - Hysteresis Loss
- Lecture 14 - Exact Equivalent Circuit
- Lecture 15 - Approximate Equivalent Circuit
- Lecture 16 - Determination of Equivalent Circuit Parameters - No Load Test
- Lecture 17 - Short Circuit Test
- Lecture 18 - Choosing Sides to Carry Out O.C / S.C Test
- Lecture 19 - Efficiency of Transformer - Losses
- Lecture 20 - Efficiency (Continued...)
- Lecture 21 - Condition for Maximum Efficiency When Load Power Factor Constant
- Lecture 22 - Family of Efficiency Curve at Various Power Factor and Energy Efficiency
- Lecture 23 - Load Description and Energy Efficiency
- Lecture 24 - Regulation
- Lecture 25 - Regulation
- Lecture 26 - Auto Transformer - Introduction
- Lecture 27 - AutoTransformer versus Two Winding Transformer
- Lecture 28 - AutoTransformer versus Two Winding Transformer (Continued...)
- Lecture 29 - Numerical Problems on Ideal Auto Transformer

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

- Lecture 30 - Two Winding Transformer Connected as Auto Transformer
- Lecture 31 - Practical Auto Transformer
- Lecture 32 - Equivalent Circuit of an Auto Transformer
- Lecture 33 - Polarity Test and Sumpner Test
- Lecture 34 - 3 Phase Transformer Using 3 Single Phase Transformer
- Lecture 35 - Various Connections of 3-Phase Transformer - I
- Lecture 36 - Various Connections of 3-Phase Transformer - II
- Lecture 37 - Vector Group of 3-Phase Transformer
- Lecture 38 - Vector Group (Continued...)
- Lecture 39 - Open Delta Connection
- Lecture 40 - 3-Phase Core Type and Shell Type Transformer
- Lecture 41 - Zig Zag Connection
- Lecture 42 - Effect 3rd Harmonic Exciting Current and Flux
- Lecture 43 - Choosing Transformer Connection
- Lecture 44 - Choosing Transformer Connection (Continued...)
- Lecture 45 - Phase Conversion using Transformer
- Lecture 46 - Scott Connection (Continued...)
- Lecture 47 - 3 Phase to 6 Phase Conversion O.C / S.C Test on 3 Phase Transformer
- Lecture 48 - Parallel Operation of Transformers - I
- Lecture 49 - Parallel Operation of Transformers - II
- Lecture 50 - Parallel Operation of Transformers - III
- Lecture 51 - Specific Magnetic and Electric Loadings
- Lecture 52 - Cooling of Transformer and Fillings of Transformer
- Lecture 53 - Output Equation of 3- Phase Transformer
- Lecture 54 - Introduction to D.C Machine
- Lecture 55 - Single Conductor D.C Generator / Motor Operation
- Lecture 56 - Homopolar D.C Generator
- Lecture 57 - Homopolar D.C Motor
- Lecture 58 - Introduction to Rotating D.C Machines
- Lecture 59 - Armature Winding of D.C Machine - I
- Lecture 60 - Armature Winding of D.C Machine - II
- Lecture 61 - Armature Winding of D.C Machine - III
- Lecture 62 - Generated Voltage Across the Armature
- Lecture 63 - Electromagnetic Torque in D.C Machine
- Lecture 64 - Generator and Motor Operation - Basics
- Lecture 65 - O.C.C and Load Characteristic of Separately Excited Generators
- Lecture 66 - Voltage Build Up in Shunt Generator
- Lecture 67 - Load Characteristic of Shunt Generator
- Lecture 68 - Qualitative Discussion on Armature Reaction

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

- Lecture 69 - Ill Effects of Armature Reaction
- Lecture 70 - Compensating and Interpoles
- Lecture 71 - Armature Reaction (Continued...)
- Lecture 72 - Field Flux Density, Armature Flux Density and Resultant Field Distribution
- Lecture 73 - Field Patterns for Both Motor and Generators
- Lecture 74 - Demagnetising and Cross Magnetising mmf for Brush Shifted Machine
- Lecture 75 - Calculation of Compensating, Interpole and Series Field Turns
- Lecture 76 - Estimating Armature and Field Resistance from its Rating
- Lecture 77 - Power Flow Diagram, Rotational Loss
- Lecture 78 - Shunt Motor
- Lecture 79 - Starting of D.C Motor - 3-Point Starter
- Lecture 80 - Speed Control of Shunt Motor - I
- Lecture 81 - Speed Control of Shunt Motor - II
- Lecture 82 - Speed Control of Shunt Motor - III
- Lecture 83 - Field Control (Continued...)
- Lecture 84 - D.C Motor Braking
- Lecture 85 - Introduction to Series Motor
- Lecture 86 - Series Motor Characteristics
- Lecture 87 - Series Motor Speed Control
- Lecture 88 - Universal Motor
- Lecture 89 - Swinburne Test
- Lecture 90 - Hopkinson Test
- Lecture 91 - Efficiency Calculation
- Lecture 92 - Field Test on D.C Series Motor
- Lecture 93 - Simplex Wave winding
- Lecture 94 - Wave Winding (Continued...)

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

NPTEL Video Course - Electrical Engineering - NOC:VLSI Signal Processing

Subject Co-ordinator - Prof. Mrityunjay Chakraborty

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Graphical Representation of Signals
- Lecture 2 - Signal Flow Graph
- Lecture 3 - Data Flow Graph, Critical Path
- Lecture 4 - Dependence Graph, Basics of Retiming
- Lecture 5 - Retiming Theorem
- Lecture 6 - Forward Path and Loop Retiming
- Lecture 7 - Loop Bound and Iteration Bound
- Lecture 8 - Cutset Retiming
- Lecture 9 - Retiming IIR Filters
- Lecture 10 - Adaptive Filter Basics (LMS Algorithm)
- Lecture 11 - Retiming LMS
- Lecture 12 - Retiming Delayed LMS
- Lecture 13 - Parallel Processing in DSP by Unfolding
- Lecture 14 - Basic Unfolding Relation
- Lecture 15 - Retiming for Unfolding
- Lecture 16 - Loop Unfolding
- Lecture 17 - Iteration bound for Loops
- Lecture 18 - Bitserial, Digit serial and Word serial Structures
- Lecture 19 - Unfolding a Switch
- Lecture 20 - Unfolding Bit Serial Systems
- Lecture 21 - Folding of DFG
- Lecture 22 - Folding Examples - IIR Filter
- Lecture 23 - Retiming for Folding
- Lecture 24 - Introduction to Delay Optimization by Folding
- Lecture 25 - Life Time Analysis of Storage Variables
- Lecture 26 - Forward Backward Data Allocation
- Lecture 27 - Life Time Analysis of Storage Variables in a Digital Filter
- Lecture 28 - Delay Folded Realization of a Digital Filter
- Lecture 29 - Polyphase Decomposition of Sequences

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

- Lecture 30 - Hardware Efficient 2 - Parallel FIR Filters
- Lecture 31 - Hardware Efficient 3 - Parallel FIR Filters
- Lecture 32 - Introduction to First Level Architectures
- Lecture 33 - 2's Complement Number Systems
- Lecture 34 - Multiplication of Two Binary Numbers
- Lecture 35 - Carry Ripple and Carry Save Array
- Lecture 36 - Bit Serial Multipliers
- Lecture 37 - Bit Serial Digital Filters
- Lecture 38 - Baugh Wooley Multiplier
- Lecture 39 - Distributed Arithmetic

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

NPTEL Video Course - Electrical Engineering - NOC:Analog Electronic Circuits

Subject Co-ordinator - Prof. Pradip Mandal

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Introduction to the course
- Lecture 2 - Introduction to the constituent topics of the course and the Layout
- Lecture 3 - Revisit to pre-requisite topics
- Lecture 4 - Revisit to pre-requisite topics (Continued...)
- Lecture 5 - Analysis of Simple Non-Linear Circuit
- Lecture 6 - Analysis of Simple Non-linear Circuit (Continued...)
- Lecture 7 - Revisiting BJT Characteristic
- Lecture 8 - Revisiting BJT Characteristics (Continued...)
- Lecture 9 - Revisiting BJT Characteristics (Continued...)
- Lecture 10 - Revisiting MOSFET
- Lecture 11 - Revisiting MOSFET (Continued...)
- Lecture 12 - Revisiting MOSFET (Continued...)
- Lecture 13 - Revisiting MOSFET (Continued...)
- Lecture 14 - Analysis of simple non-linear circuit containing a BJT
- Lecture 15 - Analysis of simple non-linear circuit containing a BJT (Continued...)
- Lecture 16 - Analysis of simple non-linear circuit containing a MOSFET
- Lecture 17 - Analysis of simple non-linear circuit containing a MOSFET (Continued...)
- Lecture 18 - Linearization of non-linear circuit containing BJT
- Lecture 19 - Linearization of non-linear circuit containing BJT (Continued...)
- Lecture 20 - Linearization of non-linear circuit containing MOSFET
- Lecture 21 - Linearization of non-linear circuit containing MOSFET (Continued...)
- Lecture 22 - Linear models of Amplifiers - Part A
- Lecture 23 - Linear models of Amplifiers - Part B
- Lecture 24 - Common Emitter Amplifier - Part A
- Lecture 25 - Common Emitter Amplifier - Part B
- Lecture 26 - Common Emitter Amplifier (Continued...) - Part A
- Lecture 27 - Common Emitter Amplifier (Continued...) - Part B
- Lecture 28 - Common Emitter Amplifier (Continued...) - Numerical examples - Part A
- Lecture 29 - Common Emitter Amplifier (Continued...) - Numerical examples - Part B

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

- Lecture 30 - Common Emitter Amplifier (Continued...) - Design guidelines - Part A
- Lecture 31 - Common Emitter Amplifier (Continued...) - Design guidelines - Part B
- Lecture 32 - Common Source Amplifier - Part A
- Lecture 33 - Common Source Amplifier - Part B
- Lecture 34 - Common Source Amplifier (Continued...) Numerical examples and design guidelines - Part B
- Lecture 35 - Frequency Response of CE and CS Amplifiers - Part A
- Lecture 36 - Frequency Response of CE and CS Amplifiers - Part B
- Lecture 37 - Frequency Response of CE and CS Amplifiers - Part C
- Lecture 38 - Frequency Response of CE and CS Amplifiers (Continued...) - Part A
- Lecture 39 - Frequency Response of CE And CS Amplifiers (Continued...) - Part B
- Lecture 40 - Frequency Response of CE/CS Amplifiers Considering High Frequency Models of BJT and MOSFET - Part A
- Lecture 41 - Frequency Response of CE/CS Amplifiers Considering High Frequency Models of BJT and MOSFET - Part B
- Lecture 42 - Frequency Response of CE/CS Amplifiers Considering High Frequency Models of BJT And MOSFET - Part C
- Lecture 43 - Limitation of CE and CS Amplifiers in Cascading
- Lecture 44 - Common Collector and Common Drain Amplifiers
- Lecture 45 - Common Collector and Common Drain Amplifiers (Continued...)
- Lecture 46 - Common Collector and Common Drain Amplifiers (Continued...)
- Lecture 47 - Common Collector and Common Drain Amplifiers (Continued...)
- Lecture 48 - Common Collector and Common Drain Amplifiers (Continued...)
- Lecture 49 - Common Base and Common Gate Amplifiers
- Lecture 50 - Common Base and Common Gate Amplifiers
- Lecture 51 - Common Base and Common Gate Amplifiers (Continued...)
- Lecture 52 - Common Base and Common Gate Amplifiers (Continued...)
- Lecture 53 - Common Base and Common Gate Amplifiers (Continued...)
- Lecture 54 - Common Base and Common Gate Amplifiers (Continued...)
- Lecture 55 - Multi-Transistor Amplifiers
- Lecture 56 - Multi-Transistor Amplifiers
- Lecture 57 - Multi-Transistor Amplifiers
- Lecture 58 - Multi-Transistor Amplifiers (Continued...)
- Lecture 59 - Multi-Transistor Amplifiers (Continued...)
- Lecture 60 - Multi-Transistor Amplifiers (Continued...)
- Lecture 61 - Multi-Transistor Amplifiers
- Lecture 62 - Multi-Transistor Amplifiers
- Lecture 63 - Multi-Transistor Amplifiers
- Lecture 64 - Multi-Transistor Amplifiers
- Lecture 65 - Multi-Transistor Amplifiers
- Lecture 66 - Multi-Transistor Amplifiers
- Lecture 67 - Multi-Transistor Amplifiers
- Lecture 68 - Multi-Transistor Amplifiers

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

- Lecture 69 - Multi-Transistor Amplifiers
- Lecture 70 - Single-ended Vs Differential Signaling and Basic Model of a Differential Amplifier
- Lecture 71 - Single-ended Vs Differential Signaling and Basic Model of a Differential Amplifier (Continued...)
- Lecture 72 - Single-ended Vs Differential Signaling and Basic Model of a Differential Amplifier (Continued...)
- Lecture 73 - Single-ended Vs Differential Signaling and Basic Model of a Differential Amplifier (Continued...)
- Lecture 74 - Single-ended Vs Differential Signaling and Basic Model of a Differential Amplifier (Continued...)
- Lecture 75 - Differential Amplifier
- Lecture 76 - Differential Amplifier
- Lecture 77 - Differential Amplifier
- Lecture 78 - Differential Amplifier
- Lecture 79 - Differential Amplifier
- Lecture 80 - Differential Amplifier
- Lecture 81 - Current mirror circuits - Part A
- Lecture 82 - Current mirror circuits - Part B
- Lecture 83 - Usage of current mirror - Part A
- Lecture 84 - Usage of current mirror - Part B
- Lecture 85 - Usage of current mirror - Part C
- Lecture 86 - Numerical examples on current mirror and its applications - Part A
- Lecture 87 - Numerical examples on current mirror and its applications - Part B
- Lecture 88 - Numerical examples on current mirror and its applications - Part C
- Lecture 89 - Numerical examples on current mirror and its applications - Part D
- Lecture 90 - Feedback system - Part A
- Lecture 91 - Feedback system - Part B
- Lecture 92 - Feedback system - Part C
- Lecture 93 - Feedback system - Part D
- Lecture 94 - Feedback system - Part E
- Lecture 95 - Effect of feedback on frequency response - Part A
- Lecture 96 - Effect of feedback on frequency response - Part B
- Lecture 97 - Applications of feedback in amplifier circuits - Part A
- Lecture 98 - Applications of feedback in amplifier circuits - Part B
- Lecture 99 - Applications of feedback in amplifier circuits - Part C

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

NPTEL Video Course - Electrical Engineering - NOC:Network Analysis

Subject Co-ordinator - Prof. T.K. Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Introduction
- Lecture 2 - Voltage and Current Sources
- Lecture 3 - Simple Networks with Voltage and Current Sources
- Lecture 4 - Mesh Analysis - I
- Lecture 5 - Mesh Analysis - II
- Lecture 6 - Nodal Analysis - I
- Lecture 7 - Nodal Analysis - II
- Lecture 8 - Nodal Analysis - III
- Lecture 9 - Inductor - I
- Lecture 10 - Initial Condition for Inductor
- Lecture 11 - Energy Stored in Inductor with Example
- Lecture 12 - R-L Series Circuit Analysis
- Lecture 13 - Retrieving Energy or Discharging of Inductor Energy
- Lecture 14 - Capacitor
- Lecture 15 - Charging of a Capacitor - Voltage, Current and Energy During Charging
- Lecture 16 - Discharge of a Charged Capacitor
- Lecture 17 - Linearity of R,L,C - Inductor with Initial Current and Capacitor with Initial Voltage
- Lecture 18 - General Method for Solving Linear Differential Equation - I
- Lecture 19 - General Method for Solving Linear Differential Equation - II
- Lecture 20 - General Method for Solving Linear Differential Equation - III
- Lecture 21 - Problem Solving
- Lecture 22 - R-L Circuit with Sinusoidal Excitation
- Lecture 23 - R-C Circuit with Sinusoidal Exponential
- Lecture 24 - Solution Due to Exponential Forcing Function
- Lecture 25 - Mesh and Nodal Analysis with Time Varying Source
- Lecture 26 - Circuit Analysis with Phasor - I
- Lecture 27 - Circuit Analysis with Phasor - II
- Lecture 28 - Circuit Analysis with Phasor - III
- Lecture 29 - Concept of Active and Reactive Power in A.C Circuit - I

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

- Lecture 30 - Concept of Active and Reactive Power in A.C Circuit - II
- Lecture 31 - Expression for Complex Power in A.C Circuit
- Lecture 32 - Numerical Example
- Lecture 33 - Mesh and Nodal Analysis in A.C Circuit, Introduction to Impulse Function
- Lecture 34 - Odd and Even Functions, Relation between Unit Step and Impulse Function
- Lecture 35 - Solution of Differential Equation with Impulse Excitation
- Lecture 36 - Numerical Example when Excitation is Impulse
- Lecture 37 - Self and Mutual Inductances - I
- Lecture 38 - Dot Convention in Mutually Coupled Coils
- Lecture 39 - Mutually Coupled Coils in Series and Parallel
- Lecture 40 - Energy Stored in Mutually Coupled Coils
- Lecture 41 - Steady State Response with Sinusoidal Excitation when the Coils are Mutually Coupled
- Lecture 42 - Basics of Signals in Brief
- Lecture 43 - Laplace Transform - I
- Lecture 44 - Laplace Transform - II
- Lecture 45 - Laplace Transform Applied to Circuit Analysis - I
- Lecture 46 - Laplace Transform Applied to Circuit Analysis - II
- Lecture 47 - Numerical Examples - I
- Lecture 48 - Numerical Examples - II
- Lecture 49 - General Second Order Circuit Analysis with L.T - I
- Lecture 50 - General Second Order Circuit Analysis with L.T - II
- Lecture 51 - Network Theorem - I
- Lecture 52 - Network Theorem - II
- Lecture 53 - Norton's Theorem
- Lecture 54 - Thevenin Theorem
- Lecture 55 - Star-Delta and Delta-Star Transformation
- Lecture 56 - Telligem's Theorem
- Lecture 57 - Reciprocity Theorem
- Lecture 58 - Maximum Power Transfer Theorem
- Lecture 59 - Graph Theory Applied to Network Analysis - I
- Lecture 60 - Graph Theory Applied to Network Analysis - II
- Lecture 61 - Graph Theory Applied to Network Analysis - III
- Lecture 62 - Graph Theory Applied to Network Analysis - IV
- Lecture 63 - Graph Theory Applied to Network Analysis - V
- Lecture 64 - Mesh Analysis with Graph Theory
- Lecture 65 - Nodal Analysis with Graph Theory
- Lecture 66 - Cut-Set Analysis with Graph Theory
- Lecture 67 - Numerical Examples of Network Analysis with Graph Theory
- Lecture 68 - Circuit Analysis with Dependent Sources - I

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

- Lecture 69 - Circuit Analysis with Dependent Sources - II
- Lecture 70 - Circuit Analysis with Dependent Sources - III
- Lecture 71 - Two Port Network - I
- Lecture 72 - Two Port Network - II
- Lecture 73 - Two Port Network - III
- Lecture 74 - Two Port Network - IV
- Lecture 75 - Two Port Network - V
- Lecture 76 - Two Port Network - VI
- Lecture 77 - Two Port Network - VII
- Lecture 78 - Gyrator
- Lecture 79 - Ideal Op - Amp
- Lecture 80 - Examples of Ideal Op-Amp Circuits - I
- Lecture 81 - Examples of Ideal Op-Amp Circuits - II
- Lecture 82 - General Impedance Transfer Circuit and Concluding Remarks

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

NPTEL Video Course - Electrical Engineering - NOC:Power System Protection

Subject Co-ordinator - Prof. Ashok Kumar Pradhan

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Faults in Power System
- Lecture 2 - Elements and Features of Protection Scheme
- Lecture 3 - Fault Analysis Review - Sequence Components
- Lecture 4 - Fault Analysis Review - Sequence Components (Continued...)
- Lecture 5 - Numerical Relaying Concept
- Lecture 6 - Discrete Fourier Transform
- Lecture 7 - Recursive and Half Cycle DFT and Cosine Filter
- Lecture 8 - Least Square Technique
- Lecture 9 - Frequency Response of Phasor Estimation techniques
- Lecture 10 - In the Presence of Decaying DC
- Lecture 11 - Overcurrent Relay Characteristics
- Lecture 12 - Overcurrent Relay Coordination
- Lecture 13 - Relay Coordination with Fuse
- Lecture 14 - Introduction to Directional Relaying
- Lecture 15 - Positive Sequence Directional Relay
- Lecture 16 - Negative and Zero Sequence Directional Relay
- Lecture 17 - Superimposed Component Based Directional Relaying
- Lecture 18 - Introduction to Distance Relay
- Lecture 19 - Fault Classification
- Lecture 20 - Apparent Impedance Calculation
- Lecture 21 - Distance Relay Implementation
- Lecture 22 - Application to Double Circuit Line
- Lecture 23 - Multi-terminal Lines
- Lecture 24 - Protection of series compensated lines - Part I
- Lecture 25 - Protection of series compensated lines - Part II
- Lecture 26 - Effect of Fault Resistance
- Lecture 27 - Load Encroachment
- Lecture 28 - Power Swing
- Lecture 29 - Power Swing Detection Techniques - Part I

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

- Lecture 30 - Power Swing Detection Techniques - Part II
- Lecture 31 - Adaptive Distance Relaying
- Lecture 32 - Communication Assisted Relaying Scheme
- Lecture 33 - Current Transformer - Part I
- Lecture 34 - Current Transformer - Part II
- Lecture 35 - Capacitor Voltage Transformer
- Lecture 36 - Fiber Optic Sensors
- Lecture 37 - Introduction to Transformer Protection
- Lecture 38 - Differential Relay
- Lecture 39 - Steps in Differential Relay Processing
- Lecture 40 - Inrush Detection
- Lecture 41 - CT Saturation, Negative Sequence Differential and Restricted Earth Fault Relay
- Lecture 42 - Line Differential - Part I
- Lecture 43 - Line Differential - Part II
- Lecture 44 - Busbar Protection
- Lecture 45 - Fault Characteristics of Renewable Sources
- Lecture 46 - Protection Challenges of Distribution Systems with Renewables
- Lecture 47 - Protection challenges of transmission systems with renewables
- Lecture 48 - Traveling Wave Basics
- Lecture 49 - Protection using Travelling Waves
- Lecture 50 - Fault Location using Travelling Wave
- Lecture 51 - Wide Area Measurement Basics
- Lecture 52 - Wide Area Measurement for Protection

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

NPTEL Video Course - Electrical Engineering - NOC:Signal Processing for mm Wave communication for 5G and beyond

Subject Co-ordinator - Prof. Amit Kumar Dutta

Co-ordinating Institute - IIT - Kharagpur

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

Lecture 1 - Tx- Rx Structure

Lecture 2 - Rx -Structure

Lecture 3 - Fundamental of Ray-Tracing model

Lecture 4 - General channel model - Part I

Lecture 5 - General channel model - Part I (Continued...)

Lecture 6 - General channel model - Part I (Continued...)

Lecture 7 - General channel model - Part II

Lecture 8 - Wireless channel-A ray tracing model - Part II

Lecture 9 - Wireless channel-A ray tracing model - Part II (Continued...)

Lecture 10 - Wireless channel-A ray tracing model - Part II (Continued...)

Lecture 11 - Wireless channel-A ray tracing model - Part II (Continued...)

Lecture 12 - RMS Delay spread and Doppler Effect on channel

Lecture 13 - Time Varing Model

Lecture 14 - Doppler Impact on coherence BW

Lecture 15 - Introduction to time series

Lecture 16 - AR,ARMA,MA process

Lecture 17 - Doppler with AR process model

Lecture 18 - Coherence time and parameter summery

Lecture 19 - Basic ISI channel

Lecture 20 - Channel estimation and Equalizer

Lecture 21 - precoder and MIMO

Lecture 22 - precoder and MIMO (Continued...)

Lecture 23 - Basics of mmwave spectrum

Lecture 24 - Angle of arrival and angle of departure

Lecture 25 - 3D concepts, AoA,AoD

Lecture 26 - mmWave channel model with RX beaming

Lecture 27 - mmWave channel model with RX beaming (Continued...)

Lecture 28 - mmWave channel model with RX beaming (Continued...)

Lecture 29 - mmWave channel model with RX beaming (Continued...)

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

- Lecture 30 - mmwave channel model (Continued...)
- Lecture 31 - mmWave channel model (Continued...) -Tx side multiple antenna
- Lecture 32 - Basics of Beamforming
- Lecture 33 - Single Antenna beamforming
- Lecture 34 - Concept of antenna many fold vector
- Lecture 35 - 3D Concept of antenna many fold vector
- Lecture 36 - Different Geometry of antenna from electrical point of view
- Lecture 37 - Basics of Beamforming pattern - Part I
- Lecture 38 - Basics of Beamforming pattern - Part II
- Lecture 39 - SISO Beamforming
- Lecture 40 - MIMO Beamforming
- Lecture 41 - Structural implementation of MIMO Beamforming
- Lecture 42 - Different Level of Beamforming
- Lecture 43 - MIMO Beamforming in Transmitter side
- Lecture 44 - MIMO Beamforming in Receiver side - Part I
- Lecture 45 - MIMO Beamforming in Receiver side - Part II
- Lecture 46 - Mathematical description of MIMO Beamforming (Continued...)
- Lecture 47 - Equalizer based detector
- Lecture 48 - Parameter to be designed in MIMO Beamforming
- Lecture 49 - OFDM Data Model
- Lecture 50 - OFDM Data model (Continued...)
- Lecture 51 - General OFDM
- Lecture 52 - OFDM spectrum and CFO
- Lecture 53 - MIMO OFDM structure
- Lecture 54 - MIMO OFDM decode and beamforming
- Lecture 55 - Design parameter estimation - Part 1
- Lecture 56 - Design parameter estimation - Part 2
- Lecture 57 - Design parameter estimation - Part 3
- Lecture 58 - Design parameter estimation - Part 4
- Lecture 59 - Design parameter estimation - Part 5
- Lecture 60 - MU System
- Lecture 61 - CFO and other impairment and their effects
- Lecture 62 - Multi User Hybrid beam and impairment and analysis - Part 3
- Lecture 63 - Multi User Hybrid beam and Impairment and analysis - Part 4
- Lecture 64 - Multi User Hybrid beam and Impairment and analysis - Part 5

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

NPTEL Video Course - Electrical Engineering - NOC:Control and Tuning Methods in Switched Mode Power Converter

Subject Co-ordinator - Prof. Santanu Kapat

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - DC Power Conversion Systems - Introduction
- Lecture 2 - Overview of voltage regulators
- Lecture 3 - Switched mode power converter (SMPC)
- Lecture 4 - Model Development for MATLAB Simulation
- Lecture 5 - Demonstration of MATLAB Simulation
- Lecture 6 - Demonstration of MATLAB Simulation (Continued...)
- Lecture 7 - Power Stage Design of Basic SMPCs: Summary
- Lecture 8 - Fixed Frequency Modulation Techniques
- Lecture 9 - Variable Frequency Modulation Techniques
- Lecture 10 - Modulation in Discontinuous Conduction Mode (DCM)
- Lecture 11 - Synchronizing Simulation and Script files in MATLAB
- Lecture 12 - Interactive MATLAB Simulation and Case Studies
- Lecture 13 - Converter's Objectives and Control Implications
- Lecture 14 - Feedforward Control in SMPC
- Lecture 15 - Single and Multi Loop Feedback Control Methods
- Lecture 16 - Feedback Control of Cascaded SMPCs
- Lecture 17 - Combined feedback and feedforward control
- Lecture 18 - State feedback control
- Lecture 19 - Variable Frequency Control - Understanding Opportunities and Challenges
- Lecture 20 - Constant On-time Control Methods
- Lecture 21 - Constant Off-time Control Methods
- Lecture 22 - Hysteresis Control Methods in SMPCs
- Lecture 23 - Stability and Performance Comparison using MATLAB Simulation
- Lecture 24 - Light Load Control Methods and Interactive MATLAB Simulation
- Lecture 25 - Overview of Modeling Techniques
- Lecture 26 - State space averaging and model validation
- Lecture 27 - Circuit Averaging Techniques and Equivalent Circuit
- Lecture 28 - DC Analysis using Equivalent Circuit Model
- Lecture 29 - Derivation of Small-Signal Transfer Functions

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

- Lecture 30 - Small-Signal Model Validation using MATLAB and Time Domain Correlation
- Lecture 31 - Small-signal Modeling with Closed Current Loop
- Lecture 32 - Impedance Analysis and Stability
- Lecture 33 - Loop Gain Analysis and Understanding Model Limits using MATLAB
- Lecture 34 - PID Control Design and Tuning under VMC with MATLAB Case Studies
- Lecture 35 - Shaping Output Impedance of a Buck Converter under VMC
- Lecture 36 - Design of VMC Boost Converter and MATLAB Design Case Studies
- Lecture 37 - Accurate Small-signal Modelling under CMC and Verification using MATLAB
- Lecture 38 - Design CMC in a Buck Converter and MATLAB based Model Validation
- Lecture 39 - Design of CMC Boost Converter - Output and State Feedback Approaches
- Lecture 40 - Loop Interactions in CMC and Design of Average CMC
- Lecture 41 - Dynamics of SMPCs and Overview of Model-based Nonlinear Control
- Lecture 42 - Dynamics of LTIs and Vector Field with MATLAB Demonstration
- Lecture 43 - Geometric Perspectives of Eigenvalues and Eigenvectors in SMPCs
- Lecture 44 - Small-signal and Large-signal Model based Nonlinear Control
- Lecture 45 - Introduction to Sliding Mode Control in SMPCs
- Lecture 46 - Sliding Mode Control Design in a Buck Converter
- Lecture 47 - Boundary Control Techniques and Selection of Switching Surfaces
- Lecture 48 - Time Optimal Control and Identifying Physical Limits in SMPCs
- Lecture 49 - Linking Switching Boundary and PID Controller Structure in SMPCs
- Lecture 50 - Large-Signal Controller Tuning in Buck Converter: Objectives and Derivations
- Lecture 51 - Large-Signal Controller Tuning in Boost and Buck-Boost Converters
- Lecture 52 - Large-Signal Controller Tuning in Fixed- and Variable-Frequency Control
- Lecture 53 - Critical Performance Limits in Dynamic Voltage Scaling and Possible Solutions
- Lecture 54 - Nonlinear Control vs. Large-Signal Tuning: Comparative Study using MATLAB
- Lecture 55 - Small-Signal vs. Large-Signal Tuning: Comparison using MATLAB Simulation
- Lecture 56 - Performance Improvement and Size Reduction using Large-Signal based Control
- Lecture 57 - Digital Control in High Frequency SMPCs - Introduction and Motivations
- Lecture 58 - Overview of Fixed and Variable Frequency Digital Control Architectures
- Lecture 59 - Challenges and Opportunities in Digitally Controlled High Frequency SMPCs
- Lecture 60 - Course Summary, Key Takeaways, Few Emerging Applications and Future Scopes

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

NPTEL Video Course - Electrical Engineering - NOC:Advanced Microwave Guided-Structures and Analysis

Subject Co-ordinator - Prof. Bratin Ghosh

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Scattering Matrix Concepts
- Lecture 2 - Scattering Matrix Concepts (Continued...)
- Lecture 3 - Scattering Matrix Concepts (Continued...)
- Lecture 4 - Scattering Matrix Concepts (Continued...)
- Lecture 5 - Scattering Matrix Concepts Tutorials
- Lecture 6 - Scattering Matrix Concepts Tutorials (Continued...)
- Lecture 7 - Scattering Matrix Concepts Tutorials (Continued...)
- Lecture 8 - Instantaneous form of Maxwell's equations
- Lecture 9 - Instantaneous form of Maxwell's equations (Continued...)
- Lecture 10 - Instantaneous form of Maxwell's equations (Continued...)
- Lecture 11 - Instantaneous form of Maxwell's equations (Continued...)
- Lecture 12 - Instantaneous form of Maxwell's equations (Continued...)
- Lecture 13 - Instantaneous form of Maxwell's equations Tutorials
- Lecture 14 - Instantaneous form of Maxwell's equations Tutorials (Continued...)
- Lecture 15 - Harmonic form of Maxwell's equations
- Lecture 16 - Harmonic form of Maxwell's equations (Continued...)
- Lecture 17 - Harmonic form of Maxwell's equations (Continued...)
- Lecture 18 - Harmonic form of Maxwell's equations Tutorials
- Lecture 19 - Wave Equation and Solution
- Lecture 20 - Relation between wavenumbers
- Lecture 21 - Radiation from an electric current source (Continued...)
- Lecture 22 - Radiation from an electric current source (Continued...)
- Lecture 23 - Radiation from an electric current source (Continued...)
- Lecture 24 - Wave Equation and Solution Tutorials
- Lecture 25 - Radiation from an electric current source Tutorials
- Lecture 26 - Radiation from a magnetic current source
- Lecture 27 - Radiation from a magnetic current source (Continued...)
- Lecture 28 - Radiation from a magnetic current source (Continued...)
- Lecture 29 - Application of the magnetic current source (Continued...)

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- Lecture 30 - Radiation from a magnetic current source Tutorials
- Lecture 31 - Radiation from a magnetic current source Tutorials (Continued....)
- Lecture 32 - Rectangular waveguide - I
- Lecture 33 - Rectangular waveguide - I Tutorials
- Lecture 34 - Rectangular waveguide - II
- Lecture 35 - Rectangular waveguide - II (Continued...)
- Lecture 36 - Rectangular waveguide - II Tutorials
- Lecture 37 - Rectangular waveguide - II Tutorials (Continued...)
- Lecture 38 - Rectangular cavity resonator
- Lecture 39 - Rectangular cavity resonator Tutorials
- Lecture 40 - Rectangular cavity resonator Tutorials (Continued...)
- Lecture 41 - The Reciprocity Theorem, Computation of Amplitudes of Forward and Backward (Continued...)
- Lecture 42 - The Reciprocity Theorem, Computation of Amplitudes of Forward and Backward (Continued...)
- Lecture 43 - The Reciprocity Theorem, Computation of Amplitudes Tutorials
- Lecture 44 - The Reciprocity Theorem, Computation of Amplitudes Tutorials (Continued...)
- Lecture 45 - Analysis of Guided Structures
- Lecture 46 - Analysis of Guided Structures (Continued...)
- Lecture 47 - Analysis of Guided Structures (Continued...)
- Lecture 48 - Analysis of Guided Structures (Continued...)
- Lecture 49 - Analysis of Guided Structures (Continued...)
- Lecture 50 - Analysis of Guided Structures (Continued...)
- Lecture 51 - Analysis of Guided Structures (Continued...)
- Lecture 52 - Analysis of Guided Structures (Continued...)
- Lecture 53 - Analysis of Guided Structures (Continued...)
- Lecture 54 - Analysis of Guided Structures (Continued...)
- Lecture 55 - Analysis of Guided Structures (Continued...)
- Lecture 56 - Analysis of Guided Structures (Continued...)
- Lecture 57 - Analysis of Guided Structures Tutorials
- Lecture 58 - Analysis of Guided Structures Tutorials (Continued...)
- Lecture 59 - Cylindrical Wave Functions
- Lecture 60 - Cylindrical Wave Functions (Continued...)
- Lecture 61 - Cylindrical Wave Functions (Continued...)
- Lecture 62 - Circular Waveguide
- Lecture 63 - Circular Cavity
- Lecture 64 - Cylindrical Wave Functions Tutorials
- Lecture 65 - Cylindrical Wave Functions Tutorials (Continued...)
- Lecture 66 - Application to the Coupling Problem : Aperture-Coupled, Probe-Coupled and Waveguide
- Lecture 67 - Application to the Coupling Problem : Aperture-Coupled, Probe-Coupled and Waveguide (Continued...)
- Lecture 68 - Application to the Coupling Problem : Aperture-Coupled, Probe-Coupled and Waveguide (Continued...)

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Lecture 69 - Application to the Coupling Problem : Aperture-Coupled, Probe-Coupled and Waveguide (Continued..)

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

NPTEL Video Course - Electrical Engineering - NOC:Cognition and its Computation

Subject Co-ordinator - Prof. Rajlakshmi Guha, Prof. Sharba Bandyopadhyay

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Introduction
- Lecture 2 - Historical Origin of Cognition Studies
- Lecture 3 - The Cognitive Revolution
- Lecture 4 - Anatomical Structures of the Brain
- Lecture 5 - Frontal Lobes and Cognition
- Lecture 6 - Neuropsychological Testing
- Lecture 7 - Eye Tracking and Cognition
- Lecture 8 - EEG, fMRI, MEG
- Lecture 9 - Single neuron level measurements
- Lecture 10 - Single Neuron Imaging and Manipulation of Neural Activity
- Lecture 11 - Introduction to Computation
- Lecture 12 - Currency of Computation in Neurobiology - Action Potential
- Lecture 13 - Synapse and Synaptic Transmission
- Lecture 14 - Synaptic Plasticity
- Lecture 15 - Short Term Plasticity and STDP
- Lecture 16 - Coding by neurons
- Lecture 17 - Sensory Circuits: Visual - I
- Lecture 18 - Sensory Circuits: Visual - II
- Lecture 19 - Sensory Circuits: Auditory - I
- Lecture 20 - Sensory Circuits: Auditory - II
- Lecture 21 - Sensory Circuits: Somatosensory
- Lecture 22 - Sensory Circuits: Olfactory and Gustatory
- Lecture 23 - Motor circuits - Sensory-motor
- Lecture 24 - Reward Circuits
- Lecture 25 - Executive Circuits
- Lecture 26 - Types of Attention, Theories Broadbent Triessman
- Lecture 27 - Alerting Orientation and Executive Network
- Lecture 28 - Disorders of Attention
- Lecture 29 - Basics of Perception - Object, Depth and Movement

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

- Lecture 30 - Constancy and Illusions
- Lecture 31 - Neurobiology of attention, Working Memory
- Lecture 32 - Cholinergic System, Bottom up and Top down
- Lecture 33 - Object Recognition
- Lecture 34 - Visual Search and Pattern Recognition
- Lecture 35 - Auditory Scene Analysis, McGurk Effect
- Lecture 36 - Learning Processes
- Lecture 37 - Learning Processes (Continued...)
- Lecture 38 - Memory
- Lecture 39 - Learning Disorders
- Lecture 40 - Memory Failure - Forgetting
- Lecture 41 - Learning in biological neural networks
- Lecture 42 - Examples
- Lecture 43 - Different types of Plasticity
- Lecture 44 - Developmental Plasticity/Learning/Critical Period
- Lecture 45 - Examples of Disorders in Plasticity
- Lecture 46 - Introduction to speech and language (Development)
- Lecture 47 - Components of Speech, Speech Production
- Lecture 48 - Speech Perception
- Lecture 49 - Lessons from Animal Communication
- Lecture 50 - Language and Thought - Speech Language Disorders
- Lecture 51 - Theories of Emotion
- Lecture 52 - Neurophysiology of emotions - Limbic System
- Lecture 53 - Problem Solving
- Lecture 54 - Decision Making
- Lecture 55 - Frontal cortex in decision making
- Lecture 56 - Topics in current research - I
- Lecture 57 - Topics in current research - II
- Lecture 58 - Topics in current research - III
- Lecture 59 - Topics in current research - IV
- Lecture 60 - Topics in current research - V

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

NPTEL Video Course - Electrical Engineering - NOC:Digital Control in Switched Mode Power Converters and FPGA-

Subject Co-ordinator - Prof. Santanu Kapat

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Digital Control in Switched Mode Power Converters - Course Introduction
- Lecture 2 - Digital Control of SMPCs - Course Instructions, Guidelines and Resources
- Lecture 3 - Examples of Some Commercial Digital Control Solutions
- Lecture 4 - Overview of Digital Control Implementation Platforms
- Lecture 5 - Introducing Basic Digitization in Power Electronic Converters
- Lecture 6 - Recap of Feedback and Feedforward Control Methods in SMPCs
- Lecture 7 - Recap of Fixed and Variable Frequency Modulation Techniques
- Lecture 8 - Levels of Digitization in Single-loop Feedback Control in SMPCs
- Lecture 9 - Levels of Digitization in Multi-loop Feedback Control in SMPCs
- Lecture 10 - SMPC Topologies and Power Stage Design for Hardware Demonstrations
- Lecture 11 - Basics of Sampling under Fixed and Variable Frequency Modulation
- Lecture 12 - Voltage Mode Digital Pulse Width Modulators and Sampling Methods
- Lecture 13 - Overview of Digital Pulse Width Modulator Architectures
- Lecture 14 - Sampling Methods under Fixed Frequency Current Mode Control
- Lecture 15 - Overview of Fixed Frequency Current Mode Control Architectures
- Lecture 16 - Sampling Methods under Constant On/Off - Time Digital Modulation
- Lecture 17 - Constant On/Off- Time Mixed-Signal Current Mode Control Architectures
- Lecture 18 - Sampling Methods under Digital Hysteresis Control Methods
- Lecture 19 - Overview of Digital Hysteresis Control Architectures
- Lecture 20 - Summary of Digital Current Mode Control Architectures
- Lecture 21 - Recap of Voltage and Current Mode Control Implementation using MATLAB
- Lecture 22 - MATLAB Model Development for Basic Digital Control Blocks
- Lecture 23 - MATLAB Model Development for Fixed Frequency Digital Control
- Lecture 24 - MATLAB Models for Digital Controllers using Difference Equations
- Lecture 25 - MATLAB Model Development for Digital Voltage Mode Control
- Lecture 26 - MATLAB Model Development for Mixed-Signal Current Mode Control
- Lecture 27 - MATLAB Model Development for Fully Digital Current Mode Control
- Lecture 28 - MATLAB Model Development for Constant-On Time Control
- Lecture 29 - MATLAB Model Development for Constant-Off Time Control

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- Lecture 30 - MATLAB Model Development for Digital Current Hysteresis Control
- Lecture 31 - Continuous-Time Small-Signal Modeling under Digital Control
- Lecture 32 - Discrete Time Modeling with Closed Current Loop
- Lecture 33 - State-Space Modeling and Steps For Deriving Discrete-Time Models
- Lecture 34 - Derivation of Discrete-Time Large-Signal Models
- Lecture 35 - Validation of Discrete-Time Large-Signal Models using MATLAB - Part I
- Lecture 36 - Validation of Discrete-Time Large-Signal Models using MATLAB - Part II
- Lecture 37 - Derivation of Discrete-Time Small-Signal Models - I
- Lecture 38 - Derivation of Discrete-Time Small-Signal Models - II
- Lecture 39 - Discrete-Time Transfer Functions and Closed Loop Block Diagrams
- Lecture 40 - Model Accuracy with MATLAB Case Studies - Comparative Study
- Lecture 41 - Continuous-Time to Discrete-Time Conversion Methods - A Summary
- Lecture 42 - Recap of Frequency Domain Design of Analog VMC and CMC
- Lecture 43 - Design under Digital Voltage Mode Control - Frequency Domain Approaches
- Lecture 44 - Design under Digital Current Mode Control - Frequency Domain Approaches
- Lecture 45 - Design Case Study and MATLAB Simulation of Digital Voltage Mode Control
- Lecture 46 - Design Case Study and MATLAB Simulation of Digital Current Mode Control
- Lecture 47 - Time Optimal Control of a Buck Converter and Identifying Performance Limits
- Lecture 48 - Trajectory based CMC Design for Proximate Time Optimal Recovery
- Lecture 49 - Trajectory based Digital CMC Tuning and MATLAB Case Studies
- Lecture 50 - Digital Pulse Skipping Control and MATLAB Simulation Case Studies
- Lecture 51 - Selection of ADC and DAC in Digitally Controlled SMPCs
- Lecture 52 - High Frequency Current Sensing Techniques in Digitally Controlled SMPCs
- Lecture 53 - Current Sensing Techniques in Digitally Controlled High Power Converters
- Lecture 54 - Signal Conditioning Circuits and PCB Design for Mixed-Signal Implementation
- Lecture 55 - Reference Power Stage Design and Schematic for Buck and Boost Converters - I
- Lecture 56 - Reference Power Stage Design and Schematic for Buck and Boost Converters - II
- Lecture 57 - Step-by-Step Guidelines for Digital Control Implementation using FPGA
- Lecture 58 - Test and Measurement of a Buck Converter using Digital Storage Oscilloscope
- Lecture 59 - Functionalities in Mixed Signal Oscilloscope for Validating Digital Control
- Lecture 60 - Power Spectrum Analysis of SMPCs using Mixed-Signal Oscilloscope
- Lecture 61 - Introduction to Verilog Hardware Description Language (HDL)
- Lecture 62 - Guidelines for Verilog HDL Programming - Some Key Rules
- Lecture 63 - Structural and Dataflow Modeling in Verilog HDL for Combinational Logics
- Lecture 64 - Behavioral Modeling in Verilog HDL for Sequential Digital Circuits
- Lecture 65 - Simulation of Verilog-HDL based Design using Xilinx Webpack - I
- Lecture 66 - Simulation of Verilog-HDL based Design using Xilinx Webpack - II
- Lecture 67 - Fixed Point Implementation in Embedded Control System
- Lecture 68 - Fixed Point Arithmetic and Concept of Q Format

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

- Lecture 69 - Counter-based DPWM with Deadtime and Verilog HDL Programming
- Lecture 70 - Simulating Counter-based DPWM with Deadtime using Xilinx ISE Simulator
- Lecture 71 - Top Down Design Methodology in Digital Voltage Mode Control - I
- Lecture 72 - Top Down Design Methodology in Digital Voltage Mode Control - II
- Lecture 73 - Digital PID Control Implementation using Verilog HDL Programming
- Lecture 74 - Digital PID Controller - Hardware Implementation and Experimental Results
- Lecture 75 - Top Down Design Methodology in Mixed-Signal Current Mode Control
- Lecture 76 - Top Down Design Method and Verilog HDL Programming of Mixed-Signal CMC
- Lecture 77 - Verilog HDL based Digital PI Control Implementation of Mixed-Signal CMC
- Lecture 78 - Hardware Implementation of Mixed-Signal CMC and Experimental Results
- Lecture 79 - Voltage based Digital Pulse Skip Modulation and Top Down Design Method
- Lecture 80 - Implementing Digital Pulse Skip Modulation and Experimental Results
- Lecture 81 - STM32 Overview and STM32G4x ecosystem
- Lecture 82 - Getting started with STM32CubeMX - Part I
- Lecture 83 - Getting started with STM32CubeMX - Part II
- Lecture 84 - Practical implementation of LLC converters - Part I
- Lecture 85 - Practical implementation of LLC converters - Part II
- Lecture 86 - Texas Instruments C2000 Real-time Microcontroller Devices
- Lecture 87 - Getting Started with C2000 - Software and Hardware Development
- Lecture 88 - Texas Instruments C2000 key peripheral differentiations
- Lecture 89 - Texas Instruments TIDM-02008 Reference Design Overview
- Lecture 90 - Texas Instruments TIDM-02008 Reference Design Software Overview
- Lecture 91 - Steps for FPGA Implementation of Digital Voltage Mode Control
- Lecture 92 - Steps for FPGA Implementation of Mixed-Signal Current Mode Control
- Lecture 93 - Instability in Digital CMC and Ramp Compensation with Experimental Results
- Lecture 94 - Benefits of Constant Off-Time and On-Time Digital CMC Techniques
- Lecture 95 - Top Down Design Methodology of Constant On/Off-Time Control
- Lecture 96 - Verilog HDL Implementation of Voltage based Constant On-Time Control
- Lecture 97 - FPGA Implementation of Constant On/Off-Time Mixed-Signal CMC
- Lecture 98 - Stability Comparison of Fixed and Variable Freq. Digital CMC with Experimental Results
- Lecture 99 - Assessment of Digital Control Techniques for Light Load DC-DC Converters
- Lecture 100 - Adaptive On-Time Digital Control in DCM with Verilog HDL Implementation
- Lecture 101 - MATLAB Simulation of a Practical Digital VMC Buck Converter in CCM
- Lecture 102 - Data Acquisition and Steps for Validating Simulation and Experimental Results
- Lecture 103 - Loop Shaping and Design of Digital Voltage Mode Control in a Buck Converter
- Lecture 104 - Digital VMC Design for Shaping Output Impedance in a Buck Converter
- Lecture 105 - Hardware Case Studies and Transient Performance in Digital VMC Buck Converter
- Lecture 106 - Design and Simulation Case Studies in a Mixed-Signal CMC Buck Converter
- Lecture 107 - Hardware Case Studies and Transient Performance in a Digital CMC Buck Converter

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- Lecture 108 - Analysis of Output Impedance in Digital CMC with Load Current Feedforward
- Lecture 109 - Load Current Feedforward in Digital CMC Buck Converter: Experimental Results
- Lecture 110 - Need for Multi-Mode Digital Control and Design Requirements in SMPCs
- Lecture 111 - Implementing Bi-frequency Spread Spectrum in Digital VMC using Verilog HDL
- Lecture 112 - Performance of Bi-frequency Spread Spectrum DPWM and Experimental Results
- Lecture 113 - Top Down Design Methodology of PWM/PSM Multi-Mode Digital Control
- Lecture 114 - Verilog HDL based FPGA Prototyping of PWM/PSM Multi-Mode Digital Control
- Lecture 115 - FPGA Prototyping of Peak Current based PWM/PFM Multi-Mode Digital Control - I
- Lecture 116 - FPGA Prototyping of Peak Current based PWM/PFM Multi-Mode Digital Control - II
- Lecture 117 - Industry-Driven Architectures for Digital Control IC in High Frequency SMPC
- Lecture 118 - Industry-Driven Architectures for Digital Control System Solutions in SMPCs
- Lecture 119 - Exploration of Architectures, Modeling, Design, and Control - Course Summary
- Lecture 120 - Key Takeaways and Course Usefulness for Skilled Manpower Development

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

NPTEL Video Course - Electrical Engineering - NOC:VLSI Interconnects

Subject Co-ordinator - Prof. Sarang Pendharker

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Introduction to VLSI interconnects
- Lecture 2 - The distributed RC interconnect model
- Lecture 3 - The Elmore delay
- Lecture 4 - Elmore delay in interconnects
- Lecture 5 - Elmore delay in branched RC interconnects
- Lecture 6 - Equivalent circuit for RC interconnects
- Lecture 7 - Scaling effects in interconnects
- Lecture 8 - Delay mitigation in RC interconnects
- Lecture 9 - RC interconnect simulation
- Lecture 10 - Inductive effects in interconnects
- Lecture 11 - Distributed RLC interconnect model
- Lecture 12 - Transmission line equations
- Lecture 13 - When to consider the inductive effects?
- Lecture 14 - The transfer function of an RLC interconnect
- Lecture 15 - Time domain response of a lumped RLC circuit
- Lecture 16 - Equivalent Elmore model for RLC interconnects
- Lecture 17 - Two-pole model of RLC interconnects from ABCD parameters
- Lecture 18 - RLC interconnect simulation
- Lecture 19 - Origin of the skin effect
- Lecture 20 - Effective resistance at high frequencies
- Lecture 21 - Equivalent circuit to simulate skin effect
- Lecture 22 - Power dissipation due to interconnects
- Lecture 23 - Optimum interconnect width for minimizing total power dissipation
- Lecture 24 - Heating effects and thermal modeling
- Lecture 25 - Compact thermal modeling with equivalent electrical circuits
- Lecture 26 - Electromigration in interconnects
- Lecture 27 - Mitigation of electromigration
- Lecture 28 - Capacitive coupling in interconnects
- Lecture 29 - Cross-talk and timing jitters in two identical interconnects

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

- Lecture 30 - Coupling effects and mitigation techniques
- Lecture 31 - Matrix formulation of coupled interconnects
- Lecture 32 - Coupled RLC interconnects
- Lecture 33 - Decoupling of interconnects by diagonalization of matrix
- Lecture 34 - Analysis of coupled interconnects: Examples - 1
- Lecture 35 - Analysis of coupled interconnects: Examples - 2
- Lecture 36 - Simulation of RC coupled interconnects
- Lecture 37 - Extraction of capacitance - Part 1
- Lecture 38 - Extraction of capacitance - Part 2
- Lecture 39 - Extraction of inductance - Part 1
- Lecture 40 - Extraction of inductance - Part 2
- Lecture 41 - Estimation of interconnect parameters from S-parameters

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

NPTEL Video Course - Electrical Engineering - NOC:Semiconductor Device Modeling and Simulation

Subject Co-ordinator - Prof. Vivek Dixit

Co-ordinating Institute - IIT - Kharagpur

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

Lecture 1 - Introduction
Lecture 2 - Introduction (Continued...)
Lecture 3 - Crystal Concept
Lecture 4 - Crystal Concept
Lecture 5 - Crystal Concept
Lecture 6 - Reciprocal Space
Lecture 7 - Problem Session - 1
Lecture 8 - Doping In Semiconductors
Lecture 9 - Bandstructure
Lecture 10 - Effective Mass
Lecture 11 - Density of States
Lecture 12 - Mobility
Lecture 13 - Problem Session - 2
Lecture 14 - Semiconductor statistics
Lecture 15 - Semiconductor statistics (Continued...)
Lecture 16 - P-N Junction
Lecture 17 - P-N Junction (Continued...)
Lecture 18 - P-N Junction (Continued...)
Lecture 19 - Problem Session - 3
Lecture 20 - BJT
Lecture 21 - Bipolar Junction Transistor
Lecture 22 - Bipolar Junction Transistor (Continued...)
Lecture 23 - Bipolar Junction Transistor (Continued...)
Lecture 24 - Problem Session - 4
Lecture 25 - Metal- Semiconductor Interface
Lecture 26 - Schottky junction
Lecture 27 - Field Effect Transistor
Lecture 28 - MOS Capacitor
Lecture 29 - MOS-CV

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

- Lecture 30 - REAL MOS (Continued...)
- Lecture 31 - MOSFET
- Lecture 32 - MOSFET (Continued...)
- Lecture 33 - Problem Session - 5
- Lecture 34 - Semiclassical Transport
- Lecture 35 - Semiclassical Transport (Continued...)
- Lecture 36 - Semiclassical Transport (Continued...)
- Lecture 37 - Semiclassical Transport (Continued...)
- Lecture 38 - Semiclassical Transport (Continued...)
- Lecture 39 - Problem Session - 6
- Lecture 40 - Drift-diffusion model
- Lecture 41 - Drift-diffusion model (Continued...)
- Lecture 42 - Drift-diffusion model (Continued...)
- Lecture 43 - Drift-diffusion model (Continued...)
- Lecture 44 - Generation-Recombination
- Lecture 45 - Generation-Recombination (Continued...)
- Lecture 46 - Solving DD Equations (Continued...)
- Lecture 47 - Solving DD Equations (Continued...)
- Lecture 48 - Problem Session - 7
- Lecture 49 - Hydrodynamic Model
- Lecture 50 - Hydrodynamic Model (Continued...)
- Lecture 51 - Hydrodynamic Model (Continued...)
- Lecture 52 - Monte Carlo simulations
- Lecture 53 - Problem Session - 8
- Lecture 54 - Quantum Mechanics
- Lecture 55 - Solving Schrodinger Equation
- Lecture 56 - Quantum Correction Models
- Lecture 57 - Quantum Transport
- Lecture 58 - Transfer Matrix Approach
- Lecture 59 - TCAD Tools
- Lecture 60 - ATLAS SILVACO
- Lecture 61 - Simulating Junctions
- Lecture 62 - Models and Simulation Concepts
- Lecture 63 - Mixed-mode Simulation

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

NPTEL Video Course - Electrical Engineering - NOC:RF and Microwave Networks

Subject Co-ordinator - Prof. Bratin Ghosh

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - The network concept
- Lecture 2 - One-port network
- Lecture 3 - One-port network, Two-port network
- Lecture 4 - Two-port network, Signal flow graph
- Lecture 5 - Tutorial - 1
- Lecture 6 - General analysis of cylindrical waveguides
- Lecture 7 - TE to z mode analysis of cylindrical waveguides
- Lecture 8 - TE to z mode analysis of cylindrical waveguides (Continued...), TM to z mode analysis
- Lecture 9 - Normalization of mode vectors, Characteristics of eigen values and eigen functions
- Lecture 10 - Wave impedance for TE and TM to z modes, Transmission line analogy for mode voltage
- Lecture 11 - Transmission line equivalence for TE and TM modes, Power calculation using
- Lecture 12 - Tutorial - 2
- Lecture 13 - Modal expansion in cylindrical waveguides, Concept of mode orthogonality
- Lecture 14 - Concept of mode orthogonality (continued), Determination of arbitrary mode
- Lecture 15 - Power orthogonality in cylindrical waveguides
- Lecture 16 - Tutorial - 3
- Lecture 17 - Modal expansion of fields in rectangular waveguides
- Lecture 18 - Modal expansion of fields in rectangular waveguides (Continued), Capacitive rectangular
- Lecture 19 - Capacitive rectangular waveguide junction (Continued...)
- Lecture 20 - Inductive rectangular waveguide junction (Continued...)
- Lecture 21 - Inductive rectangular waveguide junction (Continued...), Construction of solutions
- Lecture 22 - Cylindrical waveguide junctions (Continued...)
- Lecture 23 - Cylindrical waveguide junctions (Continued...)
- Lecture 24 - Cylindrical waveguide junctions (Continued...), Example of capacitive rectangular
- Lecture 25 - Cylindrical waveguide junctions (Continued...), Example of capacitive rectangular
- Lecture 26 - Example of inductive waveguide junction (Continued...), Alternative equivalent circuit
- Lecture 27 - Tutorial - 4
- Lecture 28 - Obstacles in waveguides
- Lecture 29 - Obstacles in waveguides (Continued...)

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

- Lecture 30 - Obstacles in waveguides (Continued...)
- Lecture 31 - Small obstacles in waveguides
- Lecture 32 - Small obstacles in waveguides (Continued...)
- Lecture 33 - Small obstacles in waveguides, Reciprocity
- Lecture 34 - Reciprocity
- Lecture 35 - Reciprocity (Continued...)
- Lecture 36 - Tutorial - 5
- Lecture 37 - Posts in rectangular waveguide
- Lecture 38 - Posts in rectangular waveguide (Continued...)
- Lecture 39 - Posts in rectangular waveguide (Continued...)
- Lecture 40 - Posts in rectangular waveguide (Continued...)
- Lecture 41 - Diaphragms in waveguide
- Lecture 42 - Diaphragms in waveguide (Continued...)
- Lecture 43 - Diaphragms in waveguide (Continued...)
- Lecture 44 - Diaphragms in waveguide (Continued...)
- Lecture 45 - Tutorial - 6
- Lecture 46 - Currents in Waveguides
- Lecture 47 - Currents in Waveguides (Continued...)
- Lecture 48 - Coaxial to waveguide junction with matched termination
- Lecture 49 - Coaxial to waveguide feeds with arbitrary termination
- Lecture 50 - Coaxial to waveguide feeds with arbitrary termination (Continued...)
- Lecture 51 - Coaxial to waveguide feeds with arbitrary termination (Continued...)
- Lecture 52 - Coaxial to waveguide feeds with arbitrary termination (Continued...)
- Lecture 53 - Tutorial - 7
- Lecture 54 - Apertures in the ground plane
- Lecture 55 - Apertures in the ground plane (Continued...)
- Lecture 56 - Apertures in the ground plane (Continued...)
- Lecture 57 - Apertures in the ground plane (Continued...), Plane current sheets
- Lecture 58 - Plane current sheets (Continued...)
- Lecture 59 - Tutorial - 8
- Lecture 60 - Excitation of Apertures
- Lecture 61 - Tutorial - 9
- Lecture 62 - Modal expansion in cavities
- Lecture 63 - Probes in cavities
- Lecture 64 - Tutorial - 10
- Lecture 65 - Aperture coupling to cavities
- Lecture 66 - Aperture coupling to cavities (Continued...)
- Lecture 67 - Wave interaction with cylindrical structures
- Lecture 68 - Wave interaction with cylindrical structures (Continued...)

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- Lecture 69 - Wave interaction with cylindrical structures (Continued...)
- Lecture 70 - Wave interaction with cylindrical structures (Continued...)
- Lecture 71 - Wave interaction with cylindrical structures (Continued...)
- Lecture 72 - Wave interaction with cylindrical structures (Continued...)
- Lecture 73 - Wave interaction with cylindrical structures (Continued...)
- Lecture 74 - Wave interaction with cylindrical structures (Continued...)
- Lecture 75 - Tutorial - 12

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

NPTEL Video Course - Electrical Engineering - NOC:Introduction to 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 - Probability and Random Variables
Lecture 3 - General Set of Random Variables
Lecture 4 - Statistical Impedance, Covariance Matrices
Lecture 5 - Multivariate Gaussian Density
Lecture 6 - Complex Random Variables
Lecture 7 - Introduction to Hermitian Matrices
Lecture 8 - Eigenvalues and eigenvectors of Hermitian Matrices
Lecture 9 - Spectral Decomposition of Hermitian Matrices
Lecture 10 - Positive Definite and Semidefinite Matrices
Lecture 11 - Introduction to Discrete Time Random Processes
Lecture 12 - Power Spectral Density (PSD)
Lecture 13 - PSD and Linear Time Invariant Systems
Lecture 14 - Optimal FIR Filter
Lecture 15 - Optimal FIR Filter (Continued...)
Lecture 16 - LMS Algorithm
Lecture 17 - Convergence Proof of LMS Algorithm
Lecture 18 - Convergence Proof of LMS Algorithm (Continued...)
Lecture 19 - Application of Adaptive Filter
Lecture 20 - Application of Adaptive Filter (Continued...)
Lecture 21 - Application of Adaptive Filter (Continued...)
Lecture 22 - Applications of Adaptive Filter
Lecture 23 - Applications of Adaptive Filter
Lecture 24 - Second Order Analysis of LMS Algorithm
Lecture 25 - Second Order Analysis of LMS Algorithm (Continued...)
Lecture 26 - Second Order Analysis of LMS Algorithm (Continued...)
Lecture 27 - Second Order Analysis of LMS Algorithm (Continued...)
Lecture 28 - NLMS Algorithm
Lecture 29 - NLMS Algorithm

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

- Lecture 30 - Affine Projection Algorithm (APA)
- Lecture 31 - Affine Projection Algorithm (APA)
- Lecture 32 - Introduction to RLS Algorithm
- Lecture 33 - Introduction to RLS Algorithm (Continued...)
- Lecture 34 - Introduction to RLS Algorithm (Continued...)
- Lecture 35 - Formulation of the RLS Algorithm
- Lecture 36 - Introduction to RLS Algorithm
- Lecture 37 - Introduction to RLS Algorithm
- Lecture 38 - Formulation of the RLS Algorithm
- Lecture 39 - Derivation of the RLS transversal adaptive filter
- Lecture 40 - Derivation of the RLS transversal adaptive filter
- Lecture 41 - Derivation of the RLS transversal adaptive filter

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

NPTEL Video Course - Electrical Engineering - NOC:Nanobiophotonics: Touching Our Daily Life

Subject Co-ordinator - Dr. Basudev Lahiri

Co-ordinating Institute - IIT - Kharagpur

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

Lecture 1 - What is Nano Bio Photonics?

Lecture 2 - Why is Nano Bio Photonics?

Lecture 3 - Why do this?

Lecture 4 - Why Photonics?

Lecture 5 - Why Biology?

Lecture 6 - Nature of Light

Lecture 7 - Light-Matter Interactions

Lecture 8 - Introduction to Fluorescence

Lecture 9 - The Cell

Lecture 10 - The Central Dogma

Lecture 11 - Facts of Matter

Lecture 12 - Introduction to Nanotechnology

Lecture 13 - Nanotechnology: The art of small

Lecture 14 - Synthesis of Nanomaterials : Top-Down Approach

Lecture 15 - Applications of Nanomaterials in Photonics

Lecture 16 - Interaction of Light with Cells

Lecture 17 - Light-matter interactions in molecules (Basic of Spectroscopy)

Lecture 18 - Imaging for Biological Matters

Lecture 19 - Fluorophores and Fluorescence Microscopy Techniques

Lecture 20 - Primary Examples

Lecture 21 - Basics of Flow Cytometry - Part 1

Lecture 22 - Basics of Flow Cytometry - Part 2

Lecture 23 - Data manipulation and presentation

Lecture 24 - Application of Flow cytometry in Biology

Lecture 25 - Raman Assisted Flow cytometry

Lecture 26 - Genetic Code

Lecture 27 - Biosensing Background

Lecture 28 - Basics of Microarray Technology

Lecture 29 - DNA Microarray Technology

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

- Lecture 30 - Protein Microarray Technology
- Lecture 31 - Laser Principles and Operation
- Lecture 32 - Nonlinear Optical Processes
- Lecture 33 - In Vivo Photoexcitation
- Lecture 34 - Light/Laser Activated Therapy
- Lecture 35 - Laser Tissue Contouring
- Lecture 36 - Metamaterials
- Lecture 37 - Metamaterials as Biosensors
- Lecture 38 - Biosensing with Optical Nano-Antennas
- Lecture 39 - Nanoscale Chemical Imaging
- Lecture 40 - Optical Tweezers
- Lecture 41 - Introduction to Optogenetics
- Lecture 42 - Controlling the Brain with Light
- Lecture 43 - The Nervous System
- Lecture 44 - The Neural Circuits
- Lecture 45 - Optical Neuroimaging and Tomography
- Lecture 46 - Functional Near-Infrared Spectroscopy (fNIRS) of the Brain
- Lecture 47 - Neuro imaging with Light-Sheet Microscopy
- Lecture 48 - Brain imaging with Two Photon Microscopy
- Lecture 49 - Brain imaging with functional optoacoustic Imaging
- Lecture 50 - Tomographic technique for Brain imaging
- Lecture 51 - Optogenetic Modulation of Neural Circuits
- Lecture 52 - Nanoparticles for Optical Modulation of Neuronal Behavior
- Lecture 53 - Optical Stimulation of Neural Circuits in Freely Moving Animals
- Lecture 54 - Higher Harmonic Generation Imaging for Neuropathology
- Lecture 55 - Multi-Photon Nanosurgery
- Lecture 56 - Bioinspired materials for photonics
- Lecture 57 - Bioderived Materials
- Lecture 58 - Bioinspired Materials
- Lecture 59 - Biotemplates
- Lecture 60 - Summary and Revisiting Few Topics

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

NPTEL Video Course - Electrical Engineering - NOC:EMI-EMC and Signal Integrity: Principles, Techniques and Ap

Subject Co-ordinator - Prof. Amitabha Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Introduction to Electromagnetic Environment
- Lecture 2 - Introduction to Electromagnetic Compatibility
- Lecture 3 - EMC Standards
- Lecture 4 - EMC Units and Signal Spectrum
- Lecture 5 - Single Sided Spectrum
- Lecture 6 - Response of Linear Systems to Periodic Input Signals
- Lecture 7 - Important Computational Techniques
- Lecture 8 - Fourier Coefficient for Piecewise Linear Periodic Waveforms
- Lecture 9 - Fourier Coefficient for Piecewise Linear Periodic Waveforms (Continued...)
- Lecture 10 - Trapezoidal Clock
- Lecture 11 - Spectral Bounds for Trapezoidal Clock
- Lecture 12 - Spectral estimation of trapezoidal clock
- Lecture 13 - Effect of Rise/Fall Time on Spectral Bound of a Clock
- Lecture 14 - Effect of Ringing on Spectral Bounds
- Lecture 15 - Spectral Bounds for Linear System Output
- Lecture 16 - Resolution Bandwidth of a Spectrum Analyser
- Lecture 17 - Detector of Spectrum Analyser
- Lecture 18 - Radiated Emission Model Subproblem - I
- Lecture 19 - Farfield Characteristics of Current Element: Some Discussion
- Lecture 20 - Farfield of Dipole Antena
- Lecture 21 - Farfield models of wire antenna and current models
- Lecture 22 - Differential mode current emission model
- Lecture 23 - Differential mode current emission model (Continued...)
- Lecture 24 - Common Mode Current Emission Model
- Lecture 25 - Current Measurement
- Lecture 26 - Radiated Susceptibility Models
- Lecture 27 - Determination of Per Unit Length Inductance (Continued...)
- Lecture 28 - Per Unit Length Parameters of Various Two Wire Lines
- Lecture 29 - Radiated Susceptibility Model

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

- Lecture 30 - Radiated Susceptibility Model (Continued...)
- Lecture 31 - Radiated Susceptibility Model (Continued...)
- Lecture 32 - Crosstalk
- Lecture 33 - Development of Multi Conductor Transmission Line Equation
- Lecture 34 - Per Unit Length Parameter of a Three Conductor System
- Lecture 35 - Parameters of Three Conductor Systems (Continued...)
- Lecture 36 - Parameters of Three Conductor Systems (Continued...)
- Lecture 37 - Development of crosstalk model infrequency domain
- Lecture 38 - Determination of Terminal Currents of a three conductor system
- Lecture 39 - Derivation of Chain Parameter Matrix
- Lecture 40 - Determination of Crosstalk in a Lossless Line Immersed in Homogeneous Medium
- Lecture 41 - Determination of Crosstalk (Continued...)
- Lecture 42 - Determination of Crosstalk (Continued...)
- Lecture 43 - Determination of Crosstalk (Continued...)
- Lecture 44 - Inductive and Capacitive coupling
- Lecture 45 - Time Domain Crosstalk
- Lecture 46 - Time Domain Crosstalk (Continued...)
- Lecture 47 - Inclusion of Losses in Transient Crosstalk
- Lecture 48 - Conducted emission and susceptibility
- Lecture 49 - Shielding
- Lecture 50 - Shielding Effectiveness for Farfield Source
- Lecture 51 - Shielding Effectiveness Due to Farfield Source (Continued...)
- Lecture 52 - SE Due to Farfield Sources (Continued...) and Free Space Impedance Ar Nearfield
- Lecture 53 - Shielding for Nearfield Source
- Lecture 54 - EMC System Aspect for Shielding
- Lecture 55 - Grounding
- Lecture 56 - Grounding (Continued...)
- Lecture 57 - Bonds and Joints
- Lecture 58 - EMC Case Studies
- Lecture 59 - Electrostatic Discharge (ESD)

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

NPTEL Video Course - Electrical Engineering - NOC:Embedded Sensing, Actuation and Interfacing Systems

Subject Co-ordinator - Prof. Banibrata Mukherjee

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Introduction
- Lecture 2 - Real-life Examples Illustration
- Lecture 3 - Sensor Structure and Characteristics
- Lecture 4 - Sensor and Actuator Characteristics and Numerical Problem
- Lecture 5 - Temperature Sensors and its Signal Conditioning Circuits
- Lecture 6 - Motion Sensors and its Interfacing Aspects
- Lecture 7 - Gyroscope and Strain Gauge
- Lecture 8 - Strain Gauge and Optical Sensor
- Lecture 9 - Optical Encoder, Gas Sensor and Chemical Sensor
- Lecture 10 - Magnetic Sensor and Actuator
- Lecture 11 - Electrical Actuator
- Lecture 12 - Electrical Actuator: Stepper Motor and Heater
- Lecture 13 - Smart Material Actuator
- Lecture 14 - Metamaterial and Other Actuators
- Lecture 15 - Op-amp based circuits and amplifier
- Lecture 16 - Various Op-amp Configurations
- Lecture 17 - Instrumentation Amplifier and Filter
- Lecture 18 - Passive and Active Filters
- Lecture 19 - Universal Filter and Data Converter
- Lecture 20 - ADC and DAC
- Lecture 21 - Sampling Issue and Communication Protocol
- Lecture 22 - Bridge Circuits and their Linearity Improvement
- Lecture 23 - Linearization and error reduction schemes
- Lecture 24 - Principle of Direct Interfacing Scheme
- Lecture 25 - Various Aspects of Direct Interfacing
- Lecture 26 - Direct Interfacing for Differential and Bridge Type Resistive Sensor
- Lecture 27 - Measurement Uncertainties and Interface of Sensor Array
- Lecture 28 - Various Configurations of Capacitive Sensors
- Lecture 29 - Analog Interface Circuit and Direct Interfacing Scheme

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

- Lecture 30 - Direct Interfacing Scheme for Differential Capacitive Sensor
- Lecture 31 - Lossy Capacitive Sensor and its Interfacing Aspect
- Lecture 32 - Advanced Interfacing Circuits for Lossy Capacitive Sensor
- Lecture 33 - Autobalance Active Bridge Interfacing Circuit
- Lecture 34 - Background of Miniaturization
- Lecture 35 - Micromachining Technology for MEMS Devices
- Lecture 36 - Bulk and Surface Micromachining and Fabrication Steps
- Lecture 37 - MEMS Fabrication Process - Part 1
- Lecture 38 - MEMS Fabrication Process - Part 2
- Lecture 39 - MEMS Fabrication Process - Part 3
- Lecture 40 - MEMS Fabrication Process - Part 4
- Lecture 41 - MEMS-IC Integration Aspects and Miniaturized Sensor
- Lecture 42 - MEMS Pressure Sensor and Interfacing Electronics
- Lecture 43 - MEMS Accelerometer
- Lecture 44 - MEMS Capacitive Accelerometer and Interfacing Electronics
- Lecture 45 - Interfacing Electronics Details for MEMS Accelerometer
- Lecture 46 - MEMS Gyroscope and Flow sensor
- Lecture 47 - MEMS Actuator
- Lecture 48 - MEMS Electrostatic Actuator Analysis
- Lecture 49 - Background of Renewable Energy Harvesting
- Lecture 50 - Various Transduction Mechanisms for Energy Harvester
- Lecture 51 - Vibration Energy Harvester and its Interfacing Aspects
- Lecture 52 - Interfacing Power Management Circuit for Vibration Energy Harvester
- Lecture 53 - Demonstration of Energy Harvester Set-up and Self-powered Embedded System
- Lecture 54 - Background of Embedded Sensors and Actuators in Automotives
- Lecture 55 - Applications in Safety System of Automotive
- Lecture 56 - Applications in Safety System and Engine Control System
- Lecture 57 - Application in Cardiovascular Measurements
- Lecture 58 - Applications in Remote Healthcare and Smart Medical Devices
- Lecture 59 - Electronic Nose and its Applications in Disease Detection
- Lecture 60 - Virtual Sensing, Research Scopes, Summary and Key Takeaways of the Course

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

- 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 Loop²⁴ 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 - I² L Technology
Lecture 13 - Edge triggered D-F/F
Lecture 14 - I² L - Condition for Proper Operation
Lecture 15 - I² L - Propagation delay Self aligned
Lecture 16 - Schottky Transistor Logic
Lecture 17 - Stacked I² 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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NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

- 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

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

| | | |
|------------|---------------------------|-----|
| 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
- Lecture 3 - Countability
- Lecture 4 - Uncountable sets - 1
- Lecture 5 - Uncountable sets - 2
- Lecture 6 - Probability spaces - Introduction
- Lecture 7 - Probability spaces - Algebra
- Lecture 8 - Probability spaces - σ -algebra
- Lecture 9 - Probability spaces - Measurable space
- Lecture 10 - Properties of probability measures
- Lecture 11 - Continuity of probability measure
- Lecture 12 - Discrete probability space - finite and countably infinite sample space
- Lecture 13 - Discrete probability space - Uncountable sample space
- Lecture 14 - Generated σ -algebra, Borel Sets
- Lecture 15 - Borel sets
- Lecture 16 - Uniform probability measure on Borel sets-Lebesgue measure
- Lecture 17 - Carathéodory's extension theorem
- Lecture 18 - Lebesgue measure (Continued...)
- Lecture 19 - Infinite coin toss model
- Lecture 20 - Infinite coin toss model (Continued...)
- Lecture 21 - Conditional probability
- Lecture 22 - Properties of conditional probability
- Lecture 23 - Independence of events
- Lecture 24 - Independence of σ -algebras
- Lecture 25 - Borel-Cantelli Lemma - 1
- Lecture 26 - Borel-Cantelli Lemma - 2
- Lecture 27 - Random Variables
- Lecture 28 - Random Variables (Continued...)
- Lecture 29 - Cumulative Distribution Function

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

- Lecture 30 - Properties of CDF
- Lecture 31 - Types of Random Variables
- Lecture 32 - Examples of Random Variables
- Lecture 33 - Continuous Random Variables - 1
- Lecture 34 - Examples of Continuous Random Variables - 1
- Lecture 35 - Continuous Random Variables - 2, Examples of Continuous Random Variables - 2
- Lecture 36 - Singular Random Variables
- Lecture 37 - Several Random Variables - 1
- Lecture 38 - Several Random Variables - 2
- Lecture 39 - Independent Random Variables - 1
- Lecture 40 - Independent Random Variables - 2
- Lecture 41 - Conditional PMF, Jointly Continuous Random Variables - 1
- Lecture 42 - Jointly Continuous Random Variables - 2
- Lecture 43 - Jointly Continuous Random Variables - 3
- Lecture 44 - Conditional CDF
- Lecture 45 - Transformation of Random Variables - 1
- Lecture 46 - Transformation of Random Variables - 2; Independent Random Variables
- Lecture 47 - Sums of Discrete Random Variables
- Lecture 48 - Sums of Jointly Continuous Random Variables
- Lecture 49 - Sums of Random Number of Random Variables
- Lecture 50 - General Transformations of Random Variables
- Lecture 51 - Jacobian Formula
- Lecture 52 - Examples Illustrating the use of Jacobian Formula
- Lecture 53 - Introduction Integral and Expectation
- Lecture 54 - Definition of the Abstract Integral
- Lecture 55 - Simple Functions
- Lecture 56 - Computing Expectation using Simple Functions, Properties of Integrals
- Lecture 57 - Properties of Integrals (Continued....)
- Lecture 58 - Inclusion Exclusion Formula using Indicator RVs and Expectation
- Lecture 59 - Monotone Convergence Theorem - 1
- Lecture 60 - Monotone Convergence Theorem - 2
- Lecture 61 - Expectation of a Discrete Random Variable
- Lecture 62 - Examples of Expectation of Discrete Random Variables
- Lecture 63 - Expectation of Function of Random Variable
- Lecture 64 - Some Examples of Computing Expectation
- Lecture 65 - Fatou's Lemma
- Lecture 66 - Dominated Convergence Theorem
- Lecture 67 - Variance
- Lecture 68 - Covariance

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- Lecture 69 - Covariance Correlation Coefficient - 1
- Lecture 70 - Covariance Correlation Coefficient - 2
- Lecture 71 - Conditional Expectation
- Lecture 72 - Properties of Conditional Expectation
- Lecture 73 - MMSE Estimator
- Lecture 74 - Transforms
- Lecture 75 - Moment Generating Function - 1
- Lecture 76 - Moment Generating Function - 2
- Lecture 77 - Characteristic Function - 1
- Lecture 78 - Characteristic Function - 2
- Lecture 79 - Characteristic Function - 3
- Lecture 80 - Characteristic Function - 4
- Lecture 81 - Concentration Inequalities - 1
- Lecture 82 - Concentration Inequalities - 2
- Lecture 83 - Convergence of Random Variables - 1
- Lecture 84 - Convergence of Random Variables - 2
- Lecture 85 - Convergence of Random Variables - 3
- Lecture 86 - Convergence of Random Variables - 4
- Lecture 87 - Convergence of Random Variables - 5
- Lecture 88 - Convergence of Random Variables - 6
- Lecture 89 - Convergence Of Characteristic Functions
- Lecture 90 - Limit Theorems
- Lecture 91 - The Law of Large Numbers - 1
- Lecture 92 - The Law of Large Numbers - 2
- Lecture 93 - The Central Limit Theorem - 1
- Lecture 94 - The Central Limit Theorem - 2
- Lecture 95 - A Brief Overview of Multivariate Gaussians - 1
- Lecture 96 - A Brief Overview of Multivariate Gaussians - 2

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: Small signal equivalent circuit

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

- Lecture 30 - Common source amplifier analysis: Effect of biasing components
- 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 transistor 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 V_{GS} 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 - Controlled sources using a MOS transistor-Introduction
- Lecture 59 - Voltage controlled voltage source
- Lecture 60 - VCVS using a MOS transistor
- Lecture 61 - VCVS using a MOS transistor - Small signal picture
- Lecture 62 - VCVS using a MOS transistor - Complete circuit
- Lecture 63 - Source follower: Effect of output conductance; Constraints on coupling capacitors
- Lecture 64 - VCCS using a MOS transistor
- Lecture 65 - VCCS using a MOS transistor: Small signal picture
- Lecture 66 - VCCS using a MOS transistor: Complete circuit
- Lecture 67 - VCCS using a MOS transistor: AC coupling the output
- Lecture 68 - Source degenerated CS amplifier

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

- Lecture 69 - CCCS using a MOS transistor
- Lecture 70 - CCCS using a MOS transistor: Small signal picture
- Lecture 71 - CCCS using a MOS transistor: Complete circuit
- Lecture 72 - C CVS using a MOS transistor
- Lecture 73 - C CVS using a MOS transistor: Gain
- Lecture 74 - C CVS using a MOS transistor: Input and output resistances
- Lecture 75 - C CVS using a MOS transistor: Complete circuit
- Lecture 76 - V CVS using an opamp
- Lecture 77 - C CVS using an opamp
- Lecture 78 - Negative feedback and virtual short in an opamp
- Lecture 79 - Negative feedback and virtual short in a transistor
- Lecture 80 - Constraints on controlled sources using opamps and transistors
- Lecture 81 - Quick tour of amplifying devices
- Lecture 82 - Signal swing limits in amplifiers
- Lecture 83 - Swing limit due to transistor entering triode region
- Lecture 84 - Swing limit due to transistor entering cutoff region
- Lecture 85 - Swing limit calculation example
- Lecture 86 - Swing limits-more calculations
- Lecture 87 - pMOS transistor
- Lecture 88 - Small signal model of the pMOS transistor
- Lecture 89 - Common source amplifier using the pMOS transistor
- Lecture 90 - Swing limits of the pMOS common source amplifier
- Lecture 91 - Biasing a pMOS transistor at a constant current; pMOS current mirror
- Lecture 92 - Converting nMOS transistor circuits to pMOS
- Lecture 93 - Bias current generation
- Lecture 94 - Examples of more than one transistor in feedback
- Lecture 95 - Gain limitation in a common source amplifier with resistive load
- Lecture 96 - nMOS active load for pMOS common source amplifier
- Lecture 97 - CMOS inverter
- Lecture 98 - Large signal characteristics of pMOS CS amplifier with nMOS active load
- Lecture 99 - Large signal characteristics of nMOS CS amplifier with pMOS active load
- Lecture 100 - Large signal characteristics of a CMOS inverter
- Lecture 101 - Active load amplifiers as digital gates
- Lecture 102 - Sensitivity of output bias to input bias in a CMOS inverter
- Lecture 103 - Self biasing a CMOS inverter
- Lecture 104 - An application of self biased inverters
- Lecture 105 - Current consumption of a self-biased inverter; Current biasing
- Lecture 106 - Amplifying a difference signal; Differential pair
- Lecture 107 - Differential pair-small signal basics

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- Lecture 108 - Biasing a differential pair
- Lecture 109 - Differential pair with differential excitation
- Lecture 110 - Differential pair with a current mirror load
- Lecture 111 - Differential pair with a current mirror load - operating point
- Lecture 112 - Differential pair with a current mirror load - Norton equivalent current
- Lecture 113 - Differential pair with a current mirror load - Norton equivalent resistance
- Lecture 114 - Common mode gain
- Lecture 115 - Single stage opamp
- Lecture 116 - Single stage opamp: Input common mode swing limits
- Lecture 117 - Single stage opamp: Output swing limits
- Lecture 118 - Which transistor type to use for the second stage?
- Lecture 119 - Small signal gain
- Lecture 120 - DC negative feedback biasing of all stages
- Lecture 121 - DC negative feedback biasing of all stages (Continued...)
- Lecture 122 - Small signal model
- Lecture 123 - Swing limits
- Lecture 124 - Systematic offset; How to eliminate it
- Lecture 125 - Bipolar junction transistor(BJT): Large signal model
- Lecture 126 - BJT model for calculating operating points
- Lecture 127 - BJT small signal model
- Lecture 128 - Biasing a BJT
- Lecture 129 - Biasing a BJT, (Continued...)
- Lecture 130 - Amplifiers using BJTs
- Lecture 131 - PNP transistor

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

- 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

- 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

- 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

- 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:Introduction to Photonics

Subject Co-ordinator - Prof. Balaji Srinivasan

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to Photonics
Lecture 2 - Diffraction and Interference
Lecture 3 - Tutorial on Ray Optics and Wave Optics
Lecture 4 - Lab Demonstration
Lecture 5 - Interferometers
Lecture 6 - Coherence
Lecture 7 - Spatial and Temporal Coherence
Lecture 8 - Tutorial on Wave Optics
Lecture 9 - Lab Demonstration
Lecture 10 - Electromagnetic Optics
Lecture 11 - Fiber Optics
Lecture 12 - Photon Properties
Lecture 13 - Lab Demonstration
Lecture 14 - Photon Optics
Lecture 15 - Tutorial on Photon optics
Lecture 16 - Photon interaction - 1
Lecture 17 - Photon interaction - 2
Lecture 18 - Lab Demonstration
Lecture 19 - Optical Amplification
Lecture 20 - Three Level systems
Lecture 21 - Four Level Systems
Lecture 22 - EDFA Introduction
Lecture 23 - EDFA Tutorial
Lecture 24 - Lasers Part - 1
Lecture 25 - Lab Demonstration
Lecture 26 - Lasers part- 2
Lecture 27 - Lasers part- 3
Lecture 28 - Lasers part- 4
Lecture 29 - Lab Demonstration

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

- Lecture 30 - Semiconductor light Source and detector - Band structure
- Lecture 31 - Semiconductor light Source and detector - Light emission
- Lecture 32 - Semiconductor light Source and detector LED Characteristics
- Lecture 33 - Lab Demonstration
- Lecture 34 - Semiconductor light Source and detector Laser Characteristics
- Lecture 35 - Semiconductor Detectors - 1
- Lecture 36 - Semiconductor Detectors - 2
- Lecture 37 - Semiconductor Detectors - 3
- Lecture 38 - Lab Demonstration
- Lecture 39 - Semiconductor Detectors - 4
- Lecture 40 - Light manipulation-Mallus' Law
- Lecture 41 - Light manipulation-Birefringence
- Lecture 42 - Light manipulation-Faraday Rotation
- Lecture 43 - Lab Demonstration
- Lecture 44 - Non-linear optics-Pockels effect
- Lecture 45 - Non-linear optics-Kerr Effect
- Lecture 46 - Lab Demonstration
- Lecture 47 - Non-linear optics-stimulated Brillouin scattering
- Lecture 48 - Non-linear optics-stimulated Raman scattering

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

NPTEL Video Course - Electrical Engineering - NOC:Multirate DSP

Subject Co-ordinator - Prof. David Kovil Pillai

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Introduction to Multirate DSP - Part 1
- Lecture 2 - Introduction to Multirate DSP - Part 2
- Lecture 3 - Sampling and Nyquist criterion - Part 1
- Lecture 4 - Sampling and Nyquist criterion - Part 2
- Lecture 5 - Signal Reconstruction - Part 1
- Lecture 6 - Signal Reconstruction - Part 2
- Lecture 7 - Reconstruction filter - Part 1
- Lecture 8 - Reconstruction filter - Part 2
- Lecture 9 - Discrete time processing of continuous time signal - Part 1
- Lecture 10 - Discrete time processing of continuous time signal - Part 2
- Lecture 11 - DT processing of CT signal example
- Lecture 12 - Time scaling- upsampler and downsampler - Part 1
- Lecture 13 - Time scaling- upsampler and downsampler - Part 2
- Lecture 14 - Upsampler and downsampler- continued - Part 1
- Lecture 15 - Upsampler and downsampler- continued - Part 2
- Lecture 16 - Decimator properties
- Lecture 17 - Properties of Upsampler and Downsampler
- Lecture 18 - Fractional sampling rate change - Part 1
- Lecture 19 - Fractional sampling rate change - Part 2
- Lecture 20 - Multiplexer/ demultiplexer interpretation
- Lecture 21 - Noble identities and polyphase decomposition - Part 1
- Lecture 22 - Noble identities and polyphase decomposition - Part 2
- Lecture 23 - Polyphase decomposition continued - Part 1
- Lecture 24 - Polyphase decomposition continued - Part 2
- Lecture 25 - Introduction to Multirate Filter Banks
- Lecture 26 - Applications of Multirate - Part 1
- Lecture 27 - Applications of Multirate - Part 2
- Lecture 28 - Spectral Analysis of Filter Bank - Part 1
- Lecture 29 - Spectral Analysis of Filter Bank - Part 2

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

- Lecture 30 - DFT and High Resolution Spectral Analysis - Part 1
- Lecture 31 - DFT and High Resolution Spectral Analysis - Part 2
- Lecture 32 - Transmultiplexer and Maximally Decimated Filterbanks - Part 1
- Lecture 33 - Transmultiplexer and Maximally Decimated Filterbanks - Part 2
- Lecture 34 - Maximally Decimated Filterbanks 2 - Part 1
- Lecture 35 - Maximally Decimated Filterbanks 2 - Part 2
- Lecture 36 - Study of Two-channel filter bank
- Lecture 37 - Introduction to Quadrature Mirror Filters (QMF)
- Lecture 38 - 2-channel QMF Filter Bank Design
- Lecture 39 - Study of All-pass filters
- Lecture 40 - Study of All-pass lattice
- Lecture 41 - All-pass decomposition, the study of Mth band and Nyquist filters
- Lecture 42 - Study of two-channel filter bank with perfect reconstruction
- Lecture 43 - First part name
- Lecture 44 - First part name
- Lecture 45 - Capacity of wireless channels - CSIR - Part 1
- Lecture 46 - Capacity of wireless channels - CSIT - Part 2
- Lecture 47 - Capacity of wireless channels - Formulation of capacity calculation - Part 3
- Lecture 48 - Capacity of wireless channels - Formulation of capacity calculation (Continued...) - Part 1
- Lecture 49 - Capacity of wireless channels - Formulation of capacity calculation (Continued...) - Part 2
- Lecture 50 - Capacity of wireless channels - Time-invariant Frequency selective channel - Part 3
- Lecture 51 - Capacity of wireless channels - Time-varying Frequency selective channels - Part 1
- Lecture 52 - Multi-rate DSP framework for Multi-carrier Modulation - Part 2
- Lecture 53 - MCM with overlapping spectra - Part 1
- Lecture 54 - Recap of multirate DSP concepts for building OFDM - Part 2
- Lecture 55 - Introduction to Redundancy and it's implementation in multi-rate framework - Part 3
- Lecture 56 - M-channel multicarrier Transceiver - Part 1
- Lecture 57 - M-channel multicarrier Transceiver - Part 2
- Lecture 58 - M-channel multicarrier Transceiver - Part 3
- Lecture 59 - Pseudo-circulant structure - Part 1
- Lecture 60 - Pseudo-circulant structure - Part 2
- Lecture 61 - MCM impairments and CP - Part 1
- Lecture 62 - MCM impairments and CP - Part 2
- Lecture 63 - Orthogonal Frequency Division Multiplexing - Part 1
- Lecture 64 - Orthogonal Frequency Division Multiplexing - Part 2
- Lecture 65 - Review of OFDM with CP
- Lecture 66 - Review of Lec 1-28
- Lecture 67 - OFDM applications - Quantization - Part 1
- Lecture 68 - OFDM applications - Quantization - Part 2

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

Lecture 69 - Some more applications of MDSP

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

NPTEL Video Course - Electrical Engineering - NOC:LDPC and Polar Codes in 5G Standard

Subject Co-ordinator - Dr. Andrew Thangaraj

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Additive White Gaussian Noise (AWGN) Channel and BPSK
- Lecture 2 - Bit Error Rate (BER) and Signal to Noise Ratio (SNR)
- Lecture 3 - Error Correction Coding in a Digital Communication System
- Lecture 4 - Complementary Error Function
- Lecture 5 - Simulation of Uncoded BPSK and BER v/s Eb/N0 plot Generation in MATLAB/Octave
- Lecture 6 - $n = 3$ Repetition Code
- Lecture 7 - Implementation of $n = 3$ Repetition Code in MATLAB
- Lecture 8 - (7,4) Hamming Code
- Lecture 9 - A Brief Introduction to Linear Block Codes
- Lecture 10 - Simulation of (7,4) Hamming Code in MATLAB
- Lecture 11 - Low Density Parity Check Codes
- Lecture 12 - LDPC Codes in 5G
- Lecture 13 - Encoding LDPC codes in 5G
- Lecture 14 - MATLAB programs for encoding LDPC codes
- Lecture 15 - Log-Likelihood Ratio and Soft Input and Soft Output (SISO) Decoder for the Repetition Code
- Lecture 16 - Soft Input and Soft Output (SISO) Decoder for the Single Parity Check (SPC) Code
- Lecture 17 - Illustration of SISO decoder for (3,2) SPC code and min-sum approximation
- Lecture 18 - SISO decoder for a general $(n,n-1)$ SPC code
- Lecture 19 - Soft-Input Soft-Output Iterative Message Passing Decoder for LDPC Codes
- Lecture 20 - A Toy Example Illustration of the SISO Minsum Iterative Message Passing Decoder
- Lecture 21 - Modifications to the Decoder
- Lecture 22 - Implementation of SISO Layered Minsum Iterative Message Passing Decoder in MATLAB
- Lecture 23 - Debugging and Improvements to the MATLAB Implementation
- Lecture 24 - Rate Matching in LDPC Codes using Puncturing and Shortening
- Lecture 25 - Implementation of Fixed Point Quantization and Offset Minsum in the Decoder
- Lecture 26 - Introduction to Polar Codes
- Lecture 27 - Channel Polarization, Definition of (N,K) Polar Code and Encoding
- Lecture 28 - MATLAB Implementation for Encoding Polar Codes
- Lecture 29 - Successive Cancellation (SC) Decoder for Polar Codes

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

- Lecture 30 - Successive Cancellation (SC) Decoder for a General (N,K) Polar Code
- Lecture 31 - MATLAB Implementation of Successive Cancellation Decoder - Part 1
- Lecture 32 - MATLAB Implementation of Successive Cancellation Decoder - Part 2
- Lecture 33 - Successive Cancellation List Decoding
- Lecture 34 - Fixed Point Quantization for SC Decoder and LDPC Decoder
- Lecture 35 - MATLAB Implementation of Successive Cancellation List Decoding
- Lecture 36 - Rate Matching for LDPC codes
- Lecture 37 - Performance Comparison of LDPC codes and Polar Codes in 5G

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

NPTEL Video Course - Electrical Engineering - NOC:Electromagnetic Compatibility, EMC

Subject Co-ordinator - Prof. Daniel Mansson, Prof. Rajeev Thottappillil

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to EMC - Definitions

Lecture 2 - Introduction to EMC - Sources, units etc

Lecture 3 - Electromagnetic principles - Faraday's and Ampere's equations

Lecture 4 - Electromagnetic principles - Gauss's equation, boundary conditions

Lecture 5 - Electromagnetic principles - Uniform plane wave

Lecture 6 - Electromagnetic principles - Transmission lines

Lecture 7 - Electromagnetic principles - Dipoles

Lecture 8 - High-frequency behaviour of components - Conductors

Lecture 9 - High-frequency behaviour of components - Capacitors, inductors, resistors

Lecture 10 - High-frequency behaviour of components - Mechanical switches and transformers

Lecture 11 - Crosstalk or near-field coupling - Capacitive coupling, inductive coupling, common-impedance coupling

Lecture 12 - Crosstalk or near-field coupling - Crosstalk combinations

Lecture 13 - Crosstalk or near-field coupling - Coupling to shielded cables

Lecture 14 - Electromagnetic coupling in the far-field

Lecture 15 - Field Coupling - Exercises

Lecture 16 - Solutions to EMC problems - Lay out and control of interfaces

Lecture 17 - Solutions to EMC problems - Grounding or earthing

Lecture 18 - Solutions to EMC problems - Electromagnetic Shielding

Lecture 19 - Solutions to EMC problems - Electromagnetic Shielding (Continued...)

Lecture 20 - Solutions to EMC problems - Shielded cables

Lecture 21 - Solutions to EMC problems - Filters and Surge protectors

Lecture 22 - Lightning Protection - Introduction

Lecture 23 - Lightning protection - Currents, charges and fields

Lecture 24 - Lightning Protection - Buildings

Lecture 25 - Lightning Protection - Towers, Lightning safety

Lecture 26 - EMC Requirements and Standard, Testing and Difficulties - 1

Lecture 27 - EMC Requirements and Standard, Testing and Difficulties - 2

Lecture 28 - Intentional Electromagnetic Interference or IEMI - 1

Lecture 29 - Intentional Electromagnetic Interference or IEMI - 2

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

NPTEL Video Course - Electrical Engineering - NOC:Mapping Signal Processing Algorithms to Architectures

Subject Co-ordinator - Prof. Nitin Chandrachoodan

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Introduction
- Lecture 2 - Review of digital logic
- Lecture 3 - Timing and Power in digital circuits
- Lecture 4 - Implementation Costs and Metrics
- Lecture 5 - Example
- Lecture 6 - Example
- Lecture 7 - Architecture cost components
- Lecture 8 - Examples of Architectures
- Lecture 9 - Multi-objective Optimization
- Lecture 10 - Number representation
- Lecture 11 - Scientific notation and Floating point
- Lecture 12 - Basic FIR filter
- Lecture 13 - Serial FIR filter architectures
- Lecture 14 - Simple programmable architecture
- Lecture 15 - Block diagrams and SFGs
- Lecture 16 - Dataflow Graphs
- Lecture 17 - Iteration period
- Lecture 18 - FIR filter iteration period
- Lecture 19 - IIR filter iteration period
- Lecture 20 - Computation Model
- Lecture 21 - Constraint analysis for IPB computation
- Lecture 22 - Motivational examples for IPB
- Lecture 23 - General IPB computation
- Lecture 24 - Sample period calculation
- Lecture 25 - Parallel architecture
- Lecture 26 - Odd-even register reuse
- Lecture 27 - Power consumption
- Lecture 28 - Pipelining
- Lecture 29 - Time-invariant systems

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

- Lecture 30 - Valid pipelining examples
- Lecture 31 - Feedforward cutsets
- Lecture 32 - Balanced pipeline
- Lecture 33 - Retiming basic concept
- Lecture 34 - Retiming basic concept
- Lecture 35 - (Missing Title)
- Lecture 36 - Resource sharing
- Lecture 37 - Changing iteration period
- Lecture 38 - Hardware assumptions and constraint analysis
- Lecture 39 - Mathematical formulation
- Lecture 40 - Examples with formulation
- Lecture 41 - Example
- Lecture 42 - Hardware architecture
- Lecture 43 - Review biquad folding sets
- Lecture 44 - Complete biquad hardware
- Lecture 45 - DEMO
- Lecture 46 - DEMO
- Lecture 47 - Obtaining a folding schedule
- Lecture 48 - ASAP schedule
- Lecture 49 - Utilization Efficiency
- Lecture 50 - ALAP schedule
- Lecture 51 - Iteration period bound and scheduling
- Lecture 52 - Retiming for scheduling
- Lecture 53 - Blocked schedules
- Lecture 54 - Overlapped schedules
- Lecture 55 - Improved blocked schedule
- Lecture 56 - Allocation, Binding and Scheduling
- Lecture 57 - DEMO
- Lecture 58 - DEMO
- Lecture 59 - Scheduling
- Lecture 60 - Example
- Lecture 61 - Heuristic approaches to scheduling
- Lecture 62 - Mathematical formulation
- Lecture 63 - ILP formulation
- Lecture 64 - List scheduling
- Lecture 65 - Hardware model
- Lecture 66 - Force Directed Scheduling
- Lecture 67 - DEMO
- Lecture 68 - DEMO

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

Lecture 69 - DEMO
Lecture 70 - Software Compilation
Lecture 71 - Optimization Examples
Lecture 72 - Loop optimizations - 1
Lecture 73 - Loop optimizations - 2
Lecture 74 - Loop optimizations - 3
Lecture 75 - Software pipelining - 1
Lecture 76 - Software pipelining - 2
Lecture 77 - FFT Optimization
Lecture 78 - Demo
Lecture 79 - Background
Lecture 80 - Demo
Lecture 81 - Demo
Lecture 82 - Demo
Lecture 83 - Demo
Lecture 84 - Background
Lecture 85 - On-chip communication basics
Lecture 86 - Many-to-Many communication
Lecture 87 - AXI bus handshaking
Lecture 88 - AXI bus (Continued...)
Lecture 89 - Demo
Lecture 90 - Demo
Lecture 91 - Demo
Lecture 92 - DMA and arbitration
Lecture 93 - Network-on-chip basics
Lecture 94 - NoC - Topologies and metrics
Lecture 95 - NoC - Routing
Lecture 96 - NoC - Switching and flow control
Lecture 97 - Systolic Arrays - Background
Lecture 98 - Systolic Arrays - Examples
Lecture 99 - CORDIC algorithm
Lecture 100 - Parallel implementation of FIR filters
Lecture 101 - Unfolding Transformation
Lecture 102 - Lookahead Transformation
Lecture 103 - Introduction to GPUs and Matrix multiplication

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

NPTEL Video Course - Electrical Engineering - NOC:Linear System Theory

Subject Co-ordinator - Prof. Ramakrishna Pasumarthi

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to Linear Systems

Lecture 2 - System Models

Lecture 3 - System Models - Part 1

Lecture 4 - System Models - Part 2

Lecture 5 - General Representation

Lecture 6 - Sets, Functions and Fields

Lecture 7 - Linear Algebra - Vector Spaces and Metric Spaces

Lecture 8 - Linear Algebra - Span, Basis and Subspaces

Lecture 9 - Linear Algebra - Linear Maps and Matrices

Lecture 10 - Linear Algebra - Fundamental Subspaces and Rank-Nullity

Lecture 11 - Tutorial 1 on Linear Algebra

Lecture 12 - Linear Algebra - Change of Basis and Similarity Transformation

Lecture 13 - Linear Algebra - Invariant Subspaces, Eigen Values and Eigen Vectors

Lecture 14 - Linear Algebra - Diagonalization and Jordan Forms

Lecture 15 - Linear Algebra - Eigen Decomposition and Singular Value Decomposition

Lecture 16 - Tutorial 2 on Linear Algebra

Lecture 17 - Solutions to LTI Systems

Lecture 18 - State Transition Matrix for LTI systems

Lecture 19 - Forced Reponse of Continuous and Discrete LTI system

Lecture 20 - State Transition Matrix and Solutions to LTV systems

Lecture 21 - Equilibrium Points

Lecture 22 - Limit Cycles and Linearisation

Lecture 23 - Stability Analysis and Types of Stability

Lecture 24 - Lyapunov Stability

Lecture 25 - Stability of Discrete Time Systems

Lecture 26 - Supplementary Lecture

Lecture 27 - Controllability and Reachability

Lecture 28 - Controllability Matrix and Controllable Systems

Lecture 29 - Controllability Tests

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

- Lecture 30 - Controllability of Discrete Time Systems
- Lecture 31 - Controllable Decomposition
- Lecture 32 - Stabilizability
- Lecture 33 - Observability
- Lecture 34 - Gramians and Duality
- Lecture 35 - Observability for Discrete Time Systems and Observability Tests
- Lecture 36 - Observable Decomposition and Detectability
- Lecture 37 - Kalman Decomposition and Minimal Realisation
- Lecture 38 - Canonical Forms and State Feedback Control
- Lecture 39 - Control Design using Pole Placement
- Lecture 40 - Tutorial for Modules 9 and 10
- Lecture 41 - State Estimation and Output Feedback
- Lecture 42 - Design of Observer and Observer based Controller
- Lecture 43 - Optimal Control and Linear Quadratic Regulator (LQR)
- Lecture 44 - Feedback Invariant and Algebraic Riccati Equation
- Lecture 45 - Tutorial for Module 11
- Lecture 46 - Linear Matrix Inequalities
- Lecture 47 - Properties of LMIs and Delay LMIs

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

NPTEL Video Course - Electrical Engineering - NOC:Digital Signal Processing

Subject Co-ordinator - C. S. Ramalingam

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Signal Definition and Classification
- Lecture 2 - Affine Transform
- Lecture 3 - Recap of Affine Transform
- Lecture 4 - Even and Odd Parts of a Signal
- Lecture 5 - The Unit Step Sequence
- Lecture 6 - The Unit Impulse
- Lecture 7 - The Unit Impulse (Continued...)
- Lecture 8 - Exponential Signals and Sinusoids
- Lecture 9 - Sinusoids (Continued...)
- Lecture 10 - When are two sinusoids independent?
- Lecture 11 - Another Difference Between CT and DT Sinusoids
- Lecture 12 - System definition and properties (linearity)
- Lecture 13 - Time-invariance, memory, causality, and stability
- Lecture 14 - LTI systems, impulse response, and convolution
- Lecture 15 - Properties of convolution, system interconnections
- Lecture 16 - Java applet demo of convolution
- Lecture 17 - Systems governed by LCCDE
- Lecture 18 - FIR and IIR systems
- Lecture 19 - Karplus-Strong algorithm
- Lecture 20 - Z-transform definition and RoC
- Lecture 21 - Z-transform (Continued...)
- Lecture 22 - Poles and zeros
- Lecture 23 - Recursive implementation of FIR filters
- Lecture 24 - Convergence criterion
- Lecture 25 - Properties of the RoC
- Lecture 26 - DTFT definition and absolute summability
- Lecture 27 - Linearity
- Lecture 28 - Delay
- Lecture 29 - Exponential multiplication

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- Lecture 30 - Complex conjugation
- Lecture 31 - Time reversal
- Lecture 32 - Differentiation in the Z-domain
- Lecture 33 - Convolution in the time domain
- Lecture 34 - Relationship between $x[n]$ and $X(1)$
- Lecture 35 - Initial Value Theorem
- Lecture 36 - Final Value Theorem
- Lecture 37 - Multiplication in the time domain
- Lecture 38 - Parseval's Theorem
- Lecture 39 - Partial Fractions Method
- Lecture 40 - Power series method
- Lecture 41 - Contour Integral Method
- Lecture 42 - Contour Integral Method (Continued...)
- Lecture 43 - Inverse DTFT
- Lecture 44 - DTFT of Sequences that are not absolutely summable
- Lecture 45 - Response to $\cos(\omega_0 n)$
- Lecture 46 - Causality and Stability
- Lecture 47 - Response to suddenly applied inputs
- Lecture 48 - Introduction to frequency response
- Lecture 49 - Magnitude response and its geometric interpretation
- Lecture 50 - Magnitude Response (Continued...)
- Lecture 51 - Response of a single complex zero/pole
- Lecture 52 - Resonator and Improved Resonator
- Lecture 53 - Notch filter
- Lecture 54 - Moving Average Filter
- Lecture 55 - Comb filter
- Lecture 56 - Phase response of a single complex zero
- Lecture 57 - Effect of crossing a unit circle zero, wrapped and unwrapped phase, resonator phase response
- Lecture 58 - Allpass Filter
- Lecture 59 - Group delay and its physical interpretation
- Lecture 60 - Zero-phase filtering, effect on nonlinear phase on waveshape
- Lecture 61 - Zero-Phase Filtering, Linear Phase - 1
- Lecture 62 - Linear Phase - 2
- Lecture 63 - Linear Phase - 3
- Lecture 64 - Linear Phase - 3
- Lecture 65 - Linear Phase - 3
- Lecture 66 - Linear Phase - 4, Sampling - 1
- Lecture 67 - Linear Phase - 4, Sampling - 1
- Lecture 68 - Linear Phase - 4, Sampling - 1

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Lecture 69 - Sampling - 2
Lecture 70 - Sampling - 3
Lecture 71 - Sampling - 4
Lecture 72 - Sampling - 4
Lecture 73 - Sampling - 4
Lecture 74 - The Discrete Fourier Transform - 1
Lecture 75 - The Discrete Fourier Transform - 1
Lecture 76 - The Discrete Fourier Transform - 2
Lecture 77 - The Discrete Fourier Transform - 3
Lecture 78 - The Discrete Fourier Transform - 3
Lecture 79 - The Discrete Fourier Transform - 3
Lecture 80 - The Discrete Fourier Transform - 4
Lecture 81 - The Discrete Fourier Transform - 4
Lecture 82 - The Discrete Fourier Transform - 4

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NPTEL Video Course - Electrical Engineering - NOC:Computational Electromagnetics

Subject Co-ordinator - Prof. Uday Khankhoje

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Chain rule of differentiation
Lecture 2 - Gradient, Divergence, and Curl operators
Lecture 3 - Common theorems in vector calculus
Lecture 4 - Corollaries of these theorems
Lecture 5 - Mathematical History
Lecture 6 - Different regimes of Maxwell's equations
Lecture 7 - Different ways of solving them
Lecture 8 - Maxwell's Equations
Lecture 9 - Boundary Conditions
Lecture 10 - Uniqueness Theorem
Lecture 11 - Equivalence Theorem
Lecture 12 - Simple Numerical Integration
Lecture 13 - Interpolating a Function
Lecture 14 - Gauss Quadrature
Lecture 15 - Line Charge Problem
Lecture 16 - Solving the Integral Equation
Lecture 17 - Basis Functions
Lecture 18 - Helmholtz Equation
Lecture 19 - Solving Helmholtz Equation
Lecture 20 - Huygen's principle and the Extinction theorem
Lecture 21 - Formulating the integral equations
Lecture 22 - Conclusions of surface integral equations
Lecture 23 - Motivations for Green's functions
Lecture 24 - A one-dimensional example
Lecture 25 - 1-D example
Lecture 26 - 2-D wave example
Lecture 27 - 2-D wave example
Lecture 28 - 2-D example
Lecture 29 - 2-D example

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- Lecture 30 - 3-D example
- Lecture 31 - Motivation for MoM
- Lecture 32 - Linear Vector Spaces
- Lecture 33 - Formulating Method of Moments
- Lecture 34 - Surface Integral Equations
- Lecture 35 - Surface Integral Equations
- Lecture 36 - Surface Integral Equations
- Lecture 37 - Surface Integral Equations
- Lecture 38 - Volume Integral Equations
- Lecture 39 - Volume Integral Equations
- Lecture 40 - Volume Integral Equations
- Lecture 41 - Volume Integral Equations
- Lecture 42 - Surface integral equations for PEC
- Lecture 43 - Surface v/s volume integral equations
- Lecture 44 - Definition of radar cross-section
- Lecture 45 - Computational Considerations
- Lecture 46 - History and Overview of the FEM
- Lecture 47 - Basic framework of FEM
- Lecture 48 - 1D Basis Functions
- Lecture 49 - 2D Basis Functions
- Lecture 50 - Weak form of 1D-FEM - Part 1
- Lecture 51 - Weak form of 1D-FEM - Part 2
- Lecture 52 - Generating System of Equations for 1D FEM
- Lecture 53 - 1D wave equation
- Lecture 54 - 1D Wave Equation
- Lecture 55 - 1D Wave Equation
- Lecture 56 - 1D Wave Equation
- Lecture 57 - 2D FEM Shape Functions
- Lecture 58 - Converting to Weak Form (2D FEM)
- Lecture 59 - Radiation Boundary Condition
- Lecture 60 - Total field formulation
- Lecture 61 - Scattered field formulation
- Lecture 62 - Comparing total and scattered field formulation
- Lecture 63 - Matrix assembly - Part 1
- Lecture 64 - Matrix assembly - Part 2
- Lecture 65 - Computing Far Field
- Lecture 66 - Numerical Aspects of 2D FEM
- Lecture 67 - Summary of FEM Procedure
- Lecture 68 - Introduction to FDTD

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

- Lecture 69 - 2D FDTD Formulation
- Lecture 70 - 2D FDTD Formulation
- Lecture 71 - 2D FDTD Formulation
- Lecture 72 - Stability Criteria - Part 1
- Lecture 73 - Stability Criteria - Part 2
- Lecture 74 - Stability Criteria - Higher Dimensions
- Lecture 75 - Accuracy Considerations - 1D
- Lecture 76 - Accuracy Considerations - Higher Dimensions
- Lecture 77 - Dealing with non-dispersive dielectric media
- Lecture 78 - Dealing with dispersive dielectric media
- Lecture 79 - Debye Model - Part 1
- Lecture 80 - Debye Model - Part 2
- Lecture 81 - Absorbing Boundary Conditions - 1D
- Lecture 82 - Absorbing Boundary Conditions - 2D
- Lecture 83 - Implementing ABC in FDTD
- Lecture 84 - Failure of ABC
- Lecture 85 - Perfectly Matched Layers (PML) - Introduction
- Lecture 86 - Implementing PML using Coordinate Stretching
- Lecture 87 - PML - Phase Matching
- Lecture 88 - PML - Tangential Boundary Conditions
- Lecture 89 - Perfectly Matched Interface
- Lecture 90 - PML theory - Summary
- Lecture 91 - Implementing PML into FDTD - Part 1
- Lecture 92 - Implementing PML into FDTD - Part 2
- Lecture 93 - Sources in FDTD - Currents
- Lecture 94 - Sources in FDTD - Part 2
- Lecture 95 - Summary of FDTD
- Lecture 96 - MEEP
- Lecture 97 - Inverse Problems - Introduction
- Lecture 98 - Inverse Problems - Mathematical Formulation
- Lecture 99 - Inverse Problems - Challenges
- Lecture 100 - Inverse Problems - Non-Linearity
- Lecture 101 - Inverse Problems - Summary
- Lecture 102 - Antennas - Potential formulation
- Lecture 103 - Antennas - Hertz Dipole - Part 1
- Lecture 104 - Antennas - Hertz Dipole - Part 2
- Lecture 105 - Antennas - Radiation Patterns
- Lecture 106 - Antennas - Motivation for CEM
- Lecture 107 - Antennas - Pocklington's Integral Equation - Part 1

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

- Lecture 108 - Antennas - Pocklington's Integral Equation - Part 2
- Lecture 109 - Antennas - Source Modeling
- Lecture 110 - Antennas - Circuit Model
- Lecture 111 - Antennas - MoM details
- Lecture 112 - Antennas - Mutual Coupling - Part 1
- Lecture 113 - Antennas - Mutual Coupling - Part 2
- Lecture 114 - Hybrid Methods - Motivation
- Lecture 115 - Finite Element-Boundary Integral - Part 1
- Lecture 116 - Finite Element-Boundary Integral - Part 2
- Lecture 117 - Finite Element-Boundary Integral - Part 3

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

NPTEL Video Course - Electrical Engineering - NOC:Transmission Lines and Electromagnetic Waves

Subject Co-ordinator - Dr. Ananth Krishnan

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Transmission lines
- Lecture 2 - Lossless Transmission lines
- Lecture 3 - Introduction to finite difference method
- Lecture 4 - Octave simulation of wave equation
- Lecture 5 - Octave simulation of Telegrapher's equation
- Lecture 6 - Reflections and reflection coefficient
- Lecture 7 - AC signals in loss-less transmission lines
- Lecture 8 - Transmission lines with losses
- Lecture 9 - Octave simulation of Transmission lines with losses
- Lecture 10 - Voltage reflection coefficient and standing wave ratio
- Lecture 11 - Graphical representation of reflection coefficient
- Lecture 12 - Impedance matching using Smith chart
- Lecture 13 - Demonstration of Impedance matching using VNA
- Lecture 14 - Transmission Line Limitations and Maxwell's Equation
- Lecture 15 - Maxwell's Curl Equation
- Lecture 16 - Octave simulation of an Electromagnetic Wave Equation
- Lecture 17 - Polarisation of an Electromagnetic Wave
- Lecture 18 - Octave Simulation of different types of Polarisation
- Lecture 19 - Electromagnetic Waves in a conductive Medium
- Lecture 20 - Plane Waves
- Lecture 21 - Plane Waves at normal incidence
- Lecture 22 - Plane waves at Oblique Incidence - I
- Lecture 23 - Plane waves at Oblique Incidence - II
- Lecture 24 - Plane waves at Oblique Incidence - III
- Lecture 25 - Octave simulation of perpendicular polarisation
- Lecture 26 - Octave simulation of perpendicular polarisation (Continued...)
- Lecture 27 - Dielectric-ideal conductor interface
- Lecture 28 - Parallel plate waveguide
- Lecture 29 - Rectangular Waveguide

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

- Lecture 30 - Octave simulation of modes of a Rectangular Waveguide
- Lecture 31 - Phase Velocity and Group velocity
- Lecture 32 - Octave simulation of Field pattern of a parallel plate waveguide
- Lecture 33 - Cavity resonator and Real life applications of waveguides and cavity

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

NPTEL Video Course - Electrical Engineering - NOC:Digital IC Design

Subject Co-ordinator - Prof. Janakiraman

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction - Digital IC Design
Lecture 2 - PN Junction
Lecture 3 - MOS Capacitor Threshold Voltage
Lecture 4 - MOS Transistor Current Expression
Lecture 5 - Body Effect and I-V Plots
Lecture 6 - Short Channel Transistors - Channel Length Modulation
Lecture 7 - Velocity Saturation and Level-1 SPICE Model
Lecture 8 - Drain Induced Barrier Lowering
Lecture 9 - Sub-Threshold Leakage
Lecture 10 - Substrate and Gate Leakage
Lecture 11 - The PMOS Transistor
Lecture 12 - Transistor Capacitance - 1
Lecture 13 - Transistor Capacitance - 2
Lecture 14 - CMOS Inverter Construction
Lecture 15 - Voltage Transfer Characteristics
Lecture 16 - Load Line Analysis
Lecture 17 - Trip Point for Short Channel Device Inverter
Lecture 18 - Trip Point for Long Channel Device Inverter
Lecture 19 - Noise Margin Analysis - 1
Lecture 20 - Noise Margin Analysis - 2
Lecture 21 - Noise Margin Analysis - 3
Lecture 22 - Noise Margin Analysis-Long Channel Device Inverter - 1
Lecture 23 - Noise Margin Analysis-Long Channel Device Inverter - 2
Lecture 24 - Pass Transistors
Lecture 25 - NMOS Transistor ON Resistance and Fall Delay
Lecture 26 - Elmore Delay Model
Lecture 27 - Inverter: Transient Response
Lecture 28 - Inverter: Dynamic Power
Lecture 29 - Inverter: Short Circuit Power

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

- Lecture 30 - Inverter: Leakage Power and Transistor Stacks
- Lecture 31 - Stacking Effect and Sleep Transistors
- Lecture 32 - Ring Oscillators and Process Variations
- Lecture 33 - Implementing Any Boolean Logic Function
- Lecture 34 - Implementing Any Boolean Logic Function: Examples. Gate sizing
- Lecture 35 - Gate Sizing
- Lecture 36 - Logic Gate Capacitance
- Lecture 37 - Gate Delay
- Lecture 38 - Parasitic Delay
- Lecture 39 - Gate Delay with a Load Capacitance
- Lecture 40 - Logical Effort
- Lecture 41 - Gate Delay
- Lecture 42 - Path Delay Calculation and Optimization Formulation
- Lecture 43 - Path Delay Optimization: Intuition
- Lecture 44 - Path Delay Optimization: Example
- Lecture 45 - Buffer Insertion
- Lecture 46 - Input Ordering and Asymmetric Gates
- Lecture 47 - Skewed Gates
- Lecture 48 - Special Functions
- Lecture 49 - Pseudo NMOS Logic
- Lecture 50 - Pseudo NMOS Inverter
- Lecture 51 - Pseudo NMOS Logical Effort and CVSL
- Lecture 52 - Dynamic Circuits and Input Monotonicity
- Lecture 53 - Domino Logic and Weak Keepers
- Lecture 54 - Transmission Gate Logic
- Lecture 55 - Gate Sizing for Large Circuits
- Lecture 56 - Ripple Adder Introduction
- Lecture 57 - Full Adder Circuit Implementation
- Lecture 58 - Full Adder Optimization
- Lecture 59 - Carry Skip Adder
- Lecture 60 - Carry Select Adder
- Lecture 61 - Linear and Square Root Carry Select Adder
- Lecture 62 - Two's Complement Arithmetic
- Lecture 63 - Two's Complement Sign Extension
- Lecture 64 - Array Multiplier
- Lecture 65 - Array Multiplier - Timing Analysis
- Lecture 66 - Carry Save Multiplier
- Lecture 67 - Carry Save Multiplier - Signed Multiplication
- Lecture 68 - Introduction to Pipelining

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

- Lecture 69 - Time Borrowing
- Lecture 70 - Master Slave Flip Flop
- Lecture 71 - Flop Timing Parameters
- Lecture 72 - Alternate Circuit Implementations
- Lecture 73 - Clock Overlap
- Lecture 74 - C2MOS Flop
- Lecture 75 - Flop Characterization
- Lecture 76 - Max and Min Delay of Flop Based Systems
- Lecture 77 - Flop Min Delay Constraint
- Lecture 78 - Latch - Max and Min Delay Constraints
- Lecture 79 - Latch - Timing Analysis with Skew
- Lecture 80 - Time Borrowing

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

NPTEL Video Course - Electrical Engineering - NOC:Power Management Integrated Circuits

Subject Co-ordinator - Prof. Qadeer Ahmad Khan

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to PMIC - Part 1

Lecture 2 - Introduction to PMIC - Part 2

Lecture 3 - Linear versus Switching Regulators

Lecture 4 - Performance Parameters of Regulators

Lecture 5 - Local vs Remote Feedback, Point of Load Regulators

Lecture 6 - Kelvin Sensing, Droop Compensation

Lecture 7 - Current Regulator Applications, Introduction to Bandgap Voltage References, PTAT and CTAT voltage

Lecture 8 - Adding PTAT and CTAT Voltages

Lecture 9 - Bandgap Voltage Reference Circuit, Brokaw Bandgap Circuit

Lecture 10 - Sub-1-volt Bandgap Circuit

Lecture 11 - Generating Multiple Reference Voltages; Applications of Linear Regulators

Lecture 12 - Designing a Linear Regulator, Negative and Positive Feedback

Lecture 13 - First-Order Systems, Phase Margin

Lecture 14 - Closed-Loop Response of Second-Order Systems

Lecture 15 - Relationship between Damping Factor and Phase Margin, Frequency Compensation, MOS Parasitic Capa

Lecture 16 - Finding the Poles of the Error Amplifier - Part 1

Lecture 17 - Finding the Poles of the Error Amplifier - Part 2

Lecture 18 - Dominant Pole Frequency Compensation

Lecture 19 - Dominant Pole Compensation at No-Load

Lecture 20 - Dominant Pole Compensation using Miller Effect, RHP zero due to Miller Capacitor

Lecture 21 - Intuitive Method of Finding the Poles, Pole Splitting after Miller Compensation

Lecture 22 - Effect of RHP zero on Stability, Mitigating the Effect of RHP zero, LDO with NMOS Pass Element

Lecture 23 - Output Impedance of PMOS LDO

Lecture 24 - Line Regulation and PSRR of PMOS LDO

Lecture 25 - PSRR of PMOS versus PSRR of NMOS LDO

Lecture 26 - Sources of Error in Linear and Switching Regulators

Lecture 27 - Offset in Amplifiers; Real Life Analogy; Static Offset Cancellation

Lecture 28 - Dynamic Offset Cancellation Techniques (Chopping, Auto-zeroing)

Lecture 29 - Digital LDO, Technique to Avoid Limit Cycle Oscillations in Digital LDO

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

- Lecture 30 - Hybrid LDO, Short-Circuit Protection
- Lecture 31 - Hiccup Mode and Foldback Current Limit
- Lecture 32 - Introduction to Switching Regulators
- Lecture 33 - volt-second Balance, Non-Idealities in the Power Stage of a Buck Converter
- Lecture 34 - Transformer Model of a Buck Converter, Conduction Efficiency, Efficiency of an LDO versus Efficiency
- Lecture 35 - Synchronous versus Non-Synchronous Switching Regulators, PWM Control Techniques
- Lecture 36 - Losses in Switching Regulators (Conduction Loss, Gate-Driver Switching Loss)
- Lecture 37 - Dead-Time Switching Loss in DC-DC Converters
- Lecture 38 - Hard Switching Loss in DC DC Converters
- Lecture 39 - Magnetic Loss in DC-DC Converters, Relative Significance of Losses as a Function of the Load Current
- Lecture 40 - Output Voltage Ripple of a Buck Converter
- Lecture 41 - Choosing the Inductor and Capacitor for a Buck Converter
- Lecture 42 - CCM Vs DCM Operation in DC DC Converters
- Lecture 43 - CCM DCM Boundary Condition, Voltage Conversion Ratio in DCM
- Lecture 44 - Concept of Pulse Frequency Modulation PFM
- Lecture 45 - Classification of Pulse Width Modulators
- Lecture 46 - DC - DC Converter Control Techniques, Stability Analysis of Voltage Mode Buck Converter - Part 1
- Lecture 47 - Stability Analysis of Voltage Mode Buck Converter - Part 2
- Lecture 48 - Stability Analysis of Voltage Mode Buck Converter - Part 3
- Lecture 49 - Dominant Pole Compensation (Type-I with Gm-C Architecture)
- Lecture 50 - Dominant Pole Compensation (Type-I with Op Amp-RC Architecture)
- Lecture 51 - Introduction to Type-II Compensation
- Lecture 52 - Type-II Compensator using Gm-C Architecture - Part 1
- Lecture 53 - Type-II Compensator using Gm-C Architecture - Part 2
- Lecture 54 - Type-II Compensator using Gm-C Architecture - Part 3
- Lecture 55 - Type-II Compensator using Op Amp-RC Architecture
- Lecture 56 - Introduction to Type-III Compensator
- Lecture 57 - Type-III Compensator using Op Amp-RC Architecture
- Lecture 58 - Simulation of DC-DC Converter with Type-III Compensator
- Lecture 59 - Type-III Compensator using Gm-C Architecture
- Lecture 60 - Feed-Forward Line Compensation, Loop Gain Compensation by Modulating Gm
- Lecture 61 - Designing a Buck Converter, Power Loss Budgeting
- Lecture 62 - Sizing Power MOSFETs
- Lecture 63 - Estimating Switching Losses and Choosing the Switching Frequency
- Lecture 64 - Choosing Inductance and Capacitance Values
- Lecture 65 - Choosing 'C' Depending on Factors that Limit the Load Transient Response
- Lecture 66 - Inductor and Capacitor Characteristics, Reducing the Effect of Capacitor ESL
- Lecture 67 - Gate Buffer and Non-Overlap Clock Generator in Gate-Driver Circuit
- Lecture 68 - Pulse-Width Modulator- Trailing Edge, Leading Edge and Dual Edge; Triangle Wave Generator

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

- Lecture 69 - Average Ramp Voltage of Single-Edge PW Modulator, Design Considerations of EA
- Lecture 70 - Delays Associated with PW Modulator, PFM and PSM Operation, DCM Operation using NMOS
- Lecture 71 - Designing a Zero-Cross Comparator, Inverter-Based Auto-Zeroed Comparator, Simulation Demo
- Lecture 72 - Current Mode Control- Peak, Valley, Emulated; VMC versus CMC; Sub-Harmonic Oscillation
- Lecture 73 - Ramp-Adaptive Slope Compensation to Avoid Current Loop Instability
- Lecture 74 - Non-Linear Control of DC-DC Converters, Phase-Shift between i_L and v_C
- Lecture 75 - Stabilising a Voltage-Mode Hysteretic Converter using R_{esr} , Relation between F_{sw} and the Hyste
- Lecture 76 - Hysteretic Converter - Simulation Demo
- Lecture 77 - Current-Mode Hysteretic Converter, Using R-C as Ripple Generator
- Lecture 78 - Controlling the Switching Frequency of a Hysteretic Converter, Delay in the Hysteretic Comparato
- Lecture 79 - Frequency and Voltage Regulation Loops in a Fixed-Frequency Hysteretic Converter
- Lecture 80 - Resetting the Capacitor Voltage in a Hysteretic Converter, Constant ON-Time Control
- Lecture 81 - Introduction to Boost Converter, RHP Zero in a Boost Converter
- Lecture 82 - Introduction to Buck-Boost Converter
- Lecture 83 - Tri-Mode Buck-Boost Converter (Buck, Buck-Boost and Boost)
- Lecture 84 - Boundary Conditions for Mode Transition in a Tri-Mode Buck-Boost Converter
- Lecture 85 - Generating Buck and Boost Duty Cycles in a Tri-Mode Buck-Boost Converter
- Lecture 86 - Introduction to Switched-Capacitor DC-DC Converters, Switched-Capacitor DC-DC Converter with V_o
- Lecture 87 - Applications of Switched-Capacitor DC-DC Converters in Open-Loop, Regulating the Output using F_e
- Lecture 88 - H-Bridge Switched-Capacitor DC-DC Converter, SC DC-DC converter with Multiple Gain Settings
- Lecture 89 - Current Sensing Techniques in DC-DC Converters
- Lecture 90 - Analog Layout Techniques - Part 1
- Lecture 91 - Analog Layout Techniques - Part 2
- Lecture 92 - Digital Control of DC-DC Converters, ADC Architectures
- Lecture 93 - Digital Pulse-Width Modulator Architectures, Adaptive Compensation
- Lecture 94 - Limitations of Analog and Digital Controllers, Time-Based Controller for Buck Converter
- Lecture 95 - Time-Based Controller for Buck Converter and for LDO, Issues with Time-Based Control
- Lecture 96 - Multi-Phase DC-DC Converters
- Lecture 97 - Dynamic Voltage and Frequency Scaling, Single Inductor Multiple Output (SIMO) DC-DC Converter
- Lecture 98 - LCD/AMOLED Display Drivers - Part 1
- Lecture 99 - LCD/AMOLED Display Drivers - Part 2
- Lecture 100 - LCD/AMOLED Display Drivers - Part 3
- Lecture 101 - LED Drivers for Camera Flash
- Lecture 102 - Li-Ion Battery and its Charging Phases
- Lecture 103 - Battery Charger IC

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

NPTEL Video Course - Electrical Engineering - NOC:DC Power Transmission Systems

Subject Co-ordinator - Prof. Krishna S

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Course contents
- Lecture 2 - Introduction
- Lecture 3 - Historical developments
- Lecture 4 - Power semiconductor devices
- Lecture 5 - General converter configuration
- Lecture 6 - Choice of converter configuration
- Lecture 7 - Choice of converter configuration
- Lecture 8 - Converter configuration for pulse number equal to 6
- Lecture 9 - Analysis of 6 pulse LCC neglecting inductance
- Lecture 10 - Analysis of 6 pulse LCC neglecting inductance
- Lecture 11 - Analysis of 6 pulse LCC neglecting inductance
- Lecture 12 - Fourier series - Part 1
- Lecture 13 - Fourier series - Part 2
- Lecture 14 - Analysis of 6 pulse LCC neglecting inductance
- Lecture 15 - Analysis of 6 pulse LCC neglecting inductance
- Lecture 16 - Definitions
- Lecture 17 - Commutation margin angle in a 6 pulse LCC neglecting inductance - Part 1
- Lecture 18 - Commutation margin angle in a 6 pulse LCC neglecting inductance - Part 2
- Lecture 19 - Instantaneous power on AC and DC sides in a 6 pulse LCC neglecting inductance
- Lecture 20 - Average power on AC and DC sides in a 6 pulse LCC neglecting inductance
- Lecture 21 - 6 pulse LCC with inductance
- Lecture 22 - 2 and 3 valve conduction mode of 6 pulse LCC
- Lecture 23 - 2 and 3 valve conduction mode of 6 pulse LCC
- Lecture 24 - 2 and 3 valve conduction mode of 6 pulse LCC
- Lecture 25 - 2 and 3 valve conduction mode of 6 pulse LCC
- Lecture 26 - Extinction angle
- Lecture 27 - Extinction angle
- Lecture 28 - 3 and 4 valve conduction mode of 6 pulse LCC
- Lecture 29 - Analysis of 3 and 4 valve conduction mode of 6 pulse LCC - Part 1

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

- Lecture 30 - Analysis of 3 and 4 valve conduction mode of 6 pulse LCC - Part 2
- Lecture 31 - Analysis of 3 and 4 valve conduction mode of 6 pulse LCC - Part 3
- Lecture 32 - 3 valve conduction mode of 6 pulse LCC
- Lecture 33 - Commutation margin angle
- Lecture 34 - Normalization
- Lecture 35 - Characteristics of 6 pulse LCC - Part 1
- Lecture 36 - Characteristics of 6 pulse LCC - Part 2
- Lecture 37 - Steady state analysis of a general LCC - Part 1
- Lecture 38 - Steady state analysis of a general LCC - Part 2
- Lecture 39 - Steady state analysis of a general LCC - Application to 6 pulse LCC
- Lecture 40 - 6 pulse LCC with resistance included on the AC side
- Lecture 41 - 6 pulse LCC with resistance, inductance and voltage source on the DC side - Part 1
- Lecture 42 - 6 pulse LCC with resistance, inductance and voltage source on the DC side - Part 2
- Lecture 43 - Power factor
- Lecture 44 - Capacitor commutated converter - Part 1
- Lecture 45 - Capacitor commutated converter - Part 2
- Lecture 46 - 12 pulse LCC - Part 1
- Lecture 47 - 12 pulse LCC - Part 2
- Lecture 48 - Modes of operation of 12 pulse LCC
- Lecture 49 - Purposes of transformer
- Lecture 50 - Applications of DC transmission
- Lecture 51 - Types of DC link
- Lecture 52 - Types of DC link
- Lecture 53 - DC link control
- Lecture 54 - DC link control
- Lecture 55 - Considerations that influence selection of control
- Lecture 56 - Converter control characteristics
- Lecture 57 - MTDC systems
- Lecture 58 - Types of MTDC systems
- Lecture 59 - Non-characteristic harmonics
- Lecture 60 - Effect of firing angle errors
- Lecture 61 - Problems with harmonics
- Lecture 62 - Single tuned filter
- Lecture 63 - Design of single tuned filter - Part 1
- Lecture 64 - Design of single tuned filter - Part 2
- Lecture 65 - Double tuned and damped filters
- Lecture 66 - Reactive power requirement
- Lecture 67 - Comparison of AC and DC transmission

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

NPTEL Video Course - Electrical Engineering - NOC:Optical Engineering

Subject Co-ordinator - Prof. Shanti Bhattacharya

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to Optical Engineering
Lecture 2 - Geometric Optics Basics
Lecture 3 - Refraction at a single surface
Lecture 4 - Lab 1 Introduction to OSLO
Lecture 5 - Stops and Rays
Lecture 6 - Aperture stop - Part 1
Lecture 7 - Aperture stop - Part 2
Lecture 8 - Lab 2 OSLO
Lecture 9 - Imaging equation for thick lens using ABCD matrix
Lecture 10 - Ray Tracing Matrix - Part 1
Lecture 11 - Ray Tracing Matrix - Part 2
Lecture 12 - Principal Planes
Lecture 13 - Lab 3 OSLO
Lecture 14 - Tracing rays through optical pupils - Part 1
Lecture 15 - Tracing rays through optical pupils - Part 2
Lecture 16 - Aberrations
Lecture 17 - Monochromatic Aberrations - Part 1
Lecture 18 - Monochromatic Aberrations - Part 2
Lecture 19 - Lab 4 - OSLO
Lecture 20 - Chromatic Aberrations and Aberration correction
Lecture 21 - Aberration correction
Lecture 22 - Revisiting Ray intercept curves
Lecture 23 - Lab 5 - OSLO
Lecture 24 - Interesting Geometric phenomena and applications
Lecture 25 - Gaussian beams introduction
Lecture 26 - Gaussian beams
Lecture 27 - Lab 6 - OSLO
Lecture 28 - Transformation of a Gaussian beam
Lecture 29 - Transformation of a Gaussian beam due to a lens and a mirror

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- Lecture 30 - Application of Gaussian beam equations
- Lecture 31 - Interferometry basics
- Lecture 32 - Interferometry basics - Part 1
- Lecture 33 - Introduction to Python
- Lecture 34 - Python - Part 2
- Lecture 35 - Introduction to Matlab
- Lecture 36 - Interferometry basics - Part 2
- Lecture 37 - Python - Part 3
- Lecture 38 - Matlab tutorial on interference
- Lecture 39 - Applications of interference - Part 1
- Lecture 40 - Holography
- Lecture 41 - Applications of interference
- Lecture 42 - Applications of Optical Engineering
- Lecture 43 - Diffractive Optics
- Lecture 44 - Diffraction Grating

NPTel Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTel Video Course - Electrical Engineering - NOC:Nonlinear System Analysis

Subject Co-ordinator - Dr. Arun D. Mahindrakar, Prof. Ramkrishna Pasumarthy

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Examples of Nonlinear Physical Systems
- Lecture 2 - Math Preliminaries - Part 1
- Lecture 3 - Math Preliminaries - Part 2
- Lecture 4 - Math Preliminaries - Part 3
- Lecture 5 - Lipschitz Continuity and Contraction Mapping Theorem - Part 1
- Lecture 6 - Lipschitz Continuity and Contraction Mapping Theorem - Part 2
- Lecture 7 - Lipschitz Continuity and Contraction Mapping Theorem - Part 3
- Lecture 8 - Existence and Uniqueness Theorem of ODE - Part 1
- Lecture 9 - Existence and Uniqueness Theorem of ODE - Part 2
- Lecture 10 - Existence and Uniqueness Theorem of ODE - Part 3
- Lecture 11 - Existence and Uniqueness Theorem of ODE - Part 4
- Lecture 12 - Equilibrium Points
- Lecture 13 - Phase Portrait - Part 1
- Lecture 14 - Phase Portrait - Part 2
- Lecture 15 - Phase Portrait - Part 3
- Lecture 16 - Phase portrait of Nonlinear Systems
- Lecture 17 - Limit Cycles
- Lecture 18 - Limit Cycles - Examples - Part 1
- Lecture 19 - Limit Cycles - Examples - Part 2
- Lecture 20 - Introduction to Bifurcation Theory - 1
- Lecture 21 - Introduction to Bifurcation Theory - 2
- Lecture 22 - Necessary and Sufficient Conditions for Local Bifurcation
- Lecture 23 - Problems on Bifurcation Theory.
- Lecture 24 - Stability Notions
- Lecture 25 - Stability Notions
- Lecture 26 - Stability Notions
- Lecture 27 - Stability Notions
- Lecture 28 - Stability Analysis and types of stability
- Lecture 29 - Lypaunov Stability

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- Lecture 30 - Supplementary lecture
- Lecture 31 - Center Manifold Theorem
- Lecture 32 - Interconnection between non linearity and a linear system - Sector Nonlinearities And Aizermannâ s conjecture
- Lecture 33 - Counter example for Aizermannâ s conjecture
- Lecture 34 - Passivity inspiration - passive circuits - dissipation equality
- Lecture 35 - Dissipative Equality for circuit (Continued...)
- Lecture 36 - PR condition for passivity of SISO system
- Lecture 37 - Examples of PR transfer functions
- Lecture 38 - Relation between storage function and Lyapunov function - PR Lemma
- Lecture 39 - Proof of PR Lemma
- Lecture 40 - Proof (Continued...) using spectral factorization theorem
- Lecture 41 - PR definition for MIMO case
- Lecture 42 - PSD Storage function in PR Lemma and how to make it PD (strictly PR)
- Lecture 43 - KYP Theorem
- Lecture 44 - Passivity preservation under interconnection
- Lecture 45 - Aizermannâ s conjecture under passivity assumption is true
- Lecture 46 - Sector Nonlinearities and need for generalizing KYP Lemma
- Lecture 47 - Need for Loop transformations
- Lecture 48 - Loop Transformations - Part 1
- Lecture 49 - Loop Transformations - Part 2
- Lecture 50 - Circle criterion for PR
- Lecture 51 - Examples based on circle criterion and stability under circle transformations

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

NPTEL Video Course - Electrical Engineering - NOC:Signals and Systems

Subject Co-ordinator - Prof. Kushal K. Shah

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Real and Complex Number
- Lecture 2 - Sinusoid and Phasor
- Lecture 3 - Limits and Continuity
- Lecture 4 - Differentiation and Integration
- Lecture 5 - L'Hôpital's Rule
- Lecture 6 - LTI System Examples; Impedance
- Lecture 7 - Dirac Delta function; Impulse
- Lecture 8 - Continuous and Discrete Time Systems
- Lecture 9 - Even Signal; Odd Signal
- Lecture 10 - Orthogonality of Signals
- Lecture 11 - Shifting and Scaling in Continuous Time - I
- Lecture 12 - Shifting and Scaling in Continuous Time - II
- Lecture 13 - Shifting and Scaling in Discrete Time
- Lecture 14 - Signal and Noise
- Lecture 15 - Signals in the Physical World
- Lecture 16 - Signals and Sensory Perception
- Lecture 17 - Frequency Domain Representation
- Lecture 18 - Definition of Fourier Transform
- Lecture 19 - Fourier Transform
- Lecture 20 - Dirichlet Conditions
- Lecture 21 - Inverse Fourier Transform
- Lecture 22 - Fourier Transform
- Lecture 23 - Frequency-Time Uncertainty Relation
- Lecture 24 - Fourier Transform
- Lecture 25 - Fourier Transform
- Lecture 26 - Fourier Transform
- Lecture 27 - Fourier Transform
- Lecture 28 - Fourier Transform
- Lecture 29 - Fourier Transform

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

- Lecture 30 - Fourier Transform of Noise
- Lecture 31 - Types of Noise
- Lecture 32 - Overview of Systems and General Properties
- Lecture 33 - Linearity and Time Invariance
- Lecture 34 - LTI System Examples
- Lecture 35 - Frequency Response of RLC circuits - I
- Lecture 36 - Frequency Response of RLC circuits - II
- Lecture 37 - LCCDE Representation of Continuous-Time LTI Systems
- Lecture 38 - Frequency Domain Representation of LCCDE Systems
- Lecture 39 - Time Domain Representation of LTI Systems
- Lecture 40 - Continuous-Time Convolution Integral
- Lecture 41 - Continuous-Time Convolution
- Lecture 42 - Continuous-Time Convolution
- Lecture 43 - Continuous-Time Convolution
- Lecture 44 - LTI Systems
- Lecture 45 - LTI Systems
- Lecture 46 - LTI Systems
- Lecture 47 - Fourier Transform in Complex Frequency Domain
- Lecture 48 - Laplace Transform
- Lecture 49 - Laplace Transform
- Lecture 50 - Laplace Transform
- Lecture 51 - Laplace Transform
- Lecture 52 - Laplace Analysis of LTI Systems
- Lecture 53 - Laplace Analysis of RLC Circuits - I
- Lecture 54 - Laplace Transform
- Lecture 55 - Laplace Transform
- Lecture 56 - Laplace Transform
- Lecture 57 - Laplace Analysis of LTI Systems
- Lecture 58 - Laplace Analysis of LTI Systems
- Lecture 59 - Laplace Analysis of First Order RLC Circuits
- Lecture 60 - Laplace Analysis of Second Order RLC Circuits
- Lecture 61 - Fourier Transform of Periodic Signals
- Lecture 62 - Fourier Series Representation in Continuous-Time
- Lecture 63 - Fourier Series Properties - I
- Lecture 64 - Fourier Series Properties - II
- Lecture 65 - LTI System Response for Periodic Input Signal
- Lecture 66 - Fourier Series in Continuous-Time
- Lecture 67 - Fourier Series in Continuous-Time
- Lecture 68 - Discrete-Time Convolution Sum

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

- Lecture 69 - Discrete-Time Convolution Sum Examples and Properties
- Lecture 70 - LCCDE Representation of Discrete-Time LTI Systems
- Lecture 71 - Impulse Train Sampling
- Lecture 72 - Reconstruction of Continuous-Time Signal
- Lecture 73 - Nyquist Sampling Theorem and Aliasing
- Lecture 74 - Fourier Transform of Sampled Signals
- Lecture 75 - DTFT
- Lecture 76 - DTFT Properties I
- Lecture 77 - DTFT Properties II
- Lecture 78 - DTFT Properties III
- Lecture 79 - DTFT
- Lecture 80 - DTFT in Complex Frequency Domain
- Lecture 81 - Z-Transform
- Lecture 82 - Z-Transform Properties I
- Lecture 83 - Z-Transform Properties II
- Lecture 84 - Z-Transform Properties III
- Lecture 85 - Z-Transform
- Lecture 86 - Z-Transform
- Lecture 87 - Block Diagram Representation

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

NPTEL Video Course - Electrical Engineering - NOC:Linear Dynamical Systems

Subject Co-ordinator - Prof. Tushar Jain

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Response and state-space solution of Linear systems
- Lecture 2 - Solution of LTV systems
- Lecture 3 - Solution of LTI systems
- Lecture 4 - Equivalent State Equations
- Lecture 5 - Realization of LTI and LTV Systems
- Lecture 6 - Tutorial - 1
- Lecture 7 - Introduction to Stability Analysis
- Lecture 8 - Lyapunov Stability - Part I
- Lecture 9 - Lyapunov Stability - Part II
- Lecture 10 - Proof of Lyapunov stability theorem
- Lecture 11 - BIBO vs Lyapunov Stability
- Lecture 12 - BIBO vs Lyapunov Stability
- Lecture 13 - Tutorial - 2
- Lecture 14 - Introduction to Controllability
- Lecture 15 - Reachability and Controllability Gramians
- Lecture 16 - Controllability Matrix
- Lecture 17 - Discrete-time Reachability and Controllability Gramians
- Lecture 18 - Tests for controllability - I
- Lecture 19 - Tests for controllability - II
- Lecture 20 - Tutorial - 3
- Lecture 21 - Tests for controllability - III
- Lecture 22 - Tests for controllability - IV
- Lecture 23 - Controllable Decomposition - I
- Lecture 24 - Stabilizable Systems
- Lecture 25 - Tests for Stabilizability
- Lecture 26 - Tutorial - 4
- Lecture 27 - State Feedback - I
- Lecture 28 - State Feedback - II
- Lecture 29 - Lyapunov Method of State Feedback Design

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

- Lecture 30 - Regulation and Tracking
- Lecture 31 - Tutorial - 5
- Lecture 32 - Robust Tracking and Disturbance Rejection
- Lecture 33 - State Feedback design for Multi-input systems
- Lecture 34 - Linear Quadratic Regulator
- Lecture 35 - Tutorial - 6
- Lecture 36 - Output feedback and observability
- Lecture 37 - Duality and Observability tests
- Lecture 38 - Decompositions and Detectability
- Lecture 39 - Minimal Realisations
- Lecture 40 - Observer Design and Output Feedback
- Lecture 41 - Observer Design and Output Feedback
- Lecture 42 - UIO
- Lecture 43 - Tutorial - 7 and 8 (combined)

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

NPTEL Video Course - Electrical Engineering - NOC:A brief Introduction of Micro-Sensors

Subject Co-ordinator - Prof. Santanu Talukder

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to Microscale Sensors or MEMS

Lecture 2 - Scaling effect

Lecture 3 - Some Simple Mechanics

Lecture 4 - Basic Mechanics - Part 1

Lecture 5 - Basic Mechanics - Part 2

Lecture 6 - Basic Mechanics - Part 3

Lecture 7 - Electrostatics

Lecture 8 - Electrostatic force

Lecture 9 - Coupled electromechanics

Lecture 10 - Stiction

Lecture 11 - Si crystal structure

Lecture 12 - Si etching

Lecture 13 - KOH etching

Lecture 14 - TMAH etching

Lecture 15 - Deposition and Lithography

Lecture 16 - Lithography

Lecture 17 - Pressure sensor types, membrane, Piezoelectric sensing, capacitive sensing

Lecture 18 - Pressure Sensor - II

Lecture 19 - Pressure Sensor - III

Lecture 20 - Accelerometer - I

Lecture 21 - Accelerometer - II

Lecture 22 - Assignment 1

Lecture 23 - Assignment 2

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

NPTEL Video Course - Electrical Engineering - NOC:Fiber Optic Communication Technology

Subject Co-ordinator - Prof. Deepa Venkitesh

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Introduction to FOCT
- Lecture 2 - Communication through the ages
- Lecture 3 - Communication
- Lecture 4 - Communication
- Lecture 5 - Digital Communication for Optical Communication
- Lecture 6 - Digital modulation
- Lecture 7 - Digital modulation
- Lecture 8 - Optical communication system
- Lecture 9 - Assignment Discussion - Week 1
- Lecture 10 - Optical Sources
- Lecture 11 - Semiconductor gain media- structure, spectrum
- Lecture 12 - Optical sources
- Lecture 13 - External Quantum Efficiency
- Lecture 14 - Modulation Bandwidth of LED
- Lecture 15 - Optical and Electrical Bandwidth of LED
- Lecture 16 - Emission Pattern of LED
- Lecture 17 - Optical Sources
- Lecture 18 - Laser Diodes
- Lecture 19 - Laser Diodes
- Lecture 20 - Laser Diodes
- Lecture 21 - Assignment Discussion - Week 2
- Lecture 22 - Laser Diodes
- Lecture 23 - Laser Diodes
- Lecture 24 - Laser rate equation
- Lecture 25 - Laser rate equation
- Lecture 26 - Laser power derivation
- Lecture 27 - Modulation Response of Laser - 1
- Lecture 28 - Modulation Response of Laser - 2
- Lecture 29 - Modulation Response of Laser - 3

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

- Lecture 30 - Setbacks of direct modulation of laser
- Lecture 31 - Setbacks of direct modulation of laser
- Lecture 32 - Assignment Discussion - Week 3
- Lecture 33 - Recap of direction modulation consequences
- Lecture 34 - Noise in Lasers
- Lecture 35 - Relative Intensity Noise
- Lecture 36 - Laser Phase Noise - 1
- Lecture 37 - Laser Phase Noise - 2
- Lecture 38 - Effect of Laser Phase Noise
- Lecture 39 - Electro-optic phase modulation
- Lecture 40 - Electro-optic intensity modulator
- Lecture 41 - Biasing of MZM
- Lecture 42 - Biasing of MZM
- Lecture 43 - Line coding schemes and their bandwidth requirements
- Lecture 44 - Assignment Discussion - Week 4
- Lecture 45 - Introduction to optical Fiber
- Lecture 46 - Attenuation in optical fibers
- Lecture 47 - Fiber Modes
- Lecture 48 - Modes of a step index fiber - 1
- Lecture 49 - Modes of a step index fiber - 2
- Lecture 50 - Modes of a step index fiber - 3
- Lecture 51 - Modes of a step index fiber - 4
- Lecture 52 - Modes of a step index fiber - 5
- Lecture 53 - Modes and Cut-off conditions
- Lecture 54 - Universal b-V curves
- Lecture 55 - Modal Profiles in step index fiber
- Lecture 56 - Mode Field Diameter
- Lecture 57 - Dispersion- Intermodal dispersion derivation
- Lecture 58 - Dispersion-Bit rate distance Product
- Lecture 59 - Phase Velocity and Group Velocity - 1
- Lecture 60 - Phase Velocity and Group Velocity - 2
- Lecture 61 - Material dispersion
- Lecture 62 - Waveguide dispersion
- Lecture 63 - Total Dispersion in optical fiber
- Lecture 64 - Polarization mode dispersion
- Lecture 65 - Photodetectors concepts
- Lecture 66 - p-n and p-i-n Photodetectors
- Lecture 67 - Avalance Photodetector
- Lecture 68 - Direct detection receiver and sources of noise

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

- Lecture 69 - Quantifying noises in direct detection receivers
- Lecture 70 - SNR and Operation Regimes
- Lecture 71 - Noise Equivalent power and SNR in APDs
- Lecture 72 - Coherent Receivers
- Lecture 73 - SNR analysis of coherent receivers
- Lecture 74 - Performance Evaluation - 1
- Lecture 75 - Performance Evaluation - 2
- Lecture 76 - Performance Metrics
- Lecture 77 - Performance Metrics
- Lecture 78 - Quantum limit of photodetection
- Lecture 79 - Optical Amplifier
- Lecture 80 - Erbium doped fiber amplifier - 1
- Lecture 81 - Erbium doped fiber amplifier - 2
- Lecture 82 - Erbium doped fiber amplifier - 3
- Lecture 83 - Erbium doped fiber amplifier - 4
- Lecture 84 - Link Design - Rise Time Budget
- Lecture 85 - Link Design - Case Study
- Lecture 86 - Link Design - Passive Optical Network and long haul link
- Lecture 87 - Dispersion - Recap
- Lecture 88 - Dispersion Compensation - Pulse Propagation with dispersion
- Lecture 89 - Pulse propagation - 2
- Lecture 90 - Dispersion Compensation - Dispersion Transfer Function
- Lecture 91 - Dispersion Compensation - Case Study
- Lecture 92 - Dispersion Compensation - WDM and DSP
- Lecture 93 - Nonlinear Effects- Nonlinear refractive Index
- Lecture 94 - Self Phase Modulation
- Lecture 95 - Cross Phase Modulation
- Lecture 96 - Scattering Processes in optical fibers
- Lecture 97 - Stimulated Brillouin Scattering
- Lecture 98 - Stimulated Raman Scattering
- Lecture 99 - Components - Directional Couplers
- Lecture 100 - Components - VOA, Polariser, Polarisation Controllers
- Lecture 101 - Components - Isolator
- Lecture 102 - Components - Circulator, Definitions
- Lecture 103 - Components - Wavelength filters
- Lecture 104 - Components - Arrayed Waveguide Gratings, WSS
- Lecture 105 - Balanced Detection
- Lecture 106 - Polarisation Diverse Coherent Receiver
- Lecture 107 - Phase and Polarisation Diverse Coherent Receiver

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

- Lecture 108 - Overview of impairments in coherent optical communication
- Lecture 109 - Transceiver impairments - Generation and Compensation
- Lecture 110 - Channel Impairments - Generation and Compensation
- Lecture 111 - Demo video
- Lecture 112 - Introduction to Optical Networks
- Lecture 113 - Layers of Optical Network
- Lecture 114 - SDH/SONET Layering, Frame Structure
- Lecture 115 - Physical Networks Topologies
- Lecture 116 - Topology specific Link Design
- Lecture 117 - Network Protection
- Lecture 118 - Access Networks- PON
- Lecture 119 - Optical Interconnects, Data Centers
- Lecture 120 - Optical communication for Wireless Fronthauling

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

NPTEL Video Course - Electrical Engineering - NOC:Image Signal Processing

Subject Co-ordinator - Prof. A. N. Rajagopalan

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Course Introduction
Lecture 2 - Applications of Image processing
Lecture 3 - Applications of Image processing (Continued...)
Lecture 4 - Basics of Images
Lecture 5 - Shot Noise
Lecture 6 - Geometric Transformations
Lecture 7 - Geometric Transformations (Continued...)
Lecture 8 - Bilinear Interpolation
Lecture 9 - Geometric Transformations (Continued...)
Lecture 10 - Projective Transformation
Lecture 11 - Homography
Lecture 12 - Homography - Special cases
Lecture 13 - Computing Homography
Lecture 14 - RANSAC
Lecture 15 - Rotational Homography
Lecture 16 - Research Challenges
Lecture 17 - Real Aperture Camera
Lecture 18 - Real aperture camera - Introduction
Lecture 19 - Circle of confusion
Lecture 20 - Depth of field, Linearity
Lecture 21 - Space-Invariance
Lecture 22 - 2D Convolution
Lecture 23 - 2D Convolution
Lecture 24 - Blur Models
Lecture 25 - Space-variant Blurring
Lecture 26 - Shape from X - Introduction
Lecture 27 - 2-View Stereo
Lecture 28 - Introduction to Shape from Focus
Lecture 29 - SFF Principle

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

- Lecture 30 - Shape from focus - Gaussian fitting
- Lecture 31 - Shape from focus - Focus operators
- Lecture 32 - Shape from Focus - Examples
- Lecture 33 - Shape from Focus - Tensor Voting
- Lecture 34 - DFD Principle
- Lecture 35 - Motion Blur
- Lecture 36 - Image Transforms - Introduction
- Lecture 37 - Image Transforms - Motivation
- Lecture 38 - 1D Unitary Transforms - Introduction
- Lecture 39 - Extending 1D Unitary Transform to 2D - Motivation
- Lecture 40 - Extending 1D Unitary Transform to 2D - Example
- Lecture 41 - Alternative Forms of 2D
- Lecture 42 - Kronecker Product
- Lecture 43 - Kronecker Product - (Example Revisited)
- Lecture 44 - Extending 1D Unitary Transform to 2D - Summary
- Lecture 45 - 1D DFT to 2D DFT
- Lecture 46 - 2D DFT Visualization
- Lecture 47 - 2D DFT - Computation
- Lecture 48 - 1D DCT - Definition, Motivation
- Lecture 49 - Relation to DFT
- Lecture 50 - 2D DCT and Walsh-Hadamard Transform
- Lecture 51 - Data Dependent Transforms, Karhunen Loeve Transform
- Lecture 52 - Karhunen-Loeve Transform (KLT) - Concept
- Lecture 53 - Karhunen-Loeve Transform (KLT) - Applications
- Lecture 54 - Karhunen-Loeve Transform (KLT) - Applications
- Lecture 55 - Singular Value Decomposition (SVD)
- Lecture 56 - Applications of SVD
- Lecture 57 - Change detection
- Lecture 58 - Image Thresholding
- Lecture 59 - Adaptive Local thresholding - Motivation
- Lecture 60 - Chow-Kaneko Local thresholding
- Lecture 61 - K-Means Method
- Lecture 62 - ISODATA Method
- Lecture 63 - Theory of Histogram Equalization and Modification
- Lecture 64 - Histogram Equalization example
- Lecture 65 - Image sequence and Single image filtering in Gaussian noise
- Lecture 66 - Non-local Means Method
- Lecture 67 - Non-local Means Filtering (Examples)
- Lecture 68 - Impulse Noise Generator

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

- Lecture 69 - Impulse noise filtering
- Lecture 70 - Transform Domain Filtering
- Lecture 71 - Illumination Handling
- Lecture 72 - Applications of Restoration, and Image Deblurring
- Lecture 73 - Haddamard's conditions and Least squares solution
- Lecture 74 - Min-norm solution and Norm of Linear operator
- Lecture 75 - Numerical stability analysis
- Lecture 76 - Image Deblurring
- Lecture 77 - Tikhonov-Miller Regularization
- Lecture 78 - Conditional Mean as an Estimator
- Lecture 79 - Linear Estimator
- Lecture 80 - Wiener Filter
- Lecture 81 - Fourier Wiener Filter
- Lecture 82 - 1D Superresolution
- Lecture 83 - Superresolution Examples

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

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Electric Vehicles: Technology and Economics

Subject Co-ordinator - Prof. Ashok Jhunjunwala, Prof. Prabhjot Kaur, Prof. Kaushal Kumar Jha, Prof. L Kannan

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Overview of Electric Vehicles in India
- Lecture 2 - Can India Drive its EV program Innovatively and Differently and scale? - Part 1
- Lecture 3 - Can India Drive its EV program Innovatively and Differently and scale? - Part 2
- Lecture 4 - A bit about batteries
- Lecture 5 - Charging and Swapping Infrastructure
- Lecture 6 - Where will we get Lithium for batteries?
- Lecture 7 - EV Subsystems
- Lecture 8 - Forces acting when a vehicle move
- Lecture 9 - Aerodynamic drag, Rolling Resistance and Uphill Resistance
- Lecture 10 - Power and Torque to accelerate
- Lecture 11 - Putting it all together - 1
- Lecture 12 - Putting it all together - 2
- Lecture 13 - Concept of Drive Cycle - 1
- Lecture 14 - Concept of Drive Cycle - 2
- Lecture 15 - Drive Cycles and Energy used per km - Part 1
- Lecture 16 - Drive Cycles and Energy used per km - Part 2
- Lecture 17 - EV Subsystem
- Lecture 18 - EV Subsystem
- Lecture 19 - Introduction to Battery Parameters - Part 1
- Lecture 20 - Introduction to Battery Parameters - Part 2
- Lecture 21 - Why Lithium Ion Battery? - Part 1
- Lecture 22 - Why Lithium Ion Battery? - Part 2
- Lecture 23 - Batteries in Future
- Lecture 24 - Li-Ion Battery Cells
- Lecture 25 - SoH and SoC estimation and Self Discharge - Part 1
- Lecture 26 - SoH and SoC estimation and Self Discharge - Part 2
- Lecture 27 - Battery Pack Development - Part 1
- Lecture 28 - Battery Pack Development - Part 2
- Lecture 29 - Computation of Effective cost of battery - Part 1

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

- Lecture 30 - Computation of Effective cost of battery - Part 2
- Lecture 31 - Charging Batteries
- Lecture 32 - Fundamentals of Battery Pack Design
- Lecture 33 - Mechanical Design - Part 1
- Lecture 34 - Mechanical Design - Part 2
- Lecture 35 - Mechanical Design - Part 3
- Lecture 36 - Mechanical Design - Part 4
- Lecture 37 - Thermal Design - Part 1
- Lecture 38 - Thermal Design - Part 2
- Lecture 39 - Thermal Design - Part 3
- Lecture 40 - Thermal Design - Part 4
- Lecture 41 - Electrical Design - Part 1
- Lecture 42 - Electrical Design - Part 2
- Lecture 43 - Electrical Design - Part 3
- Lecture 44 - BMS Design of Electric Vehicle - Part 1
- Lecture 45 - BMS Design of Electric Vehicle - Part 2
- Lecture 46 - BMS Design of Electric Vehicle - Part 3
- Lecture 47 - EV Motors and Controllers - Understanding Flow - Part 1
- Lecture 48 - EV Motors and Controllers - Understanding Flow - Part 2
- Lecture 49 - Power and Efficiency
- Lecture 50 - Torque Production - Part 1
- Lecture 51 - Torque Production - Part 2
- Lecture 52 - Torque Production - Part 3
- Lecture 53 - Speed and Back EMF
- Lecture 54 - The d-q Equivalent circuit - Part 1
- Lecture 55 - The d-q Equivalent circuit - Part 2
- Lecture 56 - Field-oriented Control
- Lecture 57 - Three phase AC - Part 1
- Lecture 58 - Three phase AC - Part 2
- Lecture 59 - Thermal Design - Part 1
- Lecture 60 - Thermal Design - Part 2
- Lecture 61 - Engineering Considerations - Part 1
- Lecture 62 - Engineering Considerations - Part 2
- Lecture 63 - Future Frontiers
- Lecture 64 - EV Chargers
- Lecture 65 - EV Chargers
- Lecture 66 - EV Chargers
- Lecture 67 - Battery Swapping
- Lecture 68 - Standardization and On board Chargers

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

- Lecture 69 - Public Chargers - Part 1
- Lecture 70 - Public Chargers - Part 2
- Lecture 71 - Bulk Chargers/Swap Stations - Part 1
- Lecture 72 - Bulk Chargers/Swap Stations - Part 2
- Lecture 73 - Economics of Public Chargers in context
- Lecture 74 - Analytics - Part 1
- Lecture 75 - Analytics - Part 2
- Lecture 76 - Course Summary

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

NPTEL Video Course - Electrical Engineering - NOC:Applied Linear Algebra

Subject Co-ordinator - Prof. Andrew Thangaraj

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Introduction to the Course
- Lecture 2 - Vector Spaces
- Lecture 3 - Linear Combinations and Span
- Lecture 4 - Subspaces, Linear Dependence and Independence
- Lecture 5 - Basis and Dimension
- Lecture 6 - Sums, Direct Sums and Gaussian Elimination
- Lecture 7 - Linear Maps and Matrices
- Lecture 8 - Null space, Range, Fundamental theorem of linear maps
- Lecture 9 - Column space, null space and rank of a matrix
- Lecture 10 - Algebraic operations on linear maps
- Lecture 11 - Invertible maps, Isomorphism, Operators
- Lecture 12 - Solving Linear Equations
- Lecture 13 - Elementary Row Operations
- Lecture 14 - Translates of a subspace, Quotient Spaces
- Lecture 15 - Row space and rank of a matrix
- Lecture 16 - Determinants
- Lecture 17 - Coordinates and linear maps under a change of basis
- Lecture 18 - Simplifying matrices of linear maps by choice of basis
- Lecture 19 - Polynomials and Roots
- Lecture 20 - Invariant subspaces, Eigenvalues, Eigenvectors
- Lecture 21 - More on Eigenvalues, Eigenvectors, Diagonalization
- Lecture 22 - Eigenvalues, Eigenvectors and Upper Triangularization
- Lecture 23 - Properties of Eigenvalues
- Lecture 24 - Linear state space equations and system stability
- Lecture 25 - Discrete-time Linear Systems and Discrete Fourier Transforms
- Lecture 26 - Sequences and counting paths in graphs
- Lecture 27 - PageRank Algorithm
- Lecture 28 - Dot product and length in C^n , Inner product and norm in V over F
- Lecture 29 - Orthonormal basis and Gram-Schmidt orthogonalisation

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

- Lecture 30 - Linear Functionals, Orthogonal Complements
- Lecture 31 - Orthogonal Projection
- Lecture 32 - Projection and distance from a subspace
- Lecture 33 - Linear equations, Least squares solutions and Linear regression
- Lecture 34 - Minimum Mean Squared Error Estimation
- Lecture 35 - Adjoint of a linear map
- Lecture 36 - Properties of Adjoint of a Linear Map
- Lecture 37 - Adjoint of an Operator and Operator-Adjoint Product
- Lecture 38 - Self-adjoint Operator
- Lecture 39 - Normal Operators
- Lecture 40 - Complex Spectral Theorem
- Lecture 41 - Real Spectral Theorem
- Lecture 42 - Positive Operators
- Lecture 43 - Quadratic Forms, Matrix Norms and Optimization
- Lecture 44 - Isometries
- Lecture 45 - Classification of Operators
- Lecture 46 - Singular Values and Vectors of a Linear Map
- Lecture 47 - Singular Value Decomposition
- Lecture 48 - Polar decomposition and some applications of SVD

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

NPTEL Video Course - Electrical 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 - Series connection-Voltage sources in series
- Lecture 15 - Series connection of R, L, C, current source
- Lecture 16 - Elements in parallel
- Lecture 17 - Current source in series with an element; Voltage source in parallel with an element
- Lecture 18 - Extreme cases
- Lecture 19 - Summary
- Lecture 20 - Voltage controlled voltage source (VCVS)
- Lecture 21 - Voltage controlled current source (VCCS)
- Lecture 22 - Current controlled voltage source (CCVS)
- Lecture 23 - Current controlled current source (CCCS)
- Lecture 24 - Realizing a resistance using a VCCS or CCCS
- Lecture 25 - Scaling an element's value using controlled sources
- Lecture 26 - Example calculation
- Lecture 27 - Power and energy absorbed by electrical elements
- Lecture 28 - Power and energy in a resistor
- Lecture 29 - Power and energy in a capacitor

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- Lecture 30 - Power and energy in an inductor
- Lecture 31 - Power and energy in a voltage source
- Lecture 32 - Power and energy in a current source
- Lecture 33 - Goals of circuit analysis
- Lecture 34 - Number of independent KCL equations
- Lecture 35 - Number of independent KVL equations and branch relationships
- Lecture 36 - Analysis of circuits with a single independent source
- Lecture 37 - Analysis of circuits with multiple independent sources using superposition
- Lecture 38 - Superposition
- Lecture 39 - What is nodal analysis
- Lecture 40 - Setting up nodal analysis equations
- Lecture 41 - Structure of the conductance matrix
- Lecture 42 - How do elements circuit appear in the nodal analysis formulation
- Lecture 43 - Completely solving the circuit starting from nodal analysis
- Lecture 44 - Nodal analysis example
- Lecture 45 - Matrix inversion basics
- Lecture 46 - Nodal analysis with independent voltage sources
- Lecture 47 - Supernode for nodal analysis with independent voltage sources
- Lecture 48 - Nodal analysis with VCCS
- Lecture 49 - Nodal analysis with VCVS
- Lecture 50 - Nodal analysis with CCCS
- Lecture 51 - Nodal analysis with CCCS
- Lecture 52 - Nodal analysis summary
- Lecture 53 - Planar circuits
- Lecture 54 - Mesh currents and their relationship to branch currents
- Lecture 55 - Mesh analysis
- Lecture 56 - Mesh analysis with independent current sources-Supermesh
- Lecture 57 - Mesh analysis with current controlled voltage sources
- Lecture 58 - Mesh analysis with current controlled current sources
- Lecture 59 - Mesh analysis using voltage controlled sources
- Lecture 60 - Nodal analysis versus Mesh analysis
- Lecture 61 - Superposition theorem
- Lecture 62 - Pushing a voltage source through a node
- Lecture 63 - Splitting a current source
- Lecture 64 - Substitution theorem
- Lecture 65 - Substitution theorem
- Lecture 66 - Substituting a voltage or current source with a resistor
- Lecture 67 - Extensions to Superposition and Substitution theorem
- Lecture 68 - Thevenin's theorem

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

- Lecture 69 - Worked out example
- Lecture 70 - Norton's theorem
- Lecture 71 - Worked out example
- Lecture 72 - Maximum power transfer theorem
- Lecture 73 - Preliminaries
- Lecture 74 - Two port parameters
- Lecture 75 - y parameters
- Lecture 76 - y parameters
- Lecture 77 - z parameters
- Lecture 78 - z parameters
- Lecture 79 - h parameters
- Lecture 80 - h parameters
- Lecture 81 - g parameters
- Lecture 82 - g parameters
- Lecture 83 - Calculations with a two-port element
- Lecture 84 - Calculations with a two-port element
- Lecture 85 - Degenerate cases
- Lecture 86 - Relationships between different two-port parameters
- Lecture 87 - Equivalent circuit representation of two-ports
- Lecture 88 - Reciprocity
- Lecture 89 - Proof of reciprocity of resistive two-ports
- Lecture 90 - Proof for 4-terminal two-ports
- Lecture 91 - Reciprocity in terms of different two-port parameters
- Lecture 92 - Reciprocity in circuits containing controlled sources
- Lecture 93 - Examples
- Lecture 94 - Feedback amplifier using an opamp
- Lecture 95 - Ideal opamp
- Lecture 96 - Negative feedback around the opamp
- Lecture 97 - Finding opamp sign for negative feedback
- Lecture 98 - Example
- Lecture 99 - Analysis of circuits with opamps
- Lecture 100 - More on opamps
- Lecture 101 - Inverting amplifier
- Lecture 102 - Summing amplifier
- Lecture 103 - Instrumentation amplifier
- Lecture 104 - Negative resistance
- Lecture 105 - Finding opamp signs for negative feedback-circuits with multiple opamps
- Lecture 106 - Opamp supply voltages and saturation
- Lecture 107 - KCL with an opamp and supply currents

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www.digimat.in

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

- Lecture 108 - Circuits with storage elements (capacitors and inductors)
- Lecture 109 - First order circuit with zero input-natural response
- Lecture 110 - First order RC circuit with zero input-Example
- Lecture 111 - First order circuit with a constant input
- Lecture 112 - General form of the first order circuit response
- Lecture 113 - First order RC circuit with a constant input-Example
- Lecture 114 - First order circuit with piecewise constant input
- Lecture 115 - First order circuit with piecewise constant input-Example
- Lecture 116 - First order circuit-Response of arbitrary circuit variables
- Lecture 117 - Summary
- Lecture 118 - Does a capacitor block DC?
- Lecture 119 - Finding the order of a circuit
- Lecture 120 - First order RC circuits with discontinuous capacitor voltages
- Lecture 121 - Summary
- Lecture 122 - First order RL circuits
- Lecture 123 - First order RL circuit with discontinuous inductor current-Example
- Lecture 124 - First order RC circuit with an exponential input
- Lecture 125 - First order RC response to its own natural response
- Lecture 126 - First order RC response to a sinusoidal input
- Lecture 127 - First order RC response to a sinusoidal input-via the complex exponential
- Lecture 128 - Summary
- Lecture 129 - Three methods of calculating the sinusoidal steady state response
- Lecture 130 - Calculating the total response including initial conditions
- Lecture 131 - Why are sinusoids used in measurement?
- Lecture 132 - Second order system natural response
- Lecture 133 - Second order system as a cascade of two first order systems
- Lecture 134 - Second order system natural response-critically damped and underdamped
- Lecture 135 - Generalized form of a second order system
- Lecture 136 - Numerical example
- Lecture 137 - Series and parallel RLC circuits
- Lecture 138 - Forced response of a second order system
- Lecture 139 - Steady state response calculation and Phasors
- Lecture 140 - Phasors (Continued...)
- Lecture 141 - Magnitude and Phase plots
- Lecture 142 - Magnitude and phase plots of a second order system
- Lecture 143 - Maximum power transfer and Conjugate matching

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

NPTEL Video Course - Electrical Engineering - NOC:Optical Fiber Sensors

Subject Co-ordinator - Prof. Balaji Srinivasan

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to optical sensors
Lecture 2 - Different types of optical sensors
Lecture 3 - Overview of distributed sensors
Lecture 4 - Optical sensors system
Lecture 5 - Optical sources
Lecture 6 - Optical receivers - 1
Lecture 7 - Optical receivers - 2
Lecture 8 - Optical receivers - 3
Lecture 9 - Optical receiver design
Lecture 10 - Noise Analysis
Lecture 11 - Sensor Performance characteristics
Lecture 12 - Noise Mitigation Techniques
Lecture 13 - Lock in detection
Lecture 14 - Amplitude modulated sensors - 1
Lecture 15 - Gas absorption spectroscopy
Lecture 16 - Amplitude modulated sensors - 2
Lecture 17 - Amplitude modulated sensors - 3
Lecture 18 - Amplitude modulated sensors - 4
Lecture 19 - Problem Discussion
Lecture 20 - Pulse-oximeter
Lecture 21 - Phase modulated sensors - 1
Lecture 22 - Phase modulated sensors - 2
Lecture 23 - Phase modulated Sensors - 3
Lecture 24 - Phase modulated sensors - 4
Lecture 25 - Phase modulated sensors - 5
Lecture 26 - Phase modulated sensors - 6
Lecture 27 - Phase modulated sensors - 7
Lecture 28 - Phase modulated sensors - 8
Lecture 29 - Phase modulated sensors - 9

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

- Lecture 30 - Phase modulated sensors - 10
- Lecture 31 - Phase modulated Sensors - 11
- Lecture 32 - Wavelength modulated sensors - 1
- Lecture 33 - Wavelength modulated sensors - 2
- Lecture 34 - Wavelength modulated sensors - 3
- Lecture 35 - Wavelength modulated sensors - 4
- Lecture 36 - Wavelength modulated sensors - 5
- Lecture 37 - Wavelength modulated sensors - 6
- Lecture 38 - Wavelength modulated sensors - 7
- Lecture 39 - Wavelength modulated sensors - 8
- Lecture 40 - Polarization modulated sensors - 1
- Lecture 41 - Polarization modulated sensors - 2
- Lecture 42 - Polarization modulated sensors - 3

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

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Time - Varying Electrical Networks

Subject Co-ordinator - Prof. Shanthi Pavan

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Course Introduction and Motivation
- Lecture 2 - Kirchoff's Current and Voltage Laws, and the Incidence Matrix
- Lecture 3 - Power Conservation and Tellegen's Theorem
- Lecture 4 - Intuition behind Tellegen's Theorem
- Lecture 5 - Tellegen's Theorem and reciprocity in linear resistive networks
- Lecture 6 - Why is reciprocity useful in practice?
- Lecture 7 - Inter-reciprocity in linear time-invariant networks
- Lecture 8 - Inter-reciprocity in linear time-invariant networks (Continued...)
- Lecture 9 - Inter-reciprocity in networks with ideal operational amplifiers
- Lecture 10 - Review of Modified Nodal Analysis (MNA) of linear networks
- Lecture 11 - MNA stamps of controlled sources - the VCCS and VCVS
- Lecture 12 - MNA stamps of controlled sources - the CCCS and C CVS
- Lecture 13 - Inter-reciprocity in linear networks - using the MNA stamp approach
- Lecture 14 - The Adjoint Network
- Lecture 15 - MNA stamp of an ideal opamp
- Lecture 16 - Properties of circuits with multiple ideal opamps
- Lecture 17 - Introduction to noise in electrical networks
- Lecture 18 - Noise processed by a linear time-invariant system
- Lecture 19 - kT/C noise in a sample-and-hold circuit
- Lecture 20 - Noise in RLC networks
- Lecture 21 - Total integrated noise in RLC Networks
- Lecture 22 - Bode's Noise Theorem - Frequency domain
- Lecture 23 - Input referred noise in electrical networks - Part 1
- Lecture 24 - Input referred noise in electrical networks - Part 2
- Lecture 25 - Input referred noise and the noise factor
- Lecture 26 - Noise Factor Examples
- Lecture 27 - Motivation to learn about time-varying circuits and systems - Part 1
- Lecture 28 - Motivation to learn about time-varying circuits and systems - Part 2
- Lecture 29 - Convolution integral for LTV systems

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

- Lecture 30 - Frequency response of an LTV system
- Lecture 31 - LTV system example : Time-varying RC filter
- Lecture 32 - Linear Periodically Time-Varying Systems (LPTV)
- Lecture 33 - Response of an LPTV system to a complex exponential input
- Lecture 34 - Harmonic Transfer Functions
- Lecture 35 - Zadeh expansion of an LPTV system
- Lecture 36 - MNA analysis of LPTV networks
- Lecture 37 - MNA stamp of a periodically time varying conductance
- Lecture 38 - MNA stamp of a capacitor and a voltage source in an LPTV network
- Lecture 39 - Analysis of an example LPTV network - Part 1
- Lecture 40 - Analysis of an example LPTV network - Part 2
- Lecture 41 - LPTV network analysis, RC filter, time-varying
- Lecture 42 - Impedance and admittance in LTI and LPTV networks
- Lecture 43 - Thevenin and Norton's Theorems for LPTV networks
- Lecture 44 - The N-path principle
- Lecture 45 - N-path example
- Lecture 46 - Time-domain intuition of the N-path principle
- Lecture 47 - N-path example: Time-Interleaved ADCs
- Lecture 48 - Dc-dc converter as an LPTV system
- Lecture 49 - N-path principle: Multiphase dc-dc converter
- Lecture 50 - The N-path filter
- Lecture 51 - Computing $H_0(j2\pi f_s)$ for a 4-path filter
- Lecture 52 - Input impedance of the 4-path filter at f_s
- Lecture 53 - Computing $H_0(j2\pi 2 f_s)$ for a 4-path filter
- Lecture 54 - Determining H_0 for input frequency deviations from f_s
- Lecture 55 - Reciprocity and Inter-reciprocity in LPTV networks : Part 1
- Lecture 56 - Reciprocity and Inter-reciprocity in LPTV networks : Part 2, the transfer-function theorem
- Lecture 57 - Why is the transfer-function theorem important?
- Lecture 58 - The frequency-reversal theorem for inter-reciprocal (adjoint) LPTV networks : introduction
- Lecture 59 - The frequency-reversal theorem for inter-reciprocal (adjoint) LPTV networks : derivation
- Lecture 60 - Why is the frequency-reversal theorem important?
- Lecture 61 - Inter-reciprocity in signal-flow graphs
- Lecture 62 - Applications of inter-reciprocity: analysis of chopped amplifiers
- Lecture 63 - Applications of inter-reciprocity: analysis of chopped amplifiers (Continued...)
- Lecture 64 - Applications of inter-reciprocity: chopping with square-wave modulation
- Lecture 65 - Applications of inter-reciprocity: the switched-RC network
- Lecture 66 - Time-domain implications of inter-reciprocity and the adjoint network
- Lecture 67 - Time-domain implications of inter-reciprocity and the adjoint network : Example calculation
- Lecture 68 - LPTV networks with sampled outputs: Switched capacitor circuits

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

- Lecture 69 - LPTV networks with sampled outputs: A continuous-time delta-sigma data converter
- Lecture 70 - LPTV networks with sampled outputs: The equivalent LTI filter
- Lecture 71 - Finding the equivalent LTI filter of a sampled LPTV system : example
- Lecture 72 - Equivalent LTI filter for a switched-RC network
- Lecture 73 - Finding the equivalent LTI filter of a sampled LPTV system : example of a continuous-time delta-
- Lecture 74 - Finding the equivalent LTI filter of a sampled LPTV system with offset sampling
- Lecture 75 - LPTV networks driven by modulated inputs
- Lecture 76 - Introduction to noise in LPTV Networks
- Lecture 77 - Noise in LPTV networks with sampled outputs
- Lecture 78 - Total integrated noise in networks with R,L,C and periodically operated switches

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

NPTEL Video Course - Electrical Engineering - NOC:Digital System Design

Subject Co-ordinator - Prof. Neeraj Goel

Co-ordinating Institute - IIT - Ropar

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

Lecture 1 - Introduction
Lecture 2 - Analog vs Digital
Lecture 3 - Binary number system - 1
Lecture 4 - Binary number system - 2
Lecture 5 - Negative number representation - 1
Lecture 6 - Negative number representation - 2
Lecture 7 - Other number systems
Lecture 8 - Floating point numbers - 1
Lecture 9 - Floating point numbers - 2
Lecture 10 - Floating point numbers - 3
Lecture 11 - Floating point numbers - 4
Lecture 12 - Floating point numbers - 5
Lecture 13 - Boolean functions
Lecture 14 - Boolean Algebra
Lecture 15 - SOP and POS Representation
Lecture 16 - Algebraic simplifications
Lecture 17 - Canonical form
Lecture 18 - Boolean minimization using K-Maps
Lecture 19 - More Logic gates
Lecture 20 - Hardware description language:Verilog
Lecture 21 - Verilog simulation demo
Lecture 22 - K-maps
Lecture 23 - QM-method
Lecture 24 - Area delay model
Lecture 25 - Multi-level logic
Lecture 26 - Multiplexer
Lecture 27 - Four state logic
Lecture 28 - Decoders - 1
Lecture 29 - Decoders - 2

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Lecture 30 - Encoders
Lecture 31 - Programmable hardware
Lecture 32 - Ripple carry adder
Lecture 33 - Carry look ahead adder
Lecture 34 - Modeling BUS in Verilog
Lecture 35 - Fast adder:Carry select adder
Lecture 36 - Multiple operand adder
Lecture 37 - Multiplication
Lecture 38 - Iterative circuits - 1
Lecture 39 - Iterative circuits - 2
Lecture 40 - Introduction to sequential circuits
Lecture 41 - Latches
Lecture 42 - D-Flip-flops
Lecture 43 - More Flip-flops
Lecture 44 - Counters
Lecture 45 - Verilog-Behavior model - 1
Lecture 46 - Verilog-Behavior model - 2
Lecture 47 - Registers - 1
Lecture 48 - Registers - 2
Lecture 49 - Memory
Lecture 50 - Sequential circuit analysis
Lecture 51 - Derivation state graph
Lecture 52 - Sequence detector: Example 1
Lecture 53 - Sequence detector: Example 2
Lecture 54 - State machine reduction
Lecture 55 - State encoding
Lecture 56 - Multi-cycle adder design
Lecture 57 - Pipelined adder design
Lecture 58 - Multiplication design
Lecture 59 - Division hardware design
Lecture 60 - Interacting state machines
Lecture 61 - Register Transfer Level design
Lecture 62 - GCD computer at RTL Level
Lecture 63 - RTL Design - Bubble sort
Lecture 64 - RTL Design - Traffic light controller
Lecture 65 - FPGA
Lecture 66 - Xilinx CLB
Lecture 67 - FPGA - Design flow
Lecture 68 - FPGA design demo

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- Lecture 69 - Introduction to ASIC design flow - Part 1
- Lecture 70 - Introduction to ASIC design flow - Part 2
- Lecture 71 - Future directions

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

NPTEL Video Course - Electrical Engineering - NOC:Stochastic Modeling and the Theory of Queues

Subject Co-ordinator - Prof. Krishna Jagannathan

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Review of Probability Theory: Random Variable
- Lecture 2 - Sequence of Random Variables
- Lecture 3 - Laws of Large Numbers and Central Limit Theorem
- Lecture 4 - What is a stochastic process?
- Lecture 5 - Counting Process
- Lecture 6 - Poisson Process - Introduction
- Lecture 7 - Poisson Process - Memorylessness
- Lecture 8 - Poisson Process - Increment properties
- Lecture 9 - Distribution of arrival epoch S_n and $N(t)$ for a Poisson Process
- Lecture 10 - Alternate definitions of a Poisson Process
- Lecture 11 - Merging of Poisson Processes - Part 1
- Lecture 12 - Merging of Poisson Processes - Part 2
- Lecture 13 - Splitting of Poisson Process - Part 1
- Lecture 14 - Splitting of Poisson Process - Part 2
- Lecture 15 - Example: Poisson Splitting
- Lecture 16 - Conditional arrival density and order statistics - Part 1
- Lecture 17 - Conditional arrival density and order statistics - Part 2
- Lecture 18 - Non Homogeneous Poisson Process
- Lecture 19 - Introduction to Queueing (with examples)
- Lecture 20 - Examples: Non homogeneous Poisson process
- Lecture 21 - Examples: Competing Poisson processes
- Lecture 22 - Introduction to Renewal Processes
- Lecture 23 - Strong law for renewal processes
- Lecture 24 - Strong law for renewal processes - Proof
- Lecture 25 - Residual life, age and duration (Time average) - Part 1
- Lecture 26 - Residual life, age and duration (Time average) - Part 2
- Lecture 27 - Renewal Reward Theorem (Time average) - Part 1
- Lecture 28 - Renewal Reward Theorem (Time average) - Part 2
- Lecture 29 - Stopping time

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

- Lecture 30 - Wald's Equality
- Lecture 31 - Wald's Equality (Continued...)
- Lecture 32 - Elementary Renewal Theorem
- Lecture 33 - The Renewal Equation
- Lecture 34 - The Renewal Equation (Continued...)
- Lecture 35 - G/G/1 Queue and Little's theorem
- Lecture 36 - Little's theorem
- Lecture 37 - M/G/1 Queue
- Lecture 38 - M/G/1 Queue and PK Formula
- Lecture 39 - M/G/1 Queue and PK Formula (Continued...)
- Lecture 40 - Ensemble rewards - Age and Duration
- Lecture 41 - Ensemble rewards - Age and Duration (Continued...)
- Lecture 42 - Key Renewal Theorem and Ensemble rewards
- Lecture 43 - Introduction to finite state Discrete Time Markov Chains
- Lecture 44 - Class and Types of Classes in a DTMC
- Lecture 45 - Periodicity in a DTMC
- Lecture 46 - Matrix Representation of a DTMC
- Lecture 47 - The long term behaviour of a DTMC
- Lecture 48 - Stationary Distribution and Long term behaviour of a DTMC - Part 1
- Lecture 49 - Stationary Distribution and Long term behaviour of a DTMC - Part 2
- Lecture 50 - Stationary Distribution and Long term behaviour of a DTMC - Part 3
- Lecture 51 - Spectral Properties of Stochastic Matrices - Part 1
- Lecture 52 - Spectral Properties of Stochastic Matrices - Part 2
- Lecture 53 - The Short-term Behaviour of a DTMC
- Lecture 54 - Introduction to Countable-state DTMC
- Lecture 55 - Introduction to Countable-state DTMC (Continued...)
- Lecture 56 - The Strong Markov Property
- Lecture 57 - Renewal Theory applied to DTMC's
- Lecture 58 - Stationary Distribution of a Countable State Space DTMC and Renewal Theory
- Lecture 59 - Stationary Distribution of a Countable State Space DTMC and Renewal Theory (Continued...)
- Lecture 60 - Stationary Distribution and The Steady State Behaviour of a Countable-state DTMC - Part 1
- Lecture 61 - Stationary Distribution and The Steady State Behaviour of a Countable-state DTMC - Part 2
- Lecture 62 - Convergence to Steady State of a Countable-state DTMC (Stochastic Coupling)
- Lecture 63 - The Birth-Death Markov Chains
- Lecture 64 - The Reversibility Markov Chains
- Lecture 65 - The Reversibility Markov Chains (Continued...)
- Lecture 66 - Time Sampled M/M/1 Queue and The Burke's Theorem
- Lecture 67 - Introduction to Continuous Time Markov Chains
- Lecture 68 - Introduction to CTMC (Continued...)

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

- Lecture 69 - The Steady State Behaviour of CTMC - Part 1
- Lecture 70 - The Steady State Behaviour of CTMC - Part 2
- Lecture 71 - The Steady State Behaviour of CTMC - Part 3
- Lecture 72 - The Steady State Behaviour of CTMC - Part 4
- Lecture 73 - The chapman-kolmogrov equations for CTMC's
- Lecture 74 - The Birth-Death Continuous time Markov Chains
- Lecture 75 - The Reversibility of Continuous time Markov Chains
- Lecture 76 - Burke's Theorem and the Tandem Queues - Part 1
- Lecture 77 - Burke's Theorem and the Tandem Queues - Part 2
- Lecture 78 - The Jackson Networks - Part 1
- Lecture 79 - The Jackson Networks - Part 2
- Lecture 80 - Semi Markov Processes - Part 1
- Lecture 81 - Semi Markov Processes - Part 2

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

NPTEL Video Course - Electrical Engineering - NOC: Integrated Photonics Devices and Circuits

Subject Co-ordinator - Prof. Bijoy Krishna Das

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Course Background and Learning Outcome
- Lecture 2 - Moore's Law and Interconnect Bottleneck
- Lecture 3 - Progress in Optical Interconnect Technology and Beyond
- Lecture 4 - Evolution of Silicon Photonics Platform
- Lecture 5 - Fundamentals of Lightwaves: EM Waves: Maxwell Equations and Plane Wave Solutions
- Lecture 6 - Fundamentals of Lightwaves: EM Waves: Wave Propagation in Lossy Dielectric Medium
- Lecture 7 - Fundamentals of Lightwaves: EM Waves in Metals and Semiconductors
- Lecture 8 - Fundamentals of Lightwaves: EM Waves: Plasma Dispersion
- Lecture 9 - Fundamentals of Lightwaves: EM Waves Principle of Optical Waveguiding
- Lecture 10 - Fundamentals of Lightwaves: 1-D Optical Waveguide: Ray Optics Model
- Lecture 11 - Optical Waveguides: Theory and Design: TIR Based Eigen Mode Solutions for Slab Waveguides
- Lecture 12 - Optical Waveguides: Theory and Design: TIR Based Design Solutions for Slab Waveguides
- Lecture 13 - Optical Waveguides: Theory and Design: Guided Mode Solutions for Slab Waveguides
- Lecture 14 - Optical Waveguides: Theory and Design: Guided Mode Solutions for Slab Waveguides cont
- Lecture 15 - Optical Waveguides: Theory and Design: Guided Mode Dispersion and Power in Slab Waveguides
- Lecture 16 - Optical Waveguides: Theory and Design: Optical Waveguide with 2D confinement
- Lecture 17 - Optical Waveguides: Theory and Design: Dispersion and Polarization of Guided Modes
- Lecture 18 - Optical Waveguides: Theory and Design: Orthogonality of Guided Modes
- Lecture 19 - Optical Waveguides: Theory and Design: Coupled Mode Theory of Guided Modes
- Lecture 20 - Optical Waveguides: Theory and Design: Coupled Mode Theory (Continued...)
- Lecture 21 - Optical Waveguides: Theory and Design: Coupled Mode Theory (Continued...)
- Lecture 22 - Integrated Optical Components: Y-Junction Power Splitter/Combiner and Mach-Zehnder Interferometer
- Lecture 23 - Integrated Optical Components: Directional Coupler: Coupled Waveguides
- Lecture 24 - Integrated Optical Components: Directional Coupler: Coupled Waveguides (Continued...)
- Lecture 25 - Integrated Optical Components: Directional Coupler: Design and Modelling
- Lecture 26 - Integrated Optical Components: DC based MZI and Microring Resonator (MRR)
- Lecture 27 - Integrated Optical Components: Microring Resonator (MRR): Passive Characteristics
- Lecture 28 - Integrated Optical Components: Distributed Bragg Reflector (DBR)
- Lecture 29 - Integrated Optical Components: Distributed Bragg Reflector (DBR): Device Design - Part 1

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

- Lecture 30 - Integrated Optical Components: Distributed Bragg Reflector (DBR): Device Design - Part 2
- Lecture 31 - Tunable Devices and Reconfigurable Circuits: Phase Error Interference
- Lecture 32 - Tunable Devices and Reconfigurable Circuits: Post Fabrication Phase Error Corrections
- Lecture 33 - Tunable Devices and Reconfigurable Circuits: Thermo-Optic Switching and Tuning
- Lecture 34 - Tunable Devices and Reconfigurable Circuits: Programmable Silicon Photonics
- Lecture 35 - Electro-Optic Modulators for Integrated Photonics: Basic Design and Working Principle
- Lecture 36 - Electro-Optic Modulators for Integrated Photonics: Various Physical Mechanisms
- Lecture 37 - Electro-Optic Modulators for Integrated Photonics: FCCE Based Silicon Photonics Modulator
- Lecture 38 - Light Sources and Photodetectors for Integrated Photonics: Integrated Photonic light Sources - P
- Lecture 39 - Light Sources and Photodetectors for Integrated Photonics: Integrated Photonic light Sources - P
- Lecture 40 - Light Sources and Photodetectors for Integrated Photonics: Photodetectors for Silicon Photonics

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

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Semiconductor Devices

Subject Co-ordinator - Prof. Naresh Kumar Emani

Co-ordinating Institute - IIT - Hyderabad

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

- Lecture 1 - Types of Semiconductors
- Lecture 2 - Classical Vs Quantum Mechanics
- Lecture 3 - Electrons in infinite and finite 1D potential well
- Lecture 4 - 3D potential well model of atom and Bohr's model
- Lecture 5 - Covalent bonds and inter-atomic interactions in Silicon
- Lecture 6 - Energy band formation
- Lecture 7 - Electron hole pair generation
- Lecture 8 - Direct and Indirect bandgap semiconductors
- Lecture 9 - Energy levels in infinite and finite potential wells (short demo)
- Lecture 10 - Effective mass in Semiconductors
- Lecture 11 - Intrinsic carrier density
- Lecture 12 - Doping and extrinsic semiconductors
- Lecture 13 - Fermi level in extrinsic semiconductors
- Lecture 14 - Temperature dependence of Fermi level
- Lecture 15 - Temperature dependence of Fermi level
- Lecture 16 - Charge neutrality relationship
- Lecture 17 - Drift current and energy band representation of kinetic energy of carriers
- Lecture 18 - Semiconductor bands in a electric field
- Lecture 19 - Diffusion current
- Lecture 20 - Non-uniform doping
- Lecture 21 - Equilibrium Vs Nonequilibrium carrier response
- Lecture 22 - Minority carrier diffusion equation (MCDE) - Example problems
- Lecture 23 - Quasi Fermi level in nonequilibrium conditions
- Lecture 24 - Quasi Fermi level and minority carrier diffusion length
- Lecture 25 - Semiconductor device fabrication
- Lecture 26 - PN Junctions - An introduction
- Lecture 27 - PN Junction electrostatics
- Lecture 28 - Energy band diagram of PN junction
- Lecture 29 - Depletion width and peak electric field

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

- Lecture 30 - PN junction electrostatics - examples
- Lecture 31 - Demo of PN Junction Lab on Nanohub
- Lecture 32 - Forward and reverse biased PN junctions
- Lecture 33 - Minority carrier injection in PN junctions
- Lecture 34 - Current in forward biased PN junction
- Lecture 35 - Current in reverse biased PN junction
- Lecture 36 - Depletion capacitance in PN junction
- Lecture 37 - Non-idealities in PN junction diode
- Lecture 38 - Nanohub Demo - PN Junction with applied bias
- Lecture 39 - Schottky barrier in metal-semiconductor junction
- Lecture 40 - Current flow across a Schottky barrier
- Lecture 41 - Ohmic vs rectifying contacts
- Lecture 42 - An Ideal MOS Capacitor
- Lecture 43 - Operating regimes of a MOSCAP
- Lecture 44 - Simplified band diagrams of accumulation and depletion in MOSCAP
- Lecture 45 - Inversion in a MOSCAP
- Lecture 46 - NMOSCAP in accumulation mode
- Lecture 47 - NMOSCAP in depletion mode
- Lecture 48 - NMOSCAP in inversion mode
- Lecture 49 - Exact solution vs delta-depletion approximation
- Lecture 50 - Threshold voltage in a MOSCAP
- Lecture 51 - Nanohub Demo - MOSCAP tool
- Lecture 52 - Non-ideal MOS Capacitor
- Lecture 53 - MOSCAP Capacitance-Voltage (CV) Characteristics
- Lecture 54 - Example problems with MOSCAPs
- Lecture 55 - Impact of doping, oxide thickness and temperature on CV
- Lecture 56 - Nanohub Demo - MOS CV
- Lecture 57 - Introduction to MOSFET
- Lecture 58 - Operating modes of a MOSFET
- Lecture 59 - IV Characteristics of a long channel MOSFET
- Lecture 60 - Example problems with MOSFETs
- Lecture 61 - MOSFET device metrics
- Lecture 62 - CMOS Technology
- Lecture 63 - MOSFET Scaling and technology nodes
- Lecture 64 - Limits of scaling
- Lecture 65 - Current characteristics of a short channel MOSFET
- Lecture 66 - Threshold voltage characteristics of short channel MOSFET
- Lecture 67 - MOSFETs in the 21st century
- Lecture 68 - Optical absorption and bandgap

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

- Lecture 69 - Introduction to solar cells
- Lecture 70 - Efficiency of a solar cell
- Lecture 71 - Types of photodetectors
- Lecture 72 - PIN and avalanche Photodetectors
- Lecture 73 - Photodetector metrics
- Lecture 74 - Radiative absorption and emission processes
- Lecture 75 - Materials for optoelectronic devices
- Lecture 76 - Operation of a light emitting diode (LED)
- Lecture 77 - LED emission spectrum
- Lecture 78 - Stimulated emission and lasing

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

NPTEL Video Course - Electrical Engineering - NOC:Electric Vehicles and Renewable Energy

Subject Co-ordinator - Prof. Ashok Jhunjunwala, Prof. Prabhjot Kaur, Prof. Kaushal Kumar Jha, Prof. L Kannan

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Electric Vehicle Introduction
- Lecture 2 - The drive Torque, Power, Speed and Energy
- Lecture 3 - Energy Source
- Lecture 4 - Vehicle Auxillary, Petrol pumps and Charging stations
- Lecture 5 - Introduction to Electric Vehicles in India
- Lecture 6 - Can India Drive its EV program Innovatively and Differently and scale
- Lecture 7 - Battery Cost reduction strategy
- Lecture 8 - A bit about Batteries, Charging and Swapping Infrastructure
- Lecture 9 - Where will we get Lithium for batteries and EV Subsystems
- Lecture 10 - Forces acting when a vehicle move
- Lecture 11 - Aerodynamic drag, Rolling Resistance and Uphill Resistance
- Lecture 12 - Power and torque to accelerate
- Lecture 13 - Putting it all together - 1
- Lecture 14 - Putting it all together - 2
- Lecture 15 - Concept of drive cycle - 1
- Lecture 16 - Concept of drive cycle - 2
- Lecture 17 - Drive Cycles and Energy used per km - Part 1
- Lecture 18 - Drive Cycles and Energy used per km - Part 2
- Lecture 19 - EV Subsystem: Design of EV Drive Train - Part 1
- Lecture 20 - EV Subsystem: Design of EV Drive Train - Part 2
- Lecture 21 - Introduction to Battery Parameters - Part 1
- Lecture 22 - Introduction to Battery Parameters - Part 2
- Lecture 23 - Why Lithium Ion Battery? - Part 1
- Lecture 24 - Why Lithium Ion Battery? - Part 2
- Lecture 25 - Batteries in Future
- Lecture 26 - Li-Ion Battery Cells
- Lecture 27 - SoH and SoC estimation and Self Discharge - Part 1
- Lecture 28 - SoH and SoC estimation and Self Discharge - Part 2
- Lecture 29 - Battery Pack Development - Part 1

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

- Lecture 30 - Battery Pack Development - Part 2
- Lecture 31 - Computation of Effective cost of battery - Part 1
- Lecture 32 - Computation of Effective cost of battery - Part 2
- Lecture 33 - Charging Batteries
- Lecture 34 - Fundamentals of Battery Pack Design
- Lecture 35 - Electrical Design of Battery Pack - Part 1
- Lecture 36 - Electrical Design of Battery Pack - Part 2
- Lecture 37 - Electrical Design of Battery Pack - Part 3
- Lecture 38 - Mechanical Design of Battery Pack - Part 1
- Lecture 39 - Mechanical Design of Battery Pack - Part 2
- Lecture 40 - Mechanical Design of Battery Pack - Part 3
- Lecture 41 - Mechanical Design of Battery Pack - Part 4
- Lecture 42 - Thermal Design of Battery Pack - Part 1
- Lecture 43 - Thermal Design of Battery Pack - Part 2
- Lecture 44 - Thermal Design of Battery Pack - Part 3
- Lecture 45 - Thermal Design of Battery Pack - Part 4
- Lecture 46 - BMS Design and Embedded System - Part 1
- Lecture 47 - BMS Design and Embedded System - Part 2
- Lecture 48 - BMS Design and Embedded System - Part 3
- Lecture 49 - BMS Design and Embedded System - Part 4
- Lecture 50 - BMS Design and Embedded System - Part 5
- Lecture 51 - Cell Testing and Characterization - Part 1
- Lecture 52 - Cell Testing and Characterization - Part 2
- Lecture 53 - EV Motors and Controllers - Vehicle Dynamics - Part 1
- Lecture 54 - EV Motors and Controllers - Vehicle Dynamics - Part 2
- Lecture 55 - EV Motors and Controllers - Understanding Flow - Part 1
- Lecture 56 - EV Motors and Controllers - Understanding Flow - Part 2
- Lecture 57 - Power and Efficiency
- Lecture 58 - Torque Production - Part 1
- Lecture 59 - Torque Production - Part 2
- Lecture 60 - Torque Production - Part 3
- Lecture 61 - Speed and Back EMF
- Lecture 62 - The d-q Equivalent circuit - Part 1
- Lecture 63 - The d-q Equivalent circuit - Part 2
- Lecture 64 - Field-oriented Control
- Lecture 65 - Three phase AC - Part 1
- Lecture 66 - Three phase AC - Part 2
- Lecture 67 - Thermal Design - Part 1
- Lecture 68 - Thermal Design - Part 2

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

- Lecture 69 - Thermal Design - Part 3
- Lecture 70 - Engineering Considerations - Part 1
- Lecture 71 - Engineering Considerations - Part 2
- Lecture 72 - Engineering Considerations - Part 3 and Future Frontiers
- Lecture 73 - EV Charger Introduction
- Lecture 74 - Charger Parameters and Types
- Lecture 75 - Slow Fast chargers and Swapping
- Lecture 76 - Swapping
- Lecture 77 - Standardization and on board chargers
- Lecture 78 - Public chargers
- Lecture 79 - Public charger economics in Indian Context
- Lecture 80 - Bulk Chargers, Swapping stations and data analytics
- Lecture 81 - Introduction to Energy Scenario in India - Part 1
- Lecture 82 - Introduction to Energy Scenario in India - Part 2
- Lecture 83 - A novel Approach towards 100% RE in India - Part 1
- Lecture 84 - A novel Approach towards 100% RE in India - Part 2
- Lecture 85 - Going Beyond solar, wind, Li Ion and chilled water storage
- Lecture 86 - Solar Photovoltaic
- Lecture 87 - Solar Cell and its Characteristics
- Lecture 88 - Solar Cells to Modules
- Lecture 89 - Wind Energy
- Lecture 90 - The War of Currents
- Lecture 91 - The Birth of Solar - DC
- Lecture 92 - Storage Options for Energy - Part 1
- Lecture 93 - Storage Options for Energy - Part 2
- Lecture 94 - Storage Options for Energy - Part 3
- Lecture 95 - Storage Options for Energy - Part 4
- Lecture 96 - The EV Ecosystem - Part 1
- Lecture 97 - The EV Ecosystem - Part 2

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

NPTEL Video Course - Electrical Engineering - Phase-locked loops

Subject Co-ordinator - Dr. Saurabh Saxena

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Course Introduction and Motivation - Part I
- Lecture 2 - Course Introduction and Motivation - Part II
- Lecture 3 - Basic Operation of a Phase Locked Loop
- Lecture 4 - Simple Implementation of a Phase Locked Loop
- Lecture 5 - Input Output Characteristics of Basic PLL Blocks
- Lecture 6 - Time Domain Analysis of a Simple PLL
- Lecture 7 - Time Domain Versus Small Signal Analysis of a Simple PLL
- Lecture 8 - Type and Order of PLL
- Lecture 9 - Small Signal Analysis of Type-I/II/III PLLs for Phase Step, Frequency Step and Frequency Ramp
- Lecture 10 - Frequency Acquisition Range for PLLs
- Lecture 11 - Frequency Acquisition in Type-I PLLs
- Lecture 12 - Frequency Acquisition Limits in Type-I PLLs
- Lecture 13 - Frequency Acquisition in Type II PLLs
- Lecture 14 - Frequency Acquisition Ranges in Type II PLLs with Ideal and Non Ideal Integrator
- Lecture 15 - Frequency Domain Insight in Frequency Acquisition for Type II PLLs
- Lecture 16 - Introduction to Clock Multipliers
- Lecture 17 - Analog Phase Error Detectors - Part I
- Lecture 18 - Analog Phase Error Detectors - Part II
- Lecture 19 - Digital Phase Error Detectors - Part I
- Lecture 20 - Digital Phase Error Detectors - Part II
- Lecture 21 - Range Extension for Phase Error Detectors
- Lecture 22 - Phase Frequency Detector
- Lecture 23 - Digital Frequency Detector
- Lecture 24 - Charge Pump PLL
- Lecture 25 - Small Signal and Stability Analysis of Type II Order 2 Charge Pump PLL
- Lecture 26 - Problems in Charge Pump PLL - Dead Zone in PFD
- Lecture 27 - Problems in Charge Pump PLL - Reference Spur
- Lecture 28 - Design Procedure for Type-II Order 3 Charge Pump PLL
- Lecture 29 - Design Procedure for Charge Pump Clock Multiplier

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

- Lecture 30 - Sources of Non-Linearities in CP-PLL - Part I
- Lecture 31 - Sources of Non-Linearities in CP-PLL - Part II
- Lecture 32 - Noise Analysis in CP-PLL - Part I
- Lecture 33 - Noise Analysis in CP PLL - Part II
- Lecture 34 - Noise Analysis in CP-PLL - Part III
- Lecture 35 - Noise Simulations for CP-PLL Blocks
- Lecture 36 - Introduction to Oscillators
- Lecture 37 - Low Swing Ring Oscillator - Part I
- Lecture 38 - Low-Swing Ring Oscillator - Part II
- Lecture 39 - Large-Swing Ring Oscillator - Part I
- Lecture 40 - Large-Swing Ring Oscillator - Part II
- Lecture 41 - Large-Swing Ring Oscillator - Part III
- Lecture 42 - Large-Swing Ring Oscillator - Part IV
- Lecture 43 - Large-Swing Ring Oscillator - Part V
- Lecture 44 - Supply Regulated VCO - Part I
- Lecture 45 - Supply Regulated VCO - Part II
- Lecture 46 - Supply Regulated VCO - Part III
- Lecture 47 - Phase Noise in Ring Oscillators
- Lecture 48 - Circuit level Design of PFD - Part I
- Lecture 49 - Circuit level Design of PFD - Part II
- Lecture 50 - Circuit level Design of PFD - Part III
- Lecture 51 - Circuit level Design of Charge Pump - Part I
- Lecture 52 - Circuit-level Design of Charge Pump - Part II
- Lecture 53 - Circuit-level Design of Charge Pump - Part III
- Lecture 54 - Circuit-level Design of Charge Pump - Part IV
- Lecture 55 - Circuit-level Design of Charge Pump - Part V
- Lecture 56 - Circuit-level Design of Charge Pump - Part VI
- Lecture 57 - Circuit-level Design of Clock Frequency Divider
- Lecture 58 - Techniques for Wide Frequency Range Clock Multiplier
- Lecture 59 - Introduction to Digital PLL
- Lecture 60 - Design of Time-to-Digital Converter
- Lecture 61 - Small Signal Analysis of Digital PLL
- Lecture 62 - Noise Analysis in Digital PLL
- Lecture 63 - Analog/Digital Hybrid PLL - Part I
- Lecture 64 - Analog/Digital Hybrid PLL - Part II
- Lecture 65 - Course Summary

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

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Nano and Quantum Photonics

Subject Co-ordinator - Prof. Naresh Kumar Emani

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Review of Maxwell's Equations
Lecture 2 - Wave Equation
Lecture 3 - Dispersion Relation
Lecture 4 - Propagating and Evanescent Waves
Lecture 5 - Diffraction Limit and Spatial Frequencies
Lecture 6 - Plane Waves
Lecture 7 - Optical Response of Materials
Lecture 8 - Lorentz Model
Lecture 9 - Properties of Lorentz Oscillator Model
Lecture 10 - Drude-Lorentz Model for Metals
Lecture 11 - Kramers-Kronig Relation
Lecture 12 - Engineering Optical Response of Materials
Lecture 13 - Low dimensional systems
Lecture 14 - Absorption in Semiconductors
Lecture 15 - Optical gain in semiconductors
Lecture 16 - Absorption in low-dimensional semiconductors
Lecture 17 - Selection rules for optical processes
Lecture 18 - Scattering of EM radiation
Lecture 19 - LSPR: Quasi-static approximation
Lecture 20 - Size dependence of Plasmon Resonance
Lecture 21 - Tuning Plasmonic Resonances
Lecture 22 - Surface Plasmon Polariton(SPP)
Lecture 23 - Understanding SPP Dispersion Diagram
Lecture 24 - Exciting Surface Plasmon Polaritons
Lecture 25 - Analytical Calculation of Scattering Coefficients - IPython code overview
Lecture 26 - EM Waves in Multilayer Stack - T Matrix formulation
Lecture 27 - Photonic Bandgap in 1D
Lecture 28 - EM Waves in 1D Photonic Crystal
Lecture 29 - Diffracton Grating

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

- Lecture 30 - Applications of Photonic Crystals
- Lecture 31 - PhC in 1D - T-matrix examples
- Lecture 32 - Introduction to Metamaterials
- Lecture 33 - Metamaterials at GHz and THz frequencies
- Lecture 34 - Negative index materials at optical frequencies
- Lecture 35 - Plasmonic Metasurfaces
- Lecture 36 - Dielectric Metasurfaces
- Lecture 37 - Tunable and Active Metamaterials
- Lecture 38 - Radiative Absorption and Emission
- Lecture 39 - Miniaturization of Integrated Photonic Devices
- Lecture 40 - Recent trends in nanoscale lasers
- Lecture 41 - Non-Hermitian Systems
- Lecture 42 - Resonant light-atom interactions
- Lecture 43 - Experimental observation of Rabi oscillations
- Lecture 44 - Atom-Cavity Interaction - Weak and strong coupling regimes
- Lecture 45 - Experimental observation of weak and strong coupling
- Lecture 46 - Fabrication of nanophotonic structures - 1
- Lecture 47 - Fabrication of nanophotonic structures - 2
- Lecture 48 - Measuring light quanta
- Lecture 49 - Photon Statistics
- Lecture 50 - Photodetection and shot noise limit
- Lecture 51 - Second order correlation function
- Lecture 52 - Hanbury Brown-Twiss Experiment with Photons
- Lecture 53 - EM Waves as harmonic oscillator
- Lecture 54 - Vacuum fluctuations
- Lecture 55 - Coherent and squeezed states
- Lecture 56 - Squeezed and photon number states
- Lecture 57 - Application of squeezed states
- Lecture 58 - Preliminaries for quantum theory of light
- Lecture 59 - Quantum theory of light
- Lecture 60 - Operator solution of quantum harmonic oscillator
- Lecture 61 - Photon number states
- Lecture 62 - Field quadratures and operators
- Lecture 63 - Uncertainty relations for quantum light
- Lecture 64 - Applications of quantum light - Quantum Key Distribution

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

NPTEL Video Course - Electrical Engineering - NOC:Analog Electronic Circuits (IITM)

Subject Co-ordinator - Prof. Shanthi Pavan

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Introduction Linear and Nonlinear Network
- Lecture 2 - Small Signal Analysis of Nonlinear Networks
- Lecture 3 - Small Signal Analysis
- Lecture 4 - Incremental Model for Common Two Terminal Element Passive Two Terminal Elements
- Lecture 5 - Linear and Nonlinear Two Ports and the Incremental Y Matrix
- Lecture 6 - Graphical Representation of the Y Matrix
- Lecture 7 - Nonlinear Two Ports With Incremental Gain
- Lecture 8 - IV Characteristic of a Nonlinear 2 port with Incremental Gain
- Lecture 9 - The MOSFET and its Characteristics
- Lecture 10 - Deriving the Common V Source Amplifier - Part 1
- Lecture 11 - The Common Source Amplifier
- Lecture 12 - Large Signal Behaviour of the Common Source Amplifier
- Lecture 13 - The Common Source Amplifier Swing Limits
- Lecture 14 - Introduction to Robust Biasing
- Lecture 15 - Robust Biasing Part 1 Common Source Amplifier with DC Drain Feedback
- Lecture 16 - Robust Biasing with the Current Mirror and Drain Gate Resistor
- Lecture 17 - Robust Biasing With Source Feedback - Part 1
- Lecture 18 - Robust Biasing with Source Feedback - Part 2
- Lecture 19 - Robust Biasing with Source Degeneration
- Lecture 20 - Introduction to Negative Feedback
- Lecture 21 - The Ideal Operational Amplifier
- Lecture 22 - Negative Feedback (Continued...)
- Lecture 23 - Robust Biasing with Drain Measurement and Source Feedback
- Lecture 24 - Robust biasing with source measurement and gate feedback
- Lecture 25 - The Incremental Voltage Controlled Voltage Source The Common drain Amplifier Incremental Picture
- Lecture 26 - Biasing of the Common Drain Amplifier and Signal Swings
- Lecture 27 - The VCVS Continued, the Incremental
- Lecture 28 - Introducing the Current Controlled Voltage Source
- Lecture 29 - The Incremental Current Controlled Voltage Source Transimpedance Amplifier

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- Lecture 30 - The Transimpedance amplifier (Continued...)
- Lecture 31 - The Incremental current controlled current source, the common gate amplifier
- Lecture 32 - Summary of controlled Sources and finite output Impedance of the Transistor
- Lecture 33 - Effect of Finite Output Resistance on the Basic Building Blocks - Part 1
- Lecture 34 - Effect of Finite Output Resistance on the Basic Building Blocks - Part 2
- Lecture 35 - Effect of Finite Output Resistance on the Basic Building Blocks - Part 3
- Lecture 36 - Finite output Effect in current Mirrors the Cascode Current Mirror
- Lecture 37 - Comparison of Current Mirrors The High Swing Cascode
- Lecture 38 - Precision High Swing Cascode
- Lecture 39 - The PMOS transistor
- Lecture 40 - Small Signal Model and Bias Stabilization
- Lecture 41 - Basic Building Blocks with PMOS Devices
- Lecture 42 - Fixed Transconductance Bias Circuits from First Principles
- Lecture 43 - Limitation of a Resistive Load
- Lecture 44 - The Active Load
- Lecture 45 - The Active Load (Continued...)
- Lecture 46 - The CMOS Inverter
- Lecture 47 - The CMOS Inverter (Continued...)
- Lecture 48 - The Differential Amplifier
- Lecture 49 - Half - Circuit Analysis
- Lecture 50 - The Different Amplifier with Active Load - Part 1
- Lecture 51 - The Different Amplifier with Active Load - Part 2
- Lecture 52 - Large Signal Behaviour of the Different Pair
- Lecture 53 - The two Stage Opamp and Single Supply Operation
- Lecture 54 - The two Stage Opamp (Continued...)
- Lecture 55 - The Two Stage Opamp (Continued...)
- Lecture 56 - Swing Limits of the Two Stage OTA
- Lecture 57 - The Two-Stage Opamp
- Lecture 58 - The Bandgap Reference Principle
- Lecture 59 - The Bandgap Reference - Part 1
- Lecture 60 - The Bandgap Reference - Part 2
- Lecture 61 - Memory Effects in MOS Transistors
- Lecture 62 - The Common Source Amplifier with Parasitic Capacitances
- Lecture 63 - The Common Source Amplifier with Parasitic Capacitances
- Lecture 64 - Frequency Response of the Common Drain Amplifier
- Lecture 65 - Frequency Response of the Common Gate Amplifier
- Lecture 66 - Stability of Negative Feedback System The First Order Forward Amplifier
- Lecture 67 - Stability of Second Order Feedback System
- Lecture 68 - Stability of Third Order Negative Feedback System

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

- Lecture 69 - Dominant Pole Compensation - Part 1
- Lecture 70 - Dominant Pole Compensation - Part 2
- Lecture 71 - Phase Margin
- Lecture 72 - Example Phase Margin Calculations
- Lecture 73 - Dominant Pole Compensation Summary
- Lecture 74 - Phase Margin Example
- Lecture 75 - The 2 Stage Miller Compensated Amplifier
- Lecture 76 - 2 Stage Operational Amplifier and Miller Compensation (Continued...)
- Lecture 77 - Intuition Behind the Dominant and Second Poles in a Miller Compensated OTA
- Lecture 78 - 2 Stage Operational Amplifier and Miller Compensation Cancelling the RHP Zero
- Lecture 79 - Miller Compensation OTA Schematic
- Lecture 80 - Bipolar Junction Transistor Circuits-Device Equations and Small Signal Model
- Lecture 81 - BJT Biasing and Basic Building Blocks
- Lecture 82 - Bipolar Junction Transistor Circuits Swing Limits and Two Stage Opamp
- Lecture 83 - Input Stage of the 741 Opamp
- Lecture 84 - Basic Analysis of the 741

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

NPTEL Video Course - Electrical Engineering - NOC:Modern Computer Vision

Subject Co-ordinator - Prof. A. N. Rajagopalan

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Course introduction - 1
Lecture 2 - Course introduction - 2
Lecture 3 - Introduction to Deep Learning - 1
Lecture 4 - Introduction to Deep Learning - 2
Lecture 5 - Introduction to Deep Learning - 3
Lecture 6 - Introduction to Neuron - 1
Lecture 7 - Introduction to Neuron - 2
Lecture 8 - Introduction to Neuron - 3
Lecture 9 - Multilayer Perceptron
Lecture 10 - Regression and classification losses
Lecture 11 - Training a neural network
Lecture 12 - Gradient descent
Lecture 13 - Activation function
Lecture 14 - Backpropagation in MLP - 1
Lecture 15 - Backpropagation in MLP - 2
Lecture 16 - Optimization and Regularization - 1
Lecture 17 - Optimization and Regularization - 2
Lecture 18 - Regularization
Lecture 19 - Dropout
Lecture 20 - Pre-processing
Lecture 21 - Convolutional Neural Networks - 1
Lecture 22 - Convolutional Neural Networks - 2
Lecture 23 - Convolutional Neural Networks - 3
Lecture 24 - CNN Properties
Lecture 25 - Alexnet
Lecture 26 - CNN Architectures - 1
Lecture 27 - CNN Architectures - 2
Lecture 28 - CNN Architectures - 3
Lecture 29 - Introduction to RNN - 1

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

- Lecture 30 - Introduction to RNN - 2
- Lecture 31 - Encoder-Decoder models in RNN
- Lecture 32 - LSTM
- Lecture 33 - Low-level vision - 1
- Lecture 34 - Low-level vision - 2
- Lecture 35 - Low-level vision - 3
- Lecture 36 - Spatial Domain Filtering
- Lecture 37 - Frequency Domain Filtering
- Lecture 38 - Edge Detection - 1
- Lecture 39 - Edge Detection - 2
- Lecture 40 - DeepNets for Edge Detection
- Lecture 41 - Line detection
- Lecture 42 - Feature detectors
- Lecture 43 - Harris Corner Detector - 1
- Lecture 44 - Harris Corner Detector - 2
- Lecture 45 - Harris Corner Detector - 3
- Lecture 46 - Blob detection - 1
- Lecture 47 - Blob detection - 2
- Lecture 48 - Blob detection - 3
- Lecture 49 - SIFT - 1
- Lecture 50 - SIFT - 2
- Lecture 51 - Feature descriptors - 1
- Lecture 52 - Feature descriptors - 2
- Lecture 53 - SURF - 1
- Lecture 54 - SURF - 2
- Lecture 55 - Single-View Geometry - 1
- Lecture 56 - Single-View Geometry - 2
- Lecture 57 - 2D Geometric transformations - 1
- Lecture 58 - 2D Geometric transformations - 2
- Lecture 59 - Camera intrinsics and extrinsics - 1
- Lecture 60 - Camera intrinsics and extrinsics - 2
- Lecture 61 - Two-view stereo - 1
- Lecture 62 - Two-view stereo - 2
- Lecture 63 - Two-view stereo - 3
- Lecture 64 - Algebraic representation of epipolar geometry - 1
- Lecture 65 - Algebraic representation of epipolar geometry - 2
- Lecture 66 - Fundamental matrix computation - 1
- Lecture 67 - Fundamental matrix computation - 2
- Lecture 68 - Structure from Motion - 1

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

- Lecture 69 - Structure from Motion - 2
- Lecture 70 - Structure from Motion - 3
- Lecture 71 - Batch processing in SFM
- Lecture 72 - Multi-view SFM
- Lecture 73 - Factorization methods in SFM
- Lecture 74 - Bundle adjustment
- Lecture 75 - Dense 3D reconstruction
- Lecture 76 - Some results in Stereo and SFM
- Lecture 77 - Deepnets for stereo and SFM - 1
- Lecture 78 - Deepnets for stereo and SFM - 2
- Lecture 79 - Mid-level vision - 1
- Lecture 80 - Mid-level vision - 2
- Lecture 81 - Lucas-Kanade method for OF
- Lecture 82 - Handling large motion in optical flow
- Lecture 83 - Image segmentation
- Lecture 84 - GMM for clustering
- Lecture 85 - Deepnets for Segmentation and OF -1
- Lecture 86 - Deepnets for Segmentation and OF -2
- Lecture 87 - Deepnets for Segmentation and OF -3
- Lecture 88 - Deepnets for Object Detection - 1
- Lecture 89 - Deepnets for Object Detection - 2
- Lecture 90 - Vision and Language

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

NPTEL Video Course - Electrical Engineering - NOC:Optical Wireless Communications for Beyond 5G Networks and

Subject Co-ordinator - Prof. Anand Srivastava

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to Optical Wireless Communications (OWC)

Lecture 2 - Basics of Lighting System

Lecture 3 - Optical Sources (LED)

Lecture 4 - Optical Sources (LASER)

Lecture 5 - Photodetectors

Lecture 6 - Photodetectors (Continued...)

Lecture 7 - SNR for PIN and APD

Lecture 8 - Indoor OWC channel modelling

Lecture 9 - Indoor OWC channel modelling (Continued...)

Lecture 10 - Channel model for single source

Lecture 11 - Channel model for multiple sources

Lecture 12 - MIMO channel

Lecture 13 - MIMO channel (Continued...)

Lecture 14 - Outdoor Optical Channel Modelling

Lecture 15 - Range equation of FSO link

Lecture 16 - Range equation of FSO link (Continued...)

Lecture 17 - Atmospheric Turbulence

Lecture 18 - Atmospheric Turbulence (Continued...)

Lecture 19 - Turbulence Mitigation techniques

Lecture 20 - Underwater OWC Channel Model

Lecture 21 - Underwater OWC Channel Model (Continued...)

Lecture 22 - Modulation Schemes for OWC, BER for OOK

Lecture 23 - BER of M-PPM, BER of L-PPM

Lecture 24 - Differential Pulse Interval Modulation (DPIM) and (DAPPM)

Lecture 25 - Variable Pulse Position Modulation (VPPM)

Lecture 26 - OFDM Basics

Lecture 27 - Cyclic Prefix (CP), OFDM with CP, BER of OFDM System

Lecture 28 - Frequency Offset in OFDM, PAPR in OFDM

Lecture 29 - OFDM in VLC, DCO-OFDM

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- Lecture 30 - ACO-OFDM
- Lecture 31 - Color Shift Keying (CSK)
- Lecture 32 - Higher order CSK
- Lecture 33 - NOMA
- Lecture 34 - NOMA VLC
- Lecture 35 - MIMO
- Lecture 36 - VLC based MIMO NOMA
- Lecture 37 - Power allocation in VLC based MIMO NOMA
- Lecture 38 - Hybrid Network LiFi and WiFi Coexistence
- Lecture 39 - Vehicle to Vehicle communication using Visible light
- Lecture 40 - Anand Singh Part - 1
- Lecture 41 - Anand Singh Part - 2
- Lecture 42 - Dilnashin lecture - 1
- Lecture 43 - Saswati Paramita
- Lecture 44 - Dilnashin Tutorial - 2
- Lecture 45 - Guriendar Prof Anand 001
- Lecture 46 - Rehana Prof Anand

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

NPTEL Video Course - Electrical Engineering - NOC:VLSI Design Flow: RTL to GDS

Subject Co-ordinator - Prof. Sneha Saurabh

Co-ordinating Institute - IIIT - Delhi

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

Lecture 1 - Basic Concepts of Integrated Circuit - I
Lecture 2 - Basic Concepts of Integrated Circuit - II
Lecture 3 - Overview of VLSI Design Flow - I
Lecture 4 - Overview of VLSI Design Flow - II
Lecture 5 - Tutorial 1
Lecture 6 - Overview of VLSI Design Flow - III
Lecture 7 - Overview of VLSI Design Flow - IV
Lecture 8 - Overview of VLSI Design Flow - V
Lecture 9 - Overview of VLSI Design Flow - VI
Lecture 10 - Introduction to TCL
Lecture 11 - Hardware Modeling: Introduction to Verilog - I
Lecture 12 - Hardware Modeling: Introduction to Verilog - II
Lecture 13 - Functional Verification using Simulation
Lecture 14 - High-level synthesis using Bambu - Tutorial 3
Lecture 15 - RTL Synthesis - Part I
Lecture 16 - RTL Synthesis - Part II
Lecture 17 - Logic Optimization - Part I
Lecture 18 - Simulation-based Verification using Icarus
Lecture 19 - Logic Optimization - Part II
Lecture 20 - Logic Optimization - Part III
Lecture 21 - Formal Verification - I
Lecture 22 - Logic Synthesis using Yosys
Lecture 23 - Formal Verification - II
Lecture 24 - Formal Verification - III
Lecture 25 - Formal Verification - IV
Lecture 26 - Technology Library
Lecture 27 - Logic Optimization using Yosys
Lecture 28 - Static Timing Analysis - I
Lecture 29 - Static Timing Analysis - II

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

- Lecture 30 - Static Timing Analysis - III
- Lecture 31 - Static Timing Analysis using OpenSTA
- Lecture 32 - Constraints - I
- Lecture 33 - Constraints - II
- Lecture 34 - Technology Mapping
- Lecture 35 - Timing-driven Optimization
- Lecture 36 - Technology Library and Constraints
- Lecture 37 - Power Analysis
- Lecture 38 - Power Optimization
- Lecture 39 - Basic Concepts of DFT
- Lecture 40 - Scan Design Flow
- Lecture 41 - Power Analysis using OpenSTA
- Lecture 42 - Automatic Test Pattern Generation (ATPG)
- Lecture 43 - Built-in Self Test (BIST)
- Lecture 44 - Basic Concepts for Physical Design - I
- Lecture 45 - Basic Concepts for Physical Design - II
- Lecture 46 - Installation of OpenRoad
- Lecture 47 - Chip Planning - I
- Lecture 48 - Chip Planning - II
- Lecture 49 - Placement
- Lecture 50 - Chip Planning and Placement
- Lecture 51 - Clock Tree Synthesis (CTS)
- Lecture 52 - Routing
- Lecture 53 - Post-layout Verification and Signoff
- Lecture 54 - Clock Tree Synthesis (CTS) and Routing

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

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Wireless Communication (Hindi)

Subject Co-ordinator - Dr.Vivek Bohara

Co-ordinating Institute - IIIT - Delhi

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

Lecture 1 - Introduction to the Course
Lecture 2 - Basics of Wireless Communication Systems
Lecture 3 - Path-Loss Models for a Wireless Channel
Lecture 4 - Log-Normal Shadowing
Lecture 5 - Small-Scale Fading
Lecture 6 - Statistical Multipath Channel Models
Lecture 7 - MATLAB programming for Path Loss Models
Lecture 8 - Statistical Multipath Channel Models - Part 1
Lecture 9 - Statistical Multipath Channel Models - Part 2
Lecture 10 - Digital Modulation and Detection (Binary Modulations) - Part 1
Lecture 11 - Digital Modulation and Detection (Binary Modulations) - Part 2
Lecture 12 - Digital Modulation and Detection (Binary Modulations) - Part 3
Lecture 13 - MATLAB programming for Wireless Fading Channels
Lecture 14 - Digital Modulation and Detection (Binary Modulations) - Part 1
Lecture 15 - Digital Modulation and Detection (Binary Modulations) - Part 2
Lecture 16 - Digital Modulation and Detection (M-ary Modulation) - Part 1
Lecture 17 - Digital Modulation and Detection (M-ary Modulation) - Part 2
Lecture 18 - Digital Modulation and Detection (M-ary Modulation) - Part 3
Lecture 19 - MATLAB programming for Modulation Schemes
Lecture 20 - Digital Modulation and Detection (GMSK)
Lecture 21 - Performance of Digital Modulation over Wireless Channels
Lecture 22 - Performance of Digital Modulation over Wireless Channels
Lecture 23 - MATLAB programming: Error performance in AWGN channel
Lecture 24 - Receiver Diversity Techniques - Part 1
Lecture 25 - Receiver Diversity Techniques - Part 2
Lecture 26 - Receiver Diversity Techniques - Part 3
Lecture 27 - Error performance in Fading Channel Part 1
Lecture 28 - Error performance in Fading Channel Part 2
Lecture 29 - Multi-Carrier Modulation and OFDM - Part 1

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

- Lecture 30 - Multi-Carrier Modulation and OFDM - Part 2
- Lecture 31 - Multi-Carrier Modulation and OFDM - Part 3
- Lecture 32 - Multi-Carrier Modulation and OFDM - Part 4
- Lecture 33 - Numerical on OFDM
- Lecture 34 - Programming for OFDM
- Lecture 35 - OFDM System with Cyclic Prefix
- Lecture 36 - OFDM Signal Transmission and OFDM System Design
- Lecture 37 - Advantages and Drawbacks of OFDM System
- Lecture 38 - OFDM Standards
- Lecture 39 - Multiple Access Schemes
- Lecture 40 - Technologies for Wireless Cellular Standards

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

NPTEL Video Course - Electrical Engineering - NOC:Sensor Technologies: Physics, Fabrication, and Circuits

Subject Co-ordinator - Prof.Mitradip Bhattacharjee

Co-ordinating Institute - IISER - Bhopal

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

Lecture 1 - Sensors and Transducers - Basics
Lecture 2 - Introduction to Sensors
Lecture 3 - Materials for sensors
Lecture 4 - Multidisciplinary Aspects of Sensors
Lecture 5 - Introduction to Sensor Parameters
Lecture 6 - Sensor Parameters - II
Lecture 7 - Sensor Parameters - III
Lecture 8 - Sensor Parameters - IV
Lecture 9 - Sensor Parameters - V
Lecture 10 - Numerical Examples
Lecture 11 - Introduction: Physics of Sensors
Lecture 12 - Capacitive Sensor Architecture
Lecture 13 - Different Types of Capacitive Sensors
Lecture 14 - Thermal Sensors Basics
Lecture 15 - Dynamic Condition of Thermal Sensors
Lecture 16 - Classification of Thermal Sensors
Lecture 17 - Chemical Sensor Basics
Lecture 18 - Electrochemical Sensors
Lecture 19 - Impedimetric Sensors
Lecture 20 - Numerical Examples
Lecture 21 - Physics of Optical Sensors
Lecture 22 - Physics of Magnetic Sensors
Lecture 23 - Physics of Acoustic Sensors
Lecture 24 - Physics of Microfluidic Sensors
Lecture 25 - Various Sensor Geometries and Examples
Lecture 26 - Microfabrication Technologies
Lecture 27 - Deposition Techniques
Lecture 28 - Physical Vapor Deposition
Lecture 29 - Chemical Vapor Deposition

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

- Lecture 30 - Patterning Techniques
- Lecture 31 - Lithography Techniques
- Lecture 32 - Basics of Etching Techniques
- Lecture 33 - Dry Etching Techniques
- Lecture 34 - Optical and Electron Microscopy
- Lecture 35 - Other Microscopy Techniques
- Lecture 36 - Sensor System: Basic Circuits
- Lecture 37 - Amplifier Circuits
- Lecture 38 - Instrumentation Amplifier
- Lecture 39 - Filter Circuits
- Lecture 40 - Sensor System: Experimental Demonstration

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

NPTEL Video Course - Electrical Engineering - NOC:Advanced topics in Wireless Communication (Hindi)

Subject Co-ordinator - Prof. Vivek Ashok Bohara

Co-ordinating Institute - IIIT - Delhi

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

Lecture 1 - Overview of Advanced Topics in Wireless Communication System - Part A
Lecture 2 - Overview of Advanced Topics in Wireless Communication System - Part B
Lecture 3 - Revision of Wireless Fundamentals - Part A
Lecture 4 - Revision of Wireless Fundamentals - Part B
Lecture 5 - Revision of Wireless Fundamentals - Part C
Lecture 6 - Revision of Wireless Fundamentals - Part D
Lecture 7 - Revision of Wireless Fundamentals - Part E
Lecture 8 - Channel Capacity in AWGN channel
Lecture 9 - Channel Capacity in flat fading channel
Lecture 10 - Channel Capacity with Optimal Power Adaptation
Lecture 11 - Tutorial 1 - MATLAB Tutorial: Channel Capacity
Lecture 12 - Introduction to Channel Coding
Lecture 13 - Channel Coding: Uncoded and Coded Performance
Lecture 14 - Introduction to Linear Block Codes
Lecture 15 - Tutorial 2 - MATLAB Tutorial: Linear Block Codes
Lecture 16 - Linear Block Codes: Error Detection
Lecture 17 - Linear Block Codes: Error Correction
Lecture 18 - Examples of Linear Block Codes
Lecture 19 - Introduction to Convolution Codes
Lecture 20 - Convolution Code: Decoder-Viterbi Algorithm
Lecture 21 - Tutorial 3 - MATLAB Tutorial: Syndrome Identification and Correction
Lecture 22 - Convolution Codes: State Diagram and Transfer Function
Lecture 23 - Turbo codes
Lecture 24 - Low Density Parity Check (LDPC) Codes: Encoding
Lecture 25 - Low Density Parity Check (LDPC) Codes: Decoding
Lecture 26 - Introduction to Polar Codes
Lecture 27 - Polar Codes: Encoding and Decoding
Lecture 28 - Introduction to MIMO systems
Lecture 29 - Spatial Diversity Techniques

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

- Lecture 30 - Introduction to Space Time Block Codes
- Lecture 31 - Tutorial 4 - Convolution Codes: Hard and Soft Decoding
- Lecture 32 - MIMO Zero-Forcing Receiver
- Lecture 33 - MIMO MMSE Receiver
- Lecture 34 - Introduction to MIMO SVD
- Lecture 35 - Diagonalization of MIMO channel
- Lecture 36 - Optimal Capacity of MIMO channel and MIMO Beamforming
- Lecture 37 - Tutorial 5 - Random Access Technoques: ALOHA and CSMA
- Lecture 38 - MIMO V-BLAST Receivers
- Lecture 39 - Introduction to Adaptive Modulation and Coding
- Lecture 40 - Modulation and Coding with Variable MQAM
- Lecture 41 - Conventional Multiple Access Schemes
- Lecture 42 - Next generation Multiple Access Schemes and Multi-User Channels
- Lecture 43 - Overview of Cellular and Wi-Fi Standards
- Lecture 44 - Evolution of Cellular and Wi-Fi Standards
- Lecture 45 - Tutorial 6 - MIMO SVD Example
- Lecture 46 - Tutorial 7 - Rate Splitting Multiple Access

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

NPTEL Video Course - Electrical Engineering - NOC:State Space Approach to Control System Analysis and Design

Subject Co-ordinator - Prof A P Tiwari

Co-ordinating Institute - IIT - Mandi

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

Lecture 1 - Introduction

Lecture 2 - Standard State-space Representation of Physical Systems

Lecture 3 - Mathematical Modeling from First Principles

Lecture 4 - Mathematical Modeling from First Principles

Lecture 5 - State-space Representation of Transfer Functions

Lecture 6 - State-space Representation of Transfer Functions (Continued...)

Lecture 7 - Equivalent Dynamical Equations

Lecture 8 - Transformation of State Equations into Canonical forms

Lecture 9 - Solution of State Equations

Lecture 10 - Solution of State Equations: Methods to determine the STM

Lecture 11 - Simulation: An Overview

Lecture 12 - Numerical Solution of State Equations

Lecture 13 - Controllability

Lecture 14 - Controllability

Lecture 15 - Controllability

Lecture 16 - Observability

Lecture 17 - Lypunov's Stability - 1

Lecture 18 - Lypunov's Stability - 2

Lecture 19 - Lypunov's Stability - 3

Lecture 20 - Pole Placement Design-I: Concept of State feedback

Lecture 21 - Pole Placement Design-II: Properties of State Feedback

Lecture 22 - Pole Placement Design-III: Pole placement formulae, Selection of Closed loop pole locations

Lecture 23 - Linear Quadratic Optimal Control - Part 1

Lecture 24 - Linear Quadratic Optimal Control - Part 2

Lecture 25 - Linear Observers-Full Order Observer

Lecture 26 - Linear Observers-Reduced Order Observer

Lecture 27 - Separation Principle

Lecture 28 - Multirate Sampling Controllers-Relationship between System state, multirate output samples and i

Lecture 29 - Multirate Output Controller (MROC)

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

- Lecture 30 - Fast Output Sampling (FOS) Controller
- Lecture 31 - Periodic Output Feedback (POF) Controller
- Lecture 32 - Continuous-Time Kalman Filter
- Lecture 33 - Discrete-Time Kalman Filter
- Lecture 34 - Case Study of Nuclear Reactor: Nonlinear Model Development
- Lecture 35 - Case Study of Nuclear Reactor: Model Linearization
- Lecture 36 - Case Study of Nuclear Reactor: Output Feedback Control Design
- Lecture 37 - Case Study of Nuclear Reactor: Periodic Output Feedback Design
- Lecture 38 - Case Study of Nuclear Reactor: Fast Output Sampling based Control Design
- Lecture 39 - Case Study of Nuclear Reactor: Application of Kalman Filtering to Response Improvement of Vanadi

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

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

- 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

- 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

- 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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- 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 - NOC:Computer Aided Power System Analysis

Subject Co-ordinator - Prof. Biswarup Das

Co-ordinating Institute - IIT - Roorkee

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

- Lecture 1 - Modeling of Power System Components
- Lecture 2 - Modeling of Power System Components (Continued...)
- Lecture 3 - Bus Admittance Matrix
- Lecture 4 - Bus Admittance Matrix with Mutual Impedance
- Lecture 5 - Bus Admittance Matrix with mutual impedance (Continued...)
- Lecture 6 - Power flow equations and classification of buses
- Lecture 7 - Basic Gauss - Seidel Numerical Method
- Lecture 8 - Gauss - Seidel Load Flow (GSLF)
- Lecture 9 - GSLF with Multiple Generators
- Lecture 10 - Example of GSLF
- Lecture 11 - Basics of Newton Raphson Numerical Method
- Lecture 12 - Newton - Raphson Load Flow (NRLF) in Polar Co-Ordinate
- Lecture 13 - NRLF in polar co-ordinate (Continued...)
- Lecture 14 - NRLF in polar co-ordinate (Continued...)
- Lecture 15 - NRLF (Polar) Algorithm and Example
- Lecture 16 - NRLF in rectangular coordinate
- Lecture 17 - NRLF in rectangular coordinate (Continued...)
- Lecture 18 - NRLF in rectangular coordinate (Continued...)
- Lecture 19 - Example of NRLF (Rectangular) Method
- Lecture 20 - Fast decoupled load flow (FDLF)
- Lecture 21 - FDLF (Continued...)
- Lecture 22 - FDLF (Continued...)
- Lecture 23 - AC- DC Load Flow
- Lecture 24 - AC- DC Load Flow (Continued...)
- Lecture 25 - AC- DC Load Flow (Continued...)
- Lecture 26 - Sparsity and Gaussian Elimination
- Lecture 27 - Gaussian Elimination Method
- Lecture 28 - Example of Gaussian Elimination Method
- Lecture 29 - Gaussian Elimination and Optimal Ordering

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- Lecture 30 - Triangular Factorization
- Lecture 31 - LU Decomposition
- Lecture 32 - Introduction to Contingency Analysis
- Lecture 33 - Linear Sensitivity Factor
- Lecture 34 - Linear Sensitivity Factors (Continued...)
- Lecture 35 - Line outage sensitivity factor
- Lecture 36 - Line outage sensitivity factor (Continued...)
- Lecture 37 - Line outage sensitivity factor (Continued...)
- Lecture 38 - State Estimation Technique
- Lecture 39 - Weighted Least Square (WLS) Method
- Lecture 40 - WLS (Continued...)
- Lecture 41 - WLS Examples
- Lecture 42 - Error Analysis
- Lecture 43 - Error Analysis (Continued...)
- Lecture 44 - Bad Data Detection
- Lecture 45 - Power system state estimation
- Lecture 46 - Power system state estimation (Continued...)
- Lecture 47 - Power system state estimation (Continued...)
- Lecture 48 - Power system state estimation (Continued...)
- Lecture 49 - Fault Analysis
- Lecture 50 - Fault Analysis (Continued...)
- Lecture 51 - Fault Analysis (Continued...)
- Lecture 52 - Fault Analysis (Continued...)
- Lecture 53 - Fault Analysis (Continued...)
- Lecture 54 - Fault Analysis (Continued...)
- Lecture 55 - Fault Analysis (Continued...)
- Lecture 56 - Fault Analysis (Continued...)
- Lecture 57 - Fault Analysis (Continued...)
- Lecture 58 - Fault Analysis (Continued...)
- Lecture 59 - Fault Analysis (Continued...)
- Lecture 60 - Fault Analysis (Continued...)

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

NPTEL Video Course - Electrical Engineering - NOC:Advance Power Electronics and Control

Subject Co-ordinator - Prof. Avik Bhattacharya

Co-ordinating Institute - IIT - Roorkee

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

Lecture 1 - Introduction
Lecture 2 - Basic Concept of Switches
Lecture 3 - Device Physics - I
Lecture 4 - Device Physics - II
Lecture 5 - Device Physics - III
Lecture 6 - Device Physics - IV
Lecture 7 - Application and Analysis of Switches - I
Lecture 8 - Application and Analysis of Switches - II
Lecture 9 - Single Phase Converter
Lecture 10 - Single Phase Converters - II
Lecture 11 - Single Phase Converters - III
Lecture 12 - Three Phase Converters - I
Lecture 13 - Three Phase Converters - II
Lecture 14 - Multipulse Converters II
Lecture 15 - Effect of Source Inductance and PWM Rectifiers
Lecture 16 - PWM Rectifiers - II
Lecture 17 - PWM Rectifiers - III and Power Factor Improvement Techniques
Lecture 18 - PWM Rectifiers - IV and Power Factor Improvement Techniques - II
Lecture 19 - Power Factor Improvement Techniques III and Non Isolated DC- DC Converters
Lecture 20 - Non Isolated DC- DC Converters - II
Lecture 21 - Non Isolated and Isolated DC- DC Converters and Choppers
Lecture 22 - Isolated DC-DC Converters and Choppers
Lecture 23 - Isolated DC-DC Converters - II
Lecture 24 - Isolated DC-DC Converters - III
Lecture 25 - Isolated DC-DC Converters - IV and VSI and CSI
Lecture 26 - VSI and CSI
Lecture 27 - VSI and CSI II and MLI
Lecture 28 - PWM Techniques II and MLI
Lecture 29 - MLI II and ZSI

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

- Lecture 30 - ZSI II and Space Vector Modulation (SVM)
- Lecture 31 - SVM II and AC to AC Converters
- Lecture 32 - SVM III and AC to AC Converters
- Lecture 33 - Cycloconverters and Matrix Converters
- Lecture 34 - Matrix Converter - II
- Lecture 35 - Matrix Converter - III and Power Quality Mitigation Devices
- Lecture 36 - Power Quality Mitigation Devices - II
- Lecture 37 - Linear and Non Linear Control in Power Electronics - I
- Lecture 38 - Linear and Non Linear Control in Power Electronics - II
- Lecture 39 - Non-Linear Control in Power Electronics
- Lecture 40 - Application and Conclusion

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

NPTEL Video Course - Electrical Engineering - NOC:CMOS Digital VLSI Design

Subject Co-ordinator - Prof. Sudeb Dasgupta

Co-ordinating Institute - IIT - Roorkee

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

Lecture 1 - MOS Transistor Basics - I
Lecture 2 - MOS Transistor Basics - II
Lecture 3 - MOS Transistor Basics - III
Lecture 4 - MOS Parasitics and SPICE Model
Lecture 5 - CMOS Inverter Basics - I
Lecture 6 - CMOS Inverter Basics - II
Lecture 7 - CMOS Inverter Basics - III
Lecture 8 - Power Analysis - I
Lecture 9 - Power Analysis - II
Lecture 10 - SPICE Simulation - I
Lecture 11 - SPICE Simulation - II
Lecture 12 - Combinational Logic Design - I
Lecture 13 - Combinational Logic Design - II
Lecture 14 - Combinational Logic Design - III
Lecture 15 - Combinational Logic Design - IV
Lecture 16 - Combinational Logic Design - V
Lecture 17 - Combinational Logic Design - VI
Lecture 18 - Combinational Logic Design - VII
Lecture 19 - Combinational Logic Design - VIII
Lecture 20 - Combinational Logic Design - IX
Lecture 21 - Combinational Logic Design - X
Lecture 22 - Logical Efforts - I
Lecture 23 - Logical Efforts - II
Lecture 24 - Logical Efforts - III
Lecture 25 - Sequential Logic Design - I
Lecture 26 - Sequential Logic Design - II
Lecture 27 - Sequential Logic Design - III
Lecture 28 - Sequential Logic Design - IV
Lecture 29 - Sequential Logic Design - V

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

- Lecture 30 - Sequential Logic Design - VI
- Lecture 31 - Sequential Logic Design - VII
- Lecture 32 - Sequential Logic Design - VIII
- Lecture 33 - Clocking Strategies for Sequential Design - I
- Lecture 34 - Clocking Strategies for Sequential Design - II
- Lecture 35 - Clocking Strategies for Sequential Design - III
- Lecture 36 - Clocking Strategies for Sequential Design - IV
- Lecture 37 - Sequential Logic Design - IX
- Lecture 38 - Clocking Strategies for Sequential Design - V
- Lecture 39 - Concept of Memory and its Designing - I
- Lecture 40 - Concept of Memory and its Designing - II

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

NPTEL Video Course - Electrical Engineering - NOC:Microelectronics: Devices to Circuits

Subject Co-ordinator - Prof. Sudeb Dasgupta

Co-ordinating Institute - IIT - Roorkee

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

- Lecture 1 - Bipolar Junction Transistor
- Lecture 2 - Bipolar Junction Transistor
- Lecture 3 - Bipolar Junction Transistor
- Lecture 4 - BJT Operation in active mode Circuit symbol and conventions - I
- Lecture 5 - BJT Operation in active mode Circuit symbol and conventions - II
- Lecture 6 - BJT as an amplifier small circuit model - I
- Lecture 7 - BJT as an amplifier small circuit model - II
- Lecture 8 - BJT Small Signal Circuit Model - I
- Lecture 9 - BJT Small Signal Circuit Model - II
- Lecture 10 - BJT as a switch and Ebers Moll Model
- Lecture 11 - Simple BJT Inverter and second order effects
- Lecture 12 - BJT Second order effects - I
- Lecture 13 - BJT Second order effects - II
- Lecture 14 - MOS Transistor basics - I
- Lecture 15 - MOS Transistor basics - II
- Lecture 16 - MOS Transistor basics - III
- Lecture 17 - MOS Parasitic and SPICE Model
- Lecture 18 - CMOS Inverter Basics - I
- Lecture 19 - CMOS Inverter Basics - II
- Lecture 20 - CMOS Inverter Basics - III
- Lecture 21 - Power Analysis - I
- Lecture 22 - Logical Efforts - I
- Lecture 23 - Fabrication-Process - I
- Lecture 24 - Fabrication-Process - II
- Lecture 25 - Biasing of Amplifier and its behaviour as an Analog switch - I
- Lecture 26 - Biasing of Amplifier and its behaviour as an Analog switch - II
- Lecture 27 - Biasing of Amplifier and its behaviour as an Analog switch - III
- Lecture 28 - CMOS CS/CG/CD Amplifier Configuration
- Lecture 29 - CMOS CG/CD Amplifier Configuration

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

- Lecture 30 - Internal CAP Models and high frequency Modelling - I
- Lecture 31 - Internal CAP Models and high frequency Modelling - II
- Lecture 32 - JFET, Structure and Operation
- Lecture 33 - Multistage and Differential Amplifier - I
- Lecture 34 - Multistage and Differential Amplifier - II
- Lecture 35 - MOS Differential Amplifier - I
- Lecture 36 - MOS Differential Amplifier - II
- Lecture 37 - Small signal operation and Differential Amplifiers - I
- Lecture 38 - Small signal operation and Differential Amplifiers - II
- Lecture 39 - Multistage Amplifier with SPICE Simulation
- Lecture 40 - S-Domain Analysis, Transfer Function, Poles and Zeros - I
- Lecture 41 - S-Domain Analysis, Transfer Function, Poles and Zeros - II
- Lecture 42 - High Frequency response of CS and CE Amplifier
- Lecture 43 - High Frequency response of CC and SF Configuration
- Lecture 44 - Frequency response of Differential Amplifier
- Lecture 45 - General Feedback Structure and properties of negative Feedback
- Lecture 46 - Basic Feedback Topologies
- Lecture 47 - Design of feedback amplifier for all configuration
- Lecture 48 - Stability and amplifier poles
- Lecture 49 - Bode plots and Frequency Plot
- Lecture 50 - Ideal Operational Amplifier and its terminal
- Lecture 51 - Op-amp as a Integrator and Differentiator
- Lecture 52 - Large Signal Operation of Op-amp and second order effects
- Lecture 53 - Combinational logic design - I
- Lecture 54 - Combinational logic design - II
- Lecture 55 - Combinational logic design - III
- Lecture 56 - Combinational logic design - IV
- Lecture 57 - Sequential logic design - I
- Lecture 58 - Clocking strategies For Sequential design - I
- Lecture 59 - Clocking strategies For Sequential design - II
- Lecture 60 - Memory Design

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

NPTEL Video Course - Electrical Engineering - NOC:DC Microgrid

Subject Co-ordinator - Prof. Avik Bhattacharya

Co-ordinating Institute - IIT - Roorkee

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

- Lecture 1 - Overview of Microgrids
- Lecture 2 - Concept of Microgrids
- Lecture 3 - Microgrid and distributed generation
- Lecture 4 - Microgrid vs Conventional Power System
- Lecture 5 - AC and DC Microgrid with Distributed Energy Resources (AC Microgrid Part)
- Lecture 6 - AC and DC Microgrid with Distributed Energy Resources (AC Microgrid Part) (Continued...)
- Lecture 7 - Power Electronics for Microgrid
- Lecture 8 - Power Electronic Converters in Microgrid Applications
- Lecture 9 - Power Electronic Converters in Microgrid Applications (Power Electronic for Interfacing)
- Lecture 10 - Power Electronic Converters in Microgrid Applications (Converter Modulation Techniques)
- Lecture 11 - Modeling of converters in microgrid power system (AC/DC and DC/AC Converters Modeling)
- Lecture 12 - Modeling of Power Converters in Microgrid Power System (DC/DC Converter Modeling and Control)
- Lecture 13 - Modeling of Renewable Energy Resources (Modeling of Wind Energy System)
- Lecture 14 - Modeling of Renewable Energy Resources (Modeling of Photovoltaic System)
- Lecture 15 - Modeling of Energy Storage System
- Lecture 16 - Microgrid Dynamics and Modeling
- Lecture 17 - Microgrid Dynamics and Modeling (Continued...)
- Lecture 18 - Microgrid Operation Modes and Standards - Part I
- Lecture 19 - Microgrid Operation Modes and Standards - Part II
- Lecture 20 - Microgrid Control Architectures
- Lecture 21 - Microgrid Control Architectures (Continued...)
- Lecture 22 - Intelligent Microgrid Operation and Control
- Lecture 23 - Intelligent Microgrid Operation and Control (Continued...)
- Lecture 24 - Intelligent Microgrid Operation and Control (Continued...)
- Lecture 25 - Energy Management in Microgrid System (Continued...)
- Lecture 26 - DC Microgrid System Architecture and AC Interface
- Lecture 27 - DC Microgrid System Architecture and AC Interface (Continued...)
- Lecture 28 - DC Microgrid System Architecture and AC Interface (Continued...)
- Lecture 29 - DC Microgrid Dynamics and Modeling

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

- Lecture 30 - DC Microgrid Dynamics and Modeling (Continued...)
- Lecture 31 - Control of DC Microgrid System
- Lecture 32 - Control of DC Microgrid System (Continued...)
- Lecture 33 - Applications of DC Microgrids
- Lecture 34 - Stability in Microgrid
- Lecture 35 - Stability Analysis of DC Microgrid
- Lecture 36 - Stability Analysis of DC Microgrid (Continued...)
- Lecture 37 - DC Microgrid stabilization strategies (Passive damping method)
- Lecture 38 - DC Microgrid Stabilization Strategies (Impedance/Admittance stability criteria)
- Lecture 39 - DC microgrid stabilization using nonlinear Techniques
- Lecture 40 - General Summary of DC Microgrids

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

NPTEL Video Course - Electrical Engineering - NOC:Power Quality Improvement Technique

Subject Co-ordinator - Prof. Avik Bhattacharya

Co-ordinating Institute - IIT - Roorkee

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

Lecture 1 - Introduction
Lecture 2 - Overview - I
Lecture 3 - Overview - II
Lecture 4 - Overview - III
Lecture 5 - Source of Poor Power Quality - I
Lecture 6 - Source of Poor Power Quality - II
Lecture 7 - AC Power Quality Standard
Lecture 8 - Improvement of Power Factor by Capacitor
Lecture 9 - Passive Filter - I
Lecture 10 - Passive Filter - II
Lecture 11 - Passive Filter Design - I
Lecture 12 - Passive Filter Design - II
Lecture 13 - PWM Rectifier - I
Lecture 14 - PWM Rectifier - II
Lecture 15 - PWM Rectifier - III
Lecture 16 - Three phase converters - I
Lecture 17 - Three Phase Converters - II and multi pulse Converters
Lecture 18 - Three Phase Converters - III and multi-pulse Converters
Lecture 19 - VSI and CSI
Lecture 20 - Multilevel Inverter - I
Lecture 21 - Multilevel Inverter - II
Lecture 22 - Multilevel Inverter - III
Lecture 23 - PWM for Voltage Source Inverter - I
Lecture 24 - PWM for Voltage Source Inverter - II
Lecture 25 - PWM for Voltage Source inverter - III
Lecture 26 - PWM for Voltage Source Inverter - IV
Lecture 27 - Operation and Control of Grid-Connected VSC
Lecture 28 - Grid Connected VSC with inner Current Control
Lecture 29 - Shunt Active Power Filter - I

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

- Lecture 30 - Shunt Active Power Filter - II
- Lecture 31 - Shunt Active Power Filter - III
- Lecture 32 - Shunt Active Power Filter - IV
- Lecture 33 - Hybrid Active Power Filter - I
- Lecture 34 - Hybrid Active power Filter - II
- Lecture 35 - Hybrid Shunt Active Power Filter
- Lecture 36 - UPQC Introduction and classification
- Lecture 37 - UPQC Classification
- Lecture 38 - Operation and Control of UPQC
- Lecture 39 - Control of UPQC
- Lecture 40 - Conclusion

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

NPTEL Video Course - Electrical Engineering - NOC:Power System Protection and Switchgear

Subject Co-ordinator - Prof. Bhaveshkumar R. Bhalja

Co-ordinating Institute - IIT - Roorkee

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

Lecture 1 - Fundamentals of Protective Relaying - I
Lecture 2 - Fundamentals of Protective Relaying - II
Lecture 3 - Fundamentals of Protective Relaying - III
Lecture 4 - Fundamentals of Protective Relaying - IV
Lecture 5 - Fundamentals of Protective Relaying - V
Lecture 6 - Current based Relaying Scheme - I
Lecture 7 - Current based Relaying Scheme - II
Lecture 8 - Current based Relaying Scheme - III
Lecture 9 - Current based Relaying Scheme - IV
Lecture 10 - Current based Relaying Scheme - V
Lecture 11 - Current based Relaying Scheme - VI
Lecture 12 - Current based Relaying Scheme - VII
Lecture 13 - Current based Relaying Scheme - VIII
Lecture 14 - Protection of Transmission Lines using Distance Relays - I
Lecture 15 - Protection of Transmission Lines using Distance Relays - II
Lecture 16 - Protection of Transmission Lines using Distance Relays - III
Lecture 17 - Protection of Transmission Lines using Distance Relays - IV
Lecture 18 - Protection of Transmission Lines using Distance Relays - V
Lecture 19 - Carrier Aided Schemes for Transmission Lines - I
Lecture 20 - Carrier Aided Schemes for Transmission Lines - II
Lecture 21 - Carrier Aided Schemes for Transmission Lines - III
Lecture 22 - Carrier Aided Schemes for Transmission Lines - IV
Lecture 23 - Auto-reclosing and Synchronizing - I
Lecture 24 - Auto-reclosing and Synchronizing - II
Lecture 25 - Auto-reclosing and Synchronizing - III
Lecture 26 - Protection of Transformers - I
Lecture 27 - Protection of Transformers - II
Lecture 28 - Protection of Generators - I
Lecture 29 - Protection of Generators - II

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

- Lecture 30 - Protection of Induction Motors
- Lecture 31 - Protection of Busbars
- Lecture 32 - Protection against Transients and Surges along with System Response to Severe Upsets - I
- Lecture 33 - Protection against Transients and Surges along with System Response to Severe Upsets - II
- Lecture 34 - Arc Interruption Theory in Circuit Breaker - I
- Lecture 35 - Arc Interruption Theory in Circuit Breaker - II
- Lecture 36 - Arc Interruption Theory in Circuit Breaker - III
- Lecture 37 - Arc Interruption Theory in Circuit Breaker - IV
- Lecture 38 - Types of Circuit Breakers
- Lecture 39 - Testing, Commissioning and Maintenance of Relays - I
- Lecture 40 - Testing, Commissioning and Maintenance of Relays - II

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

NPTEL Video Course - Electrical Engineering - NOC:RF Transceiver of Design

Subject Co-ordinator - Prof. Darshak Bhatt

Co-ordinating Institute - IIT - Roorkee

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

- Lecture 1 - Basic of Wireless Communication - I
- Lecture 2 - Basic of Wireless Communication - II
- Lecture 3 - Basic of Wireless Communication - III
- Lecture 4 - Basic of Wireless Communication - IV
- Lecture 5 - Basic of Wireless Communication - V
- Lecture 6 - Basic of Wireless Communication - VI
- Lecture 7 - Noise in RF Systems - I
- Lecture 8 - Noise in RF Systems - II
- Lecture 9 - Noise in RF Systems - III
- Lecture 10 - Noise in RF Systems - IV
- Lecture 11 - Non-Linearity in RF Systems - I
- Lecture 12 - Non-Linearity in RF Systems - II
- Lecture 13 - Non-Linearity in RF Systems - III
- Lecture 14 - Transceiver Architecture - I
- Lecture 15 - Transceiver Architecture - II
- Lecture 16 - Transceiver Architecture - III
- Lecture 17 - Transceiver Architecture - IV
- Lecture 18 - Transceiver Architecture - V
- Lecture 19 - Transceiver Architecture - VI
- Lecture 20 - Transceiver Architecture - VII
- Lecture 21 - Active Devices - I
- Lecture 22 - Active Devices - II
- Lecture 23 - Active Devices - III
- Lecture 24 - Active Devices - IV
- Lecture 25 - Passive Components and Impedance Matching - I
- Lecture 26 - Passive Components and Impedance Matching - II
- Lecture 27 - Passive Components and Impedance Matching - III
- Lecture 28 - Passive Components and Impedance Matching - IV
- Lecture 29 - Passive Components and Impedance Matching - V

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

- Lecture 30 - Passive Components and Impedance Matching - VI
- Lecture 31 - Passive Components and Impedance Matching - VII
- Lecture 32 - Stability and Amplifier Design - I
- Lecture 33 - Stability and Amplifier Design - II
- Lecture 34 - Stability and Amplifier Design - III
- Lecture 35 - Stability and Amplifier Design - IV
- Lecture 36 - Low Noise Amplifier Design - I
- Lecture 37 - Low Noise Amplifier Design - II
- Lecture 38 - Low Noise Amplifier Design - III
- Lecture 39 - Low Noise Amplifier Design - IV
- Lecture 40 - Low Noise Amplifier Design - V
- Lecture 41 - Low Noise Amplifier Design - VI
- Lecture 42 - Mixer Design - I
- Lecture 43 - Mixer Design - II
- Lecture 44 - Mixer Design - III
- Lecture 45 - Mixer Design - IV
- Lecture 46 - Mixer Design - V
- Lecture 47 - Mixer Design - VI
- Lecture 48 - Mixer Design - VII
- Lecture 49 - Mixer Design - VIII
- Lecture 50 - Mixer Design - IX
- Lecture 51 - Oscillator Design - I
- Lecture 52 - Oscillator Design - II
- Lecture 53 - Oscillator Design - III
- Lecture 54 - Oscillator Design - IV
- Lecture 55 - Power Amplifier Design - I
- Lecture 56 - Power Amplifier Design - II
- Lecture 57 - Power Amplifier Design - III
- Lecture 58 - Basics of Phase Locked Loop - I
- Lecture 59 - Basics of Phase Locked Loop - II
- Lecture 60 - System Level Considerations
- Lecture 61 - RF Testing and Measurement Techniques

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

NPTEL Video Course - Electrical Engineering - NOC:VLSI Physical Design with Timing Analysis

Subject Co-ordinator - Prof. Bishnu Prasad Das

Co-ordinating Institute - IIT - Roorkee

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

- Lecture 1 - Introduction to VLSI Design
- Lecture 2 - Introduction to VLSI Physical Design
- Lecture 3 - Complexity Analysis for Algorithms
- Lecture 4 - Graphs for Physical Design
- Lecture 5 - Graph searching Algorithms
- Lecture 6 - Spanning Tree and Shortest Path Algorithms
- Lecture 7 - Overview of Timing Analysis
- Lecture 8 - Timing Arcs and Unateness
- Lecture 9 - Delay Parameters of a Combinational Circuit
- Lecture 10 - Delay Parameters of a Sequential Circuit
- Lecture 11 - Timing Analysis in a Sequential Circuit
- Lecture 12 - STA in Sequential Circuit with Clock Skew - I
- Lecture 13 - STA in Sequential Circuit with Clock Skew - II
- Lecture 14 - STA in Sequential Circuit with Clock Jitter
- Lecture 15 - STA considering OCV and CRPR (Setup check)
- Lecture 16 - STA considering OCV and CRPR (Hold check)
- Lecture 17 - STA for Combinational Circuits - I
- Lecture 18 - STA for Combinational Circuits - II
- Lecture 19 - Introduction to Partitioning - I
- Lecture 20 - Introduction to Partitioning - II
- Lecture 21 - Partitioning Algorithms
- Lecture 22 - Kernighan-Lin (KL) Algorithm
- Lecture 23 - Fiduccia-Mattheyses (FM) Algorithm
- Lecture 24 - Introduction to Floorplanning
- Lecture 25 - Floorplanning Representations
- Lecture 26 - Floorplanning Algorithms - 1
- Lecture 27 - Floorplanning Algorithms - 2
- Lecture 28 - Pin Assignment and Power - Ground Routing
- Lecture 29 - Introduction to Placement

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- Lecture 30 - Wirelength estimation techniques
- Lecture 31 - Min-cut placement
- Lecture 32 - Placement Algorithms
- Lecture 33 - Placement algorithms and legalization
- Lecture 34 - Introduction to Clock Tree Synthesis
- Lecture 35 - Clock Routing Algorithms - I
- Lecture 36 - Clock Routing Algorithms - II
- Lecture 37 - Clock Routing Algorithms - III
- Lecture 38 - Introduction and Optimization Goals - Global Routing
- Lecture 39 - Single net routing (Rectilinear routing)
- Lecture 40 - Global Routing in the connectivity graph
- Lecture 41 - Finding Shortest Paths with Dijkstra's Algorithm
- Lecture 42 - Full-Netlist Routing
- Lecture 43 - Introduction: Detailed Routing
- Lecture 44 - Channel Routing Algorithms - I
- Lecture 45 - Channel Routing Algorithms - II
- Lecture 46 - Switchbox and Over the cell routing
- Lecture 47 - Timing Constraints in latch based system
- Lecture 48 - Timing Constraints in Pulsed Latch-based System
- Lecture 49 - Time Borrowing in Latch
- Lecture 50 - Crosstalk Analysis
- Lecture 51 - Standard Cell Library
- Lecture 52 - Low Power Cells in Standard Cell Library
- Lecture 53 - Sub-threshold Standard Cell Library
- Lecture 54 - Timing Library for Standard Cells
- Lecture 55 - PDK and Other files
- Lecture 56 - Open-Source Tool Installation and Qflow
- Lecture 57 - Open-Source tool - YOSYS
- Lecture 58 - OpenSTA Static Timing Analyzer
- Lecture 59 - OpenROAD Physical Synthesis Flow - I
- Lecture 60 - OpenROAD Physical Synthesis Flow - II

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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- 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

- 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

- 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

- 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

- 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

- 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

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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- 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

- 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

- 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

- 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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- 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

- 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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- 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 Implementation

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 Integral Controller
- 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

- 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

- 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 - Electrical Engineering - NOC:Fundamentals of Semiconductor Devices

Subject Co-ordinator - Prof. Digbijoy N. Nath

Co-ordinating Institute - IISc - Bangalore

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

- Lecture 1 - Introduction to semiconductors
- Lecture 2 - Introduction to energy bands
- Lecture 3 - Fundamentals of band structure
- Lecture 4 - Band structure (Continued...) and Fermi-Dirac distribution
- Lecture 5 - Density of states
- Lecture 6 - Doping and intrinsic carrier concentration
- Lecture 7 - Equilibrium carrier concentration
- Lecture 8 - Temperature-dependence of carrier concentration
- Lecture 9 - High doping effects and incomplete ionization
- Lecture 10 - Carrier scattering and mobility
- Lecture 11 - Low-field and high-field transport, introduction to diffusion
- Lecture 12 - Drift-diffusion and trap statistics
- Lecture 13 - Current continuity equation
- Lecture 14 - Continuity equation (Continued...) and introduction to p-n junction
- Lecture 15 - p-n junction under equilibrium
- Lecture 16 - p-n junction under equilibrium (Continued...)
- Lecture 17 - p-n junction under bias
- Lecture 18 - p-n junction under bias (Continued...)
- Lecture 19 - p-n junction
- Lecture 20 - Application of p-n junctions
- Lecture 21 - Breakdown of junction and C-V profiling
- Lecture 22 - Introduction to Schottky junction
- Lecture 23 - Schottky junction under equilibrium
- Lecture 24 - Schottky junction under bias
- Lecture 25 - Introduction to transistors
- Lecture 26 - Basics of BJT
- Lecture 27 - Working of BJT
- Lecture 28 - Working of BJT (Continued...)
- Lecture 29 - Delays in BJT

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

- Lecture 30 - MOS
- Lecture 31 - MOS
- Lecture 32 - Ideal MOS system
- Lecture 33 - MOS C-V in more details
- Lecture 34 - MOSFET - An introduction
- Lecture 35 - Gradual Channel Approximation
- Lecture 36 - Substrate bias effect and subthreshold conduction in MOSFET
- Lecture 37 - Short Channel Effects in MOSFET
- Lecture 38 - Introduction to compound semiconductors
- Lecture 39 - Basics of heterojunctions
- Lecture 40 - Band diagram of heterojunctions
- Lecture 41 - Heterojunctions (Continued....)
- Lecture 42 - Heterojunction transistors
- Lecture 43 - III-nitrides
- Lecture 44 - Solar cell basics
- Lecture 45 - Solar cell (Continued...)
- Lecture 46 - Solar cell
- Lecture 47 - Basics of photodetectors
- Lecture 48 - Photodetectors
- Lecture 49 - Junction photodetectors
- Lecture 50 - Basics of recombination
- Lecture 51 - Basics of LED
- Lecture 52 - LED
- Lecture 53 - Visible LED
- Lecture 54 - Transistors for power electronics
- Lecture 55 - Transistors for power electronics (Continued...) and for RF electronics
- Lecture 56 - Transistors for RF (Continued...) and transistors for Memory
- Lecture 57 - Basics of microelectronic fabrication
- Lecture 58 - Microelectronic fabrication (Continued...)
- Lecture 59 - Summary

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

NPTEL Video Course - Electrical Engineering - NOC:Advanced IOT Applications

Subject Co-ordinator - Prof. T V Prabhakar

Co-ordinating Institute - IISc - Bangalore

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

- Lecture 1 - Overview of localization using IoT sensors
- Lecture 2 - Outdoor localization without GPS - I
- Lecture 3 - Outdoor localization without GPS - II
- Lecture 4 - Outdoor localization using elevation - pressure mapping
- Lecture 5 - Localization using IMU sensors - I
- Lecture 6 - Localization using IMU sensors - II
- Lecture 7 - Localization using IMU sensors - III
- Lecture 8 - RFID based localization - I
- Lecture 9 - RFID based localization - II
- Lecture 10 - Simulation of simple algorithms for object detection
- Lecture 11 - Building smart vehicle for collision avoidance
- Lecture 12 - Basic computer vision algorithms - Part 1
- Lecture 13 - Basic computer vision algorithms - Part 2
- Lecture 14 - Code walkthrough of computer vision algorithm
- Lecture 15 - Introduction to LiDAR
- Lecture 16 - Range estimation and Obstacle avoidance
- Lecture 17 - Introduction to vehicle platooning
- Lecture 18 - Building blocks for autonomous vehicles - 1
- Lecture 19 - Building blocks for autonomous vehicles - 2
- Lecture 20 - On Board Diagnostics and protocols
- Lecture 21 - Diagnostic services and fuel-injection ratio control unit
- Lecture 22 - Real time event processing and Anomaly detection
- Lecture 23 - OBD-II and stream processing demonstration
- Lecture 24 - Speech recognition - Part 1
- Lecture 25 - Speech recognition - Part 2
- Lecture 26 - Speech recognition - Part 3
- Lecture 27 - Speech recognition - Part 4
- Lecture 28 - Device Security - Part 1
- Lecture 29 - Device Security - Part 2

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

- Lecture 30 - Device Security - Part 3
- Lecture 31 - Need for air quality monitoring
- Lecture 32 - Air quality
- Lecture 33 - Introduction to air quality sensors
- Lecture 34 - Calibration techniques for IoT air quality sensors
- Lecture 35 - Sensor types
- Lecture 36 - Air quality
- Lecture 37 - Air quality
- Lecture 38 - Air quality
- Lecture 39 - Air quality
- Lecture 40 - Introduction to First Responder networks
- Lecture 41 - First Responders - Applications - Part 1
- Lecture 42 - First Responders - Applications - Part 2
- Lecture 43 - Cargo monitoring for tamper detection - Part 1
- Lecture 44 - Cargo monitoring for tamper detection - Part 2

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

NPTEL Video Course - Electrical Engineering - NOC:Electronic Systems for Cancer Diagnosis

Subject Co-ordinator - Prof. Hardik Jeetendra Pandya

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Tissue and Cell Culture Techniques

Lecture 2 - Tissue and Cell Culture Techniques

Lecture 3 - Tissue and Cell Culture Techniques

Lecture 4 - Cleanroom Equipments

Lecture 5 - Cleanroom Equipments (Continued...)

Lecture 6 - Introduction to photolithography

Lecture 7 - Photolithography

Lecture 8 - Photolithography

Lecture 9 - Micromachining Techniques

Lecture 10 - Breast Cancer and Oral Cancer Statistics

Lecture 11 - Fabrication of MEMs-based Biochip for cancer diagnosis

Lecture 12 - Fabrication of MEMs-based Biochip for cancer diagnosis (Continued...)

Lecture 13 - Fabrication of Piezoresistive Sensor

Lecture 14 - Fabrication of Piezoresistive Sensor (Continued...)

Lecture 15 - Fabrication of SU-8 pillar on piezoresistive Sensor

Lecture 16 - Portable Cancer Diagnostic Tool Using a Disposable MEMS-Based Biochip

Lecture 17 - Mechanical Phenotyping of Breast Cancer using MEMS

Lecture 18 - Electrical characterization of Breast Tissue Cores

Lecture 19 - Fabrication of MEMS-based sensor for electro-mechanical phenotyping of breast cancer

Lecture 20 - Fabrication of electro-mechanical sensor (Continued...)

Lecture 21 - Assembly of the electro-mechanical sensor

Lecture 22 - Silicon substrate devices for breast cancer diagnosis

Lecture 23 - Understanding the methods and mechanism to study cell morphology

Lecture 24 - Cytology - A detail study on Spin Coater and Cytospin

Lecture 25 - Techniques in oral cytology studies

Lecture 26 - Techniques in cell morphology analysis

Lecture 27 - Comparative study on diagnostic tools for oral cancer screening

Lecture 28 - Basic building blocks of Electronics System

Lecture 29 - Basic building blocks of Electronics System

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

- Lecture 30 - Basic building blocks of Electronics System
- Lecture 31 - Basic building blocks of Electronics System
- Lecture 32 - Basic building blocks of Electronics System
- Lecture 33 - Basic building blocks of Electronics System
- Lecture 34 - Basic building blocks of Electronics System
- Lecture 35 - Basic building blocks of Electronics System
- Lecture 36 - Basic building blocks of Electronics System
- Lecture 37 - Etching Process and Figure of Merits
- Lecture 38 - ECG Signal Processing to calculate BPM
- Lecture 39 - ECG Signal Processing to calculate BPM (Continued...)
- Lecture 40 - ECG Signal Processing to calculate BPM (Continued...)
- Lecture 41 - ECG Signal Processing to calculate BPM (Continued...)
- Lecture 42 - ECG Signal Processing to calculate BPM (Continued...)
- Lecture 43 - ECG Signal Processing to calculate BPM [Continued...)
- Lecture 44 - MEMS based Force Sensor for Catheter Contact Force Measurement
- Lecture 45 - 3D Printing
- Lecture 46 - 3D Fabrication Techniques
- Lecture 47 - Gowning Procedure in Clean Room
- Lecture 48 - Introduction to Equipments
- Lecture 49 - PDMS Moulding procedure
- Lecture 50 - Introduction to Equipments
- Lecture 51 - Introduction to Equipments
- Lecture 52 - Micromanipulator
- Lecture 53 - Biosafety Cabinet and Ultrasonicbath
- Lecture 54 - Incubator Shaker
- Lecture 55 - Hotplate and Microcentrifuge
- Lecture 56 - Autoclave
- Lecture 57 - Impedance Analyser
- Lecture 58 - Rapid Prototyping using 3D Printer
- Lecture 59 - Etching Process
- Lecture 60 - Electronic System for Drug Screening
- Lecture 61 - Introduction to Equipments
- Lecture 62 - Introduction to Equipments
- Lecture 63 - Electronic Module for Gas sensor
- Lecture 64 - Fabrication process flow for a metal oxide gas sensor
- Lecture 65 - MEMS Simulation using Comsol Multiphysics
- Lecture 66 - Introduction to COMSOL Multiphysics
- Lecture 67 - COMSOL Examples for MEMS Applications
- Lecture 68 - COMSOL Examples for MEMS Applications (Continued...)

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

- Lecture 69 - Demonstration of Thermal Actuator and Understanding of Application Builder
- Lecture 70 - Closed loop control of temperature sensor
- Lecture 71 - Experimental Set-up of closed loop control of temperature sensor

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

NPTEL Video Course - Electrical Engineering - NOC:Electronic Modules for Industrial Applications using Op-Amp

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 Op-amp

Lecture 2 - Introduction Wafer Manufacturing Process and Clean room Protocols

Lecture 3 - Introduction to Fabrication Process Technology and Op-amp

Lecture 4 - Op-amp Characteristics and Datasheet Parameters

Lecture 5 - Overview of Active Filters and Oscillators

Lecture 6 - Overview of Op-amp Oscillators

Lecture 7 - Introduction to ECG Experiment

Lecture 8 - Design and Implementation of ECG Preprocessing Stage - Part 1

Lecture 9 - Design and Implementation of ECG Preprocessing Stage - Part 2

Lecture 10 - Design and Implementation of ECG Preprocessing Stage - Part 3

Lecture 11 - Design and Implementation of ECG Preprocessing Stage - Part 4

Lecture 12 - Design and Implementation of Peak Detector and Thresholding Circuit for ECG Signal Conditioning

Lecture 13 - Experiment

Lecture 14 - Application

Lecture 15 - Photolithography

Lecture 16 - Understanding the process of photolithography

Lecture 17 - Photolithography

Lecture 18 - Photolithography

Lecture 19 - Fabrication of Piezoresistive Sensor

Lecture 20 - Fabrication of MEMS based Catheter Contact Force Sensor

Lecture 21 - Design of Speed Control of DC Motor

Lecture 22 - Design of Speed Control of DC Motor

Lecture 23 - Design of Speed Control of DC Motor

Lecture 24 - Design of Speed Control of DC Motor

Lecture 25 - Design of Speed Control of DC Motor

Lecture 26 - Design of Speed Control of DC Motor

Lecture 27 - Design of Speed Control of DC Motor

Lecture 28 - Design of Speed Control of DC Motor

Lecture 29 - Design of Speed Control of a DC Motor using Op-amp

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

- Lecture 30 - Design of Speed Control of a DC Motor using Op-amp
- Lecture 31 - Design of Speed Control of a DC Motor using DAQ - Part 1
- Lecture 32 - Design of Speed Control of a DC Motor using DAQ - Part 2
- Lecture 33 - Design of Speed Control of a DC Motor using DAQ - Part 3
- Lecture 34 - Introduction to Hot-Wire Anemometer
- Lecture 35 - Signal-conditioning Circuit for Hot-Wire Anemometer
- Lecture 36 - Signal-conditioning Circuit for Hot-Wire Anemometer Part 2
- Lecture 37 - Signal-conditioning Circuit for Hot-Wire Anemometer
- Lecture 38 - Signal-conditioning Circuit for Hot-Wire Anemometer
- Lecture 39 - Introduction to Gas Sensors
- Lecture 40 - Fabrication Process for Gas Sensor
- Lecture 41 - Signalconditioning Circuit for Operating Heater Voltage of MQ-7 Gas Sensor - Part 1
- Lecture 42 - Signalconditioning Circuit for Operating Heater Voltage of MQ-7 Gas Sensor - Part 2
- Lecture 43 - Signalconditioning Circuit for Operating Heater Voltage of MQ-7 Gas Sensor - Part 3
- Lecture 44 - Fundamentals of Electrophysiological signals
- Lecture 45 - Fundamentals of EEG Signal
- Lecture 46 - Application of EEG Signal for Detection of Hearing Loss
- Lecture 47 - Closed loop control of temperature using DAQ and LabVIEW
- Lecture 48 - Experimental Set-up of closed loop control of temperature sensor
- Lecture 49 - Introduction to MEMS Simulation using Comsol Multiphysics
- Lecture 50 - Introduction to COMSOL Multiphysics
- Lecture 51 - COMSOL Examples for MEMS Applications
- Lecture 52 - COMSOL Examples for MEMS Applications (Continued...)
- Lecture 53 - Demonstration of Thermal Acuator and Understanding of Application Builder

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

NPTEL Video Course - Electrical Engineering - NOC:Sensors and Actuators

Subject Co-ordinator - Prof. Hardik Jeetendra Pandya

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Sensors - Part 1
Lecture 2 - Sensors - Part 2
Lecture 3 - Sensors - Part 3
Lecture 4 - Sensors - Part 4
Lecture 5 - Sensors - Part 5
Lecture 6 - Recent Microsensors based system
Lecture 7 - Recent Microsensors based system
Lecture 8 - Microfabrication Basics
Lecture 9 - Introduction to cleanroom
Lecture 10 - Cleanroom Protocols
Lecture 11 - Introduction to Cleanroom Equipments
Lecture 12 - Fabrication Process Flow of Microheater and Micromachining
Lecture 13 - Wafer Bonding and PDMS moulding
Lecture 14 - Overview of MEMS based sensors
Lecture 15 - Introduction to Cleanroom Equipments
Lecture 16 - Introduction to Cleanroom Equipments
Lecture 17 - Process Sensor Process Flow, Cell based Diagnosis Device
Lecture 18 - Basics of Patterning and Drug Screening Device
Lecture 19 - MEMS applications in automobile system
Lecture 20 - Arduino Interfacing for Sensors and Actuators
Lecture 21 - Demonstration of DC Motor as an actuator
Lecture 22 - Demonstration of peristaltic pump using Arduino
Lecture 23 - Demonstration of PDMS Patterning
Lecture 24 - Crystal Orientation and Si-SiO₂ interface
Lecture 25 - Surface Profilometry and Physical Vapour Deposition Techniques
Lecture 26 - Introduction to COMSOL Multiphysics and Modelling Examples
Lecture 27 - Demonstration of Thermal Actuators using COMSOL
Lecture 28 - Demonstration of MQ3 Gas sensor using Arduino
Lecture 29 - Photolithography - Part 1

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

- Lecture 30 - Signal Conditioning Circuit for Temperature Sensors
- Lecture 31 - Demonstration of Microheaters in COMSOL Multiphysics
- Lecture 32 - Introduction to Cleanroom facilities for biomedical applications
- Lecture 33 - Physical Deposition Techniques
- Lecture 34 - Demonstration on peristaltic pump in cleanroom
- Lecture 35 - Installation of Oxygen Plasma System
- Lecture 36 - Demonstration of IR Based Sensor using Arduino
- Lecture 37 - Illustration of fabricated Microfluidic Device for biochips with PDMS moulding
- Lecture 38 - Photolithography - Part 2
- Lecture 39 - Photolithography - Part 3
- Lecture 40 - Introduction and Demonstration of Shape Memory Alloy
- Lecture 41 - Applications of Shape Memory Alloy as a light weight actuators
- Lecture 42 - Discussion on Fabricated Sensor with Silicon as Substrate
- Lecture 43 - Discussion and Microscopic Inspection of Fabricated Sensor with Silicon as a Substrate
- Lecture 44 - Tissue Deparaffinization for Biosensors
- Lecture 45 - Clean room guidelines and Cancer Diagnostic tool
- Lecture 46 - Basics of Pressure Sensor and Demonstration using Arduino Microcontroller
- Lecture 47 - Basics of Stepper Motor and Demonstration using Arduino Microcontroller
- Lecture 48 - Microscopic Inspection of Diced wafers and CNT Sensing Layer for fabricated sensor
- Lecture 49 - Process flow for Microcantilever for Mechanical Phenotyping of breast cancer tissues
- Lecture 50 - Applications of microcantilever for Mechanical Phenotyping of breast cancer tissues
- Lecture 51 - Installation and Introduction to Physical Vapour Deposition System
- Lecture 52 - Human Machine Interface for Controlling Deposition System
- Lecture 53 - Flexible MEMS for phenotyping tissue properties - I
- Lecture 54 - Flexible MEMS for phenotyping tissue properties - II
- Lecture 55 - System Demonstration for Physical Vapor Deposition
- Lecture 56 - Introduction to CAD Modelling - I
- Lecture 57 - Introduction to CAD Modelling - II
- Lecture 58 - Biosensors for ETM Phenotyping of breast cancer tissues for better prognosis
- Lecture 59 - Biosensors for Electrothermal sensor
- Lecture 60 - MEMS based sensor for catheter contact force measurement
- Lecture 61 - Microfluidics based Drug Screening
- Lecture 62 - Basic aspects of 3D Printing
- Lecture 63 - 3D Printing Materials and Demonstration of Remote 3D Printing

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

NPTEL Video Course - Electrical Engineering - NOC:Neural Networks for Signal Processing-I

Subject Co-ordinator - Prof. Shayan Srinivasa Garani

Co-ordinating Institute - IISc - Bangalore

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

- Lecture 1 - The human brain
- Lecture 2 - Introduction to Neural Networks
- Lecture 3 - Models of a neuron
- Lecture 4 - Feedback and network architectures
- Lecture 5 - Knowledge representation
- Lecture 6 - Prior information and invariances
- Lecture 7 - Learning processes
- Lecture 8 - Perceptron - 1
- Lecture 9 - Perceptron - 2
- Lecture 10 - Batch perceptron algorithm
- Lecture 11 - Perceptron and Bayes classifier
- Lecture 12 - Linear regression - 1
- Lecture 13 - Linear regression - 2
- Lecture 14 - Linear regression - 3
- Lecture 15 - Logistic regression
- Lecture 16 - Multi-layer perceptron - 1
- Lecture 17 - Multi-layer perceptron - 2
- Lecture 18 - Back propagation - 1
- Lecture 19 - Back propagation - 2
- Lecture 20 - XOR problem
- Lecture 21 - Universal approximation function
- Lecture 22 - Complexity Regularization and Cross validation
- Lecture 23 - Convolutional Neural Networks (CNN)
- Lecture 24 - Cover's Theorem
- Lecture 25 - Multivariate interpolation problem
- Lecture 26 - Radial basis functions (RBF)
- Lecture 27 - Recursive least squares algorithm
- Lecture 28 - Comparison of RBF with MLP
- Lecture 29 - Kernel regression using RBFs

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

- Lecture 30 - Kernel Functions
- Lecture 31 - Basics of constrained optimization
- Lecture 32 - Optimization with equality constraint
- Lecture 33 - Optimization with inequality constraint
- Lecture 34 - Support Vector Machines (SVM)
- Lecture 35 - Optimal hyperplane for linearly separable patterns
- Lecture 36 - Quadratic optimization for finding optimal hyperplane
- Lecture 37 - Optimal hyperplane for non-linearly separable patterns
- Lecture 38 - Inner product kernel and Mercer's theorem
- Lecture 39 - Optimal design of an SVM
- Lecture 40 - μ -insensitive loss function
- Lecture 41 - XOR problem revisited using SVMs
- Lecture 42 - Hilbert Space
- Lecture 43 - Reproducing Kernel Hilbert Space
- Lecture 44 - Representer Theorem
- Lecture 45 - Generalized applicability of the representer theorem
- Lecture 46 - Regularization Theory
- Lecture 47 - Euler-Lagrange Equation
- Lecture 48 - Regularization Networks
- Lecture 49 - Generalized RBF networks
- Lecture 50 - XOR problem revisited using RBF
- Lecture 51 - Structural Risk Minimization
- Lecture 52 - Bias-Variance Dilemma
- Lecture 53 - Estimation of regularization parameters
- Lecture 54 - Basics of L1 regularization
- Lecture 55 - Grafting
- Lecture 56 - Kernel PCA
- Lecture 57 - Hebbian based maximum eigen filter - 1
- Lecture 58 - Hebbian based maximum eigen filter - 2
- Lecture 59 - Hebbian based maximum eigen filter - 3
- Lecture 60 - VC dimension
- Lecture 61 - Autoencoders
- Lecture 62 - Denoising Autoencoders
- Lecture 63 - Demo - Perceptron
- Lecture 64 - Demo - Motivation for CNN
- Lecture 65 - Back propagation in Convolutional Neural Network
- Lecture 66 - Ethics in AI research and coverage summary

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

NPTEL Video Course - Electrical Engineering - NOC:Electronics Equipment Integration and Prototype Building

Subject Co-ordinator - Prof. N.V.Chalapathi Rao

Co-ordinating Institute - IISc - Bangalore

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

- Lecture 1 - Introduction to electronics products
- Lecture 2 - Examples from real life
- Lecture 3 - Common Simulation of flat prismatic parts
- Lecture 4 - Common flat parts enclosures
- Lecture 5 - Real life parts to scale on a graph
- Lecture 6 - Early First steps
- Lecture 7 - Top down, outside to internals
- Lecture 8 - Using a print and fabrication video
- Lecture 9 - Details of displays and keys
- Lecture 10 - Improvement on marking and skill
- Lecture 11 - Mass production in sheet metal
- Lecture 12 - Prototyping of user interfaces for concepts
- Lecture 13 - Stacking of equipment to make a system
- Lecture 14 - Recapitulating a sub system
- Lecture 15 - Off the shelf enclosures and making a user interface
- Lecture 16 - Looking around for concepts and integration
- Lecture 17 - Representation on paper
- Lecture 18 - Example features of surfaces and solids
- Lecture 19 - Simple and curved surfaces
- Lecture 20 - Describing inclined surfaces
- Lecture 21 - Basics of engineering Drawing
- Lecture 22 - Introduction to sizing and fits
- Lecture 23 - Practical mechanical assemblies
- Lecture 24 - Analogous Mechanical - Electronics detailing
- Lecture 25 - Solid modelling
- Lecture 26 - Importance of dimensioning
- Lecture 27 - Ease of editing redesign
- Lecture 28 - Dimensioning of electronics components
- Lecture 29 - 2D flat representation

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

- Lecture 30 - Electronics to Mechanical interfacing
- Lecture 31 - Complexity of 3D assemblies with wiring
- Lecture 32 - Illustrative simple design
- Lecture 33 - Practical detailing
- Lecture 34 - Rendered on screen
- Lecture 35 - Fastenings and hardware
- Lecture 36 - Fastener representation, detailing
- Lecture 37 - Practical detailing.
- Lecture 38 - Recapitulation, context of course
- Lecture 39 - Low cost is the key

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

NPTEL Video Course - Electrical Engineering - NOC:Design and Simulation of Power Conversion using Open Source

Subject Co-ordinator - Prof. L. Umanand

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Getting started with NgSpice
Lecture 2 - Refractoring the .cir
Lecture 3 - Sub-circuits
Lecture 4 - gschem and netlist generation
Lecture 5 - Setting up for simulation with Octave
Lecture 6 - Getting started with equation based simulation
Lecture 7 - Resuming a simulation in Octave
Lecture 8 - PV cell model - review
Lecture 9 - PV cell characteristic - review
Lecture 10 - PV cell - symbol and subcircuit
Lecture 11 - Rectifier-capacitor filter - operation review
Lecture 12 - Rectifier-capacitor filter - NgSpice simulation
Lecture 13 - Rectifier-capacitor filter with non-idealities
Lecture 14 - 3 phase Rectifier-capacitor filter
Lecture 15 - Equation based simulation in Octave
Lecture 16 - Passive power factor improvement - review
Lecture 17 - Passive power factor circuit in NgSpice
Lecture 18 - Buck converter - review
Lecture 19 - Buck converter - NgSpice
Lecture 20 - Boost converter - review
Lecture 21 - Boost converter - NgSpice
Lecture 22 - Buck-boost converter - review
Lecture 23 - Buck-boost converter - NgSpice
Lecture 24 - Equation based simulation of converters
Lecture 25 - Forward Converter - review
Lecture 26 - Forward Converter simulation
Lecture 27 - Understanding Core flux reset
Lecture 28 - Core flux reset - simulation
Lecture 29 - Flyback converter - review

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

- Lecture 30 - Flyback converter - simulation
- Lecture 31 - Pushpull converter - review
- Lecture 32 - Pushpull converter - simulation
- Lecture 33 - Half bridge converter - review
- Lecture 34 - Half bridge converter - simulation
- Lecture 35 - Full bridge converter - review
- Lecture 36 - Full bridge converter - simulation
- Lecture 37 - Close loop operation
- Lecture 38 - Close loop with feed forward control
- Lecture 39 - NgSpice simulation of close loop control
- Lecture 40 - Battery charging with current control
- Lecture 41 - Slope compensation for current control
- Lecture 42 - NgSpice simulation of battery charging
- Lecture 43 - Single phase PWM for single phase inverter
- Lecture 44 - NgSpice simulation of single phase PWM
- Lecture 45 - 2-axes theory for 3-phase systems
- Lecture 46 - Transformations for 2 and 3 axes systems
- Lecture 47 - Maximum power point tracking - NgSpice
- Lecture 48 - Space vector PWM - digital
- Lecture 49 - Space vector PWM - analog
- Lecture 50 - SVPWM analog - NgSpice simulation
- Lecture 51 - Induction motor model
- Lecture 52 - Induction motor simulation in Octave
- Lecture 53 - V/F control of induction motor - NgSpice

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

NPTEL Video Course - Electrical Engineering - NOC: Introductory Neuroscience and Neuro-Instrumentation

Subject Co-ordinator - Prof. Mahesh Jayachandra

Co-ordinating Institute - IISc - Bangalore

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

- Lecture 1 - Cellular (Microscopic) Structure of the Central Nervous System (CNS)
- Lecture 2 - Anatomical (Macroscopic) structure of the CNS
- Lecture 3 - Introduction to Cleanroom and IC Fabrication Techniques
- Lecture 4 - Introduction to EEG applications for Hearing Loss
- Lecture 5 - Electrophysiological Recordings
- Lecture 6 - Neocortical Circuits
- Lecture 7 - The resting Membrane Potential
- Lecture 8 - Applications of MEMS Fabrication Technologies
- Lecture 9 - Fundamentals of biopotentials and applications
- Lecture 10 - Fundamentals of EEG and applications
- Lecture 11 - The Action Potential (1)
- Lecture 12 - The Action Potential (2)
- Lecture 13 - Axonology, Neuronal Biophysics (1)
- Lecture 14 - Axonology, Neuronal Biophysics (2)
- Lecture 15 - Experimental Setup for EEG Recording
- Lecture 16 - Introduction to Cleanroom Protocols and Demonstration of Gowning Procedure
- Lecture 17 - Electromagnetic Stimulation of the Brain (1)
- Lecture 18 - Electromagnetic Stimulation of the Brain (2)
- Lecture 19 - Introduction to Event Related Potentials
- Lecture 20 - Introduction to 3D Printing
- Lecture 21 - 3D Printing
- Lecture 22 - Introduction to Event Related Potentials (2)
- Lecture 23 - Different Event Related Potentials (1)
- Lecture 24 - Different Event Related Potentials (2)
- Lecture 25 - Introduction to Silicone Wafer Processing Techniques
- Lecture 26 - Basics of Silicone Dioxide
- Lecture 27 - Inverse Problem, EEG source localization (1)
- Lecture 28 - Inverse Problem, EEG source localization (2)
- Lecture 29 - Introduction to Brain Computer Interfaces

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

- Lecture 30 - Signal Conditioning Circuit for EEG Bioamplifiers
- Lecture 31 - Basics of BCI Experimentation
- Lecture 32 - Different Brain Computer Interfaces
- Lecture 33 - Introduction to EEGLAB, ERPLAB and AEP Demonstration (1)
- Lecture 34 - Introduction to EEGLAB, ERPLAB and AEP Demonstration (2)
- Lecture 35 - Introduction to Photolithography
- Lecture 36 - Basics of BCI Experimentation
- Lecture 37 - MMN Demonstration with EEGLAB and ERPLAB (1)
- Lecture 38 - MMN Demonstration with EEGLAB and ERPLAB (2)
- Lecture 39 - Introduction to Photolithography (2)
- Lecture 40 - Basics of Instrumentation Amplifier and Online Simulation
- Lecture 41 - Basics of BCI Experimentation
- Lecture 42 - P300 Demonstration with EEGLAB/ERPLAB (1)
- Lecture 43 - P300 Demonstration with EEGLAB/ERPLAB (2)
- Lecture 44 - Wavelet Analysis with VEP (1)
- Lecture 45 - Details of Lithography, E-beam Lithography and Mask Aligner
- Lecture 46 - Basics of BCI Experimentation
- Lecture 47 - Wavelet Analysis with VEP (2)
- Lecture 48 - Demonstration
- Lecture 49 - Demonstration
- Lecture 50 - Photoresist (SU-8) and soft lithography
- Lecture 51 - Physical Vapour Deposition
- Lecture 52 - Introduction to Epilepsy and Classification
- Lecture 53 - Epileptogenesis
- Lecture 54 - Demonstration
- Lecture 55 - Demonstration
- Lecture 56 - Demonstration
- Lecture 57 - Demonstration
- Lecture 58 - Physical Vapour Deposition
- Lecture 59 - Physical Vapour Deposition
- Lecture 60 - Recent Trends
- Lecture 61 - Demonstration
- Lecture 62 - Basics of EEG, ERP and acquisition
- Lecture 63 - Photolithography with example
- Lecture 64 - Stress Tissue Analysis using COMSOL Multiphysics
- Lecture 65 - Recent Trends

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

NPTEL Video Course - Electrical Engineering - NOC:Information Theory

Subject Co-ordinator - Prof. Himanshu Tyagi

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - What is information?
Lecture 2 - How to model uncertainty?
Lecture 3 - Basic concepts of probability
Lecture 4 - Estimates of random variables
Lecture 5 - Limit theorems
Lecture 6 - Review
Lecture 7 - Source model
Lecture 8 - Motivating examples
Lecture 9 - A compression problem
Lecture 10 - Shannon entropy
Lecture 11 - Random hash
Lecture 12 - Review 2
Lecture 13 - Uncertainty and randomness
Lecture 14 - Total variation distance
Lecture 15 - Generating almost random bits
Lecture 16 - Generating samples from a distribution using uniform randomness
Lecture 17 - Typical sets and entropy
Lecture 18 - Review 3
Lecture 19 - Hypothesis testing and estimation
Lecture 20 - Examples
Lecture 21 - The log-likelihood ratio test
Lecture 22 - Kullback-Leibler divergence and Stein's lemma
Lecture 23 - Properties of KL divergence
Lecture 24 - Review 4
Lecture 25 - Information per coin-toss
Lecture 26 - Multiple hypothesis testing
Lecture 27 - Error analysis of multiple hypothesis testing
Lecture 28 - Mutual information
Lecture 29 - Fano's inequality

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

- Lecture 30 - Measures of information
- Lecture 31 - Chain rules
- Lecture 32 - Shape of measures of information
- Lecture 33 - Data processing inequality
- Lecture 34 - Midyear Review
- Lecture 35 - Proof of Fano's inequality
- Lecture 36 - Variational formulae
- Lecture 37 - Capacity as information radius
- Lecture 38 - Proof of Pinsker's inequality
- Lecture 39 - Continuity of entropy
- Lecture 40 - Lower bound for compression
- Lecture 41 - Lower bound for hypothesis testing
- Lecture 42 - Review 7
- Lecture 43 - Lower bound for random number generation
- Lecture 44 - Strong converse
- Lecture 45 - Lower bound for minmax statistical estimation
- Lecture 46 - Variable length source codes
- Lecture 47 - Review 8
- Lecture 48 - Kraft's inequality
- Lecture 49 - Shannon code
- Lecture 50 - Huffman code
- Lecture 51 - Minmax Redundancy
- Lecture 52 - Type based universal compression
- Lecture 53 - Review 9
- Lecture 54 - Arithmetic code
- Lecture 55 - Online probability assignment
- Lecture 56 - Compression of databases
- Lecture 57 - Compression of databases
- Lecture 58 - Repetition code
- Lecture 59 - Channel capacity
- Lecture 60 - Sphere packing bound for BSC
- Lecture 61 - Random coding bound for BSC
- Lecture 62 - Random coding bound for general channel
- Lecture 63 - Review 11
- Lecture 64 - Converse proof for channel coding theorem
- Lecture 65 - Additive Gaussian Noise channel
- Lecture 66 - Mutual information and differential entropy
- Lecture 67 - Channel coding theorem for Gaussian channel
- Lecture 68 - Parallel channels and water-filling

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

NPTEL Video Course - Electrical Engineering - NOC:Photonic Integrated Circuit

Subject Co-ordinator - Prof. Shankar Kumar Selvaraja

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Photonic integrated circuits course introduction
Lecture 2 - Wave optics review
Lecture 3 - Electromagnetic theory review - 1
Lecture 4 - Electromagnetic theory review - 2
Lecture 5 - Photonic integrated circuits: an introduction
Lecture 6 - Photonic integrated circuits evolution
Lecture 7 - Photonic integrated circuit components - 1
Lecture 8 - Photonic integrated circuit components - 2
Lecture 9 - Dispersion
Lecture 10 - Phase velocity and Group velocity
Lecture 11 - Anisotropic medium and reciprocity
Lecture 12 - Polarisation in anisotropic medium
Lecture 13 - Optical axes
Lecture 14 - Waveguide structure
Lecture 15 - Waveguide modes - 1
Lecture 16 - Waveguide modes - 2
Lecture 17 - Field Equation
Lecture 18 - Guided modes in symmetric slab waveguides
Lecture 19 - Waveguide design - Boundary value formulation
Lecture 20 - Waveguide design - BVP solution
Lecture 21 - Waveguide design - Perturbation approach
Lecture 22 - Waveguide design - Effective Index method
Lecture 23 - Coupled mode theory - 1
Lecture 24 - Coupled mode theory - 2
Lecture 25 - Two-mode coupling
Lecture 26 - Co and counter propagating mode coupling
Lecture 27 - Phase matching
Lecture 28 - Directional coupler
Lecture 29 - Y-splitter

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

- Lecture 30 - Multi-Mode Interference coupler
- Lecture 31 - MZI
- Lecture 32 - Micro-Ring Resonators
- Lecture 33 - Light-chip coupling
- Lecture 34 - End-fire coupling
- Lecture 35 - Light Modulator introduction
- Lecture 36 - Electro-Optic effect
- Lecture 37 - Waveguide modulator
- Lecture 38 - Optical transition in semiconductors
- Lecture 39 - Transition rates
- Lecture 40 - Absorption and gain in semiconductors
- Lecture 41 - Semiconductor Light Emitting Diodes
- Lecture 42 - Semiconductor Light Emitting Diodes (Continued...)
- Lecture 43 - Semiconductor Lasers
- Lecture 44 - Semiconductor photodetector
- Lecture 45 - Semiconductor photodetector noise
- Lecture 46 - Fabrication process - 1
- Lecture 47 - Fabrication process - 2
- Lecture 48 - PIC technology - Building a simple circuit
- Lecture 49 - PIC for communication
- Lecture 50 - PIC for sensing - 1
- Lecture 51 - PIC for sensing - 2

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

NPTEL Video Course - Electrical Engineering - NOC:Design for Internet of Things (2021)

Subject Co-ordinator - Prof. T V Prabhakar

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Introduction and Definition of IoT
Lecture 2 - Location, Applications, and Power
Lecture 3 - Challenges - Part 1
Lecture 4 - Challenges - Part 2
Lecture 5 - Challenges - Part 3
Lecture 6 - Challenges - Part 4
Lecture 7 - Unique ID
Lecture 8 - Introduction to RFID
Lecture 9 - RFID DEMO
Lecture 10 - RFID Theory - 1
Lecture 11 - RFID Theory - 2
Lecture 12 - RFID Theory - 3
Lecture 13 - Energy harvesting - 1
Lecture 14 - Energy harvesting - 2
Lecture 15 - Energy harvesting - 3
Lecture 16 - Power management systems - 1
Lecture 17 - Power management systems - 2
Lecture 18 - Battery life calculation
Lecture 19 - Introduction to System Design for low power
Lecture 20 - LDO - 1
Lecture 21 - LDO - 2
Lecture 22 - LDO - 3
Lecture 23 - Buck converter - 1
Lecture 24 - Buck converter - 2
Lecture 25 - Lab experiment
Lecture 26 - Introduction to Sensors and Actuators
Lecture 27 - Sensors
Lecture 28 - Actuators
Lecture 29 - Case study on Sensing and Actuation

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

- Lecture 30 - Introduction to low power software
- Lecture 31 - ADC driver design and development
- Lecture 32 - Power optimization
- Lecture 33 - Introduction to protocols
- Lecture 34 - MQTT - 1
- Lecture 35 - MQTT - 2
- Lecture 36 - COAP - 1
- Lecture 37 - COAP - 2
- Lecture 38 - Websockets
- Lecture 39 - Introduction to low power wireless - 1
- Lecture 40 - Introduction to low power wireless - 2
- Lecture 41 - Bluetooth low energy (BLE) - 1
- Lecture 42 - Bluetooth low energy (BLE) - 2
- Lecture 43 - IEEE 802.15.4e - 1
- Lecture 44 - IEEE 802.15.4e - 2
- Lecture 45 - IEEE 802.15.4e - 3
- Lecture 46 - Wi-Fi
- Lecture 47 - Introduction to Wide area technologies
- Lecture 48 - LoRa - 1
- Lecture 49 - LoRa - 2
- Lecture 50 - NBIoT, LTE-M
- Lecture 51 - BLE mesh technology
- Lecture 52 - Course conclusion

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

NPTEL Video Course - Electrical Engineering - NOC:Mathematical Aspects of Biomedical Electronic System Design

Subject Co-ordinator - Prof. Chandramani Singh

Co-ordinating Institute - IISc - Bangalore

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

- Lecture 1 - Introduction to Signals and Systems
- Lecture 2 - MATLAB Demo on Signal Types and Moving Average System
- Lecture 3 - Microfabrication Basics for Biomedical Systems
- Lecture 4 - Fluid Flow in Body Lumen
- Lecture 5 - Fourier Series
- Lecture 6 - Continuous Time Fourier Transform
- Lecture 7 - Biological Tissues as disordered systems
- Lecture 8 - Introduction to electrical equivalent circuit models for biological systems
- Lecture 9 - Discrete Time Fourier Transform and Sampling
- Lecture 10 - Percolation Theory and applications in biological tissues
- Lecture 11 - Electrical properties of cells and tissues revisited: Examples and Applications
- Lecture 12 - Linear Algebra - I
- Lecture 13 - MATLAB Live Demo on Moving average and signal acquisition
- Lecture 14 - Oxidation and Thickness Characterization
- Lecture 15 - Basics of Photolithography with Process flow examples
- Lecture 16 - Linear Algebra - II
- Lecture 17 - Introduction to Biomedical Optics
- Lecture 18 - Optical Properties of Tissues and Mathematical modelling
- Lecture 19 - System of Linear Equations
- Lecture 20 - Scaling Laws
- Lecture 21 - Thermal Properties of a tissue
- Lecture 22 - Introduction to Probability
- Lecture 23 - Tissue Electrode Interface
- Lecture 24 - Thermal Properties of a tissue and cells
- Lecture 25 - Probability: Random Variables and CDF
- Lecture 26 - Basics of Silicon, Silicon Dioxide for Microfabrication Process
- Lecture 27 - Mechanical Properties of human brain tissues and modelling
- Lecture 28 - Probability: Important measures and generating functions
- Lecture 29 - Near Infrared Spectroscopy and Ultrasound Techniques

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

- Lecture 30 - Thermal Properties of Tissues and Modelling
- Lecture 31 - Multisim Simulations for Biomedical Signal Conditioning Circuit
- Lecture 32 - Cleanroom Entry Demonstration
- Lecture 33 - Spin Coating Demonstration
- Lecture 34 - Common Random Variables
- Lecture 35 - Introduction to signal Conditioning circuits for biomedical devices
- Lecture 36 - Signal Conditioning circuits units and design
- Lecture 37 - E Beam Evaporation System Demonstration
- Lecture 38 - Joint and Marginal Probability Distribution
- Lecture 39 - Temperature Sensor Interfacing Analysis
- Lecture 40 - Demo of Temperature data acquisition system using LabVIEW
- Lecture 41 - Recent Trends in Biomedical Electronic System Design
- Lecture 42 - Aspects of Biomedical Electronics System Design

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

NPTEL Video Course - Electrical Engineering - NOC:Concentration Inequalities

Subject Co-ordinator - Prof. Himanshu Tyagi

Co-ordinating Institute - IISc - Bangalore

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

- Lecture 1 - Why study concentration inequalities?
- Lecture 2 - Chernoff bound
- Lecture 3 - Examples of Chernoff bound for common distributions
- Lecture 4 - Hoeffding and Bernstein inequalities
- Lecture 5 - Azuma and McDiarmid inequalities
- Lecture 6 - Bounding variance using the Efron-Stein inequality
- Lecture 7 - The Gaussian-Poincare inequality
- Lecture 8 - Tail bounds using the Efron-Stein inequality
- Lecture 9 - Herbst's argument and the entropy method
- Lecture 10 - Log-Sobolev inequalities
- Lecture 11 - Binary and Gaussian Log-Sobolev inequalities and concentration
- Lecture 12 - Variational formulae for Kullback-Leibler and Bregman Divergence
- Lecture 13 - A modified log-Sobolev inequality and concentration
- Lecture 14 - Introduction to the transportation method for showing concentration bounds
- Lecture 15 - Transportation lemma and a proof of McDiarmid's inequality using the transportation method
- Lecture 16 - Concentration bounds for functions beyond bounded difference using transportation method
- Lecture 17 - Marton's conditional transportation cost inequality
- Lecture 18 - Isoperimetry and concentration of measure
- Lecture 19 - Isoperimetry and bounded difference
- Lecture 20 - Equivalence of Stam's inequality and log Sobolev inequality
- Lecture 21 - An information theoretic proof of log Sobolev inequality
- Lecture 22 - Hypercontractivity and strong data processing inequality for Rényi divergence
- Lecture 23 - An information theoretic characterization of hypercontractivity
- Lecture 24 - Equivalence of Gaussian hypercontractivity and Gaussian log Sobolev inequality
- Lecture 25 - Uniform deviation bounds for random walks and the law of the iterated logarithm
- Lecture 26 - Self normalized concentration inequalities and application to online regression

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

NPTEL Video Course - Electrical Engineering - NOC:Real-Time Digital Signal Processing

Subject Co-ordinator - Prof. Rathna G N

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Introduction
Lecture 2 - Basics of Signal Processing
Lecture 3 - Lab - CCS
Lecture 4 - Number System
Lecture 5 - Architecture - 1
Lecture 6 - Architecture - 2
Lecture 7 - Real-time Constraints
Lecture 8 - FIR - Filters
Lecture 9 - Pipelining and Parallel Processing for Low Power Applications - I
Lecture 10 - Pipelining and Parallel Processing for Low Power Applications - II
Lecture 11 - Lab: Sine Generation
Lecture 12 - IIR Filters - 1
Lecture 13 - IIR Filters - 2
Lecture 14 - Lab: Sine Generation, FIR and IIR
Lecture 15 - Lab 3 IIR Filter as Resonator
Lecture 16 - Lab 4 Use of FDA tool box to generate co-efficients
Lecture 17 - Lab: Real-Time Audio Output through Sine Generation
Lecture 18 - IIR Filters 4
Lecture 19 - Lab: FIR Filter in generation of music
Lecture 20 - Lab: Real-Time Audio Output through FIR Filter
Lecture 21 - DFT, DTFT, twiddle factors, properties, circular convolution and examples
Lecture 22 - Complexity of Filtering and the FFT
Lecture 23 - Lab: Filtering Using FFT
Lecture 24 - Lab: FFT in CCS
Lecture 25 - FFT - 1
Lecture 26 - FFT - 2
Lecture 27 - FFT - 3
Lecture 28 - Overlap - Add
Lecture 29 - Overlap Save Method

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

- Lecture 30 - Lab: Overlap Add and Save Method using MATLAB
- Lecture 31 - Correlation
- Lecture 32 - Lab: Different ways of implementing FFT in CCS
- Lecture 33 - Adaptive Filter
- Lecture 34 - Lab: LMS Algorithm in MATLAB
- Lecture 35 - LMS Algorithm
- Lecture 36 - Lab: Error surface and error contour
- Lecture 37 - Adaptive Filter Applications
- Lecture 38 - Lab: Application of adaptive filter in MATLAB
- Lecture 39 - Adaptive Echo Cancellation
- Lecture 40 - Lab: Application of adaptive filter in CCS, Echo, scrambling and graphic equalizer in MATLAB
- Lecture 41 - Graphic Equalizer
- Lecture 42 - Lab: Adaptive filters (MATLAB)
- Lecture 43 - Speech Coding - I
- Lecture 44 - Speech Coding - II
- Lecture 45 - Speech Coding - III
- Lecture 46 - Lab: LPC for speech synthesis
- Lecture 47 - Discrete Cosine Transform - 1
- Lecture 48 - Discrete Cosine Transform - 2
- Lecture 49 - Discrete Cosine Transform - 3
- Lecture 50 - Discrete Cosine Transform - 4
- Lecture 51 - Lab: Adaptive filters (CCS) - 1
- Lecture 52 - Lab: Adaptive filters (CCS) - 2
- Lecture 53 - Lab: Discrete Cosine Transformation
- Lecture 54 - Lab: Echogeneration
- Lecture 55 - Lab: Using JiDSP
- Lecture 56 - Summary

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

NPTEL Video Course - Electrical Engineering - NOC:Advanced Neural Science for Engineers

Subject Co-ordinator - Prof. Vikas V

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Introduction to Biomedical Research
Lecture 2 - Fabricated Biosensors and Systems
Lecture 3 - Lab 1 - Introduction to the Fabrication lab
Lecture 4 - Lab 2 - Cleanroom and Gowning Protocol
Lecture 5 - Developed Systems at a glance
Lecture 6 - Silicon and Silicon Dioxide
Lecture 7 - Piranha Cleaning of Silicon Wafer
Lecture 8 - Polyimide Coating on Silicon Wafer
Lecture 9 - Thermal Oxidation of Silicon and Thickness measurement
Lecture 10 - Fundamental of Physical Vapour Deposition
Lecture 11 - Lab 3 - Lithography: Demonstration
Lecture 12 - Sputtering
Lecture 13 - Basics of Photolithography
Lecture 14 - Lab 4 - E-Beam Evaporation: Demo
Lecture 15 - Photolithography - II
Lecture 16 - Photolithography - III
Lecture 17 - Lab 5 - E-Beam Evaporation: Demo - II
Lecture 18 - Lab 6 - Liftoff Demonstration
Lecture 19 - Lithography Optics - I
Lecture 20 - Soft Lithography - I
Lecture 21 - Soft Lithography - II
Lecture 22 - Lab 7 - Sputtering Demonstration - I
Lecture 23 - Lab 8 - Sputtering Demonstration - II
Lecture 24 - Thin Film Deposition: CVD - I
Lecture 25 - Thin Film Deposition: CVD - II
Lecture 26 - Lithography Optics - II
Lecture 27 - Role of Fabrication in Neural Engineering
Lecture 28 - Micromachining
Lecture 29 - Overview of Experimental Neurophysiology

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- Lecture 30 - Fabrication of Neural Implants
- Lecture 31 - Introduction to Packaging for Neural Systems
- Lecture 32 - Lab 9 - 3D Printing for neural devices
- Lecture 33 - Introduction to Biopotentials
- Lecture 34 - EEG: Introduction, Demonstration and Applications
- Lecture 35 - Neural Implants: Fabrication and Characterization
- Lecture 36 - Design of Wireless Biphasic Pulse Generator
- Lecture 37 - Basics of EEG/ERP Experimental Design
- Lecture 38 - Micromachining and Etching
- Lecture 39 - Epileptic Seizure Detection and Classification
- Lecture 40 - Newborn Hearing Screening - I
- Lecture 41 - Newborn Hearing Screening - II
- Lecture 42 - Applications of EEG/ERP Experimental Design
- Lecture 43 - Flexible MEA for Electrocorticography Signal Acquisition
- Lecture 44 - Flexible biodegradable MEAs
- Lecture 45 - Microneedle Electrode Array
- Lecture 46 - Neurosurgery-based MEA Implantation - I
- Lecture 47 - Neurosurgery-based MEA Implantation - II
- Lecture 48 - Neurosurgery-based MEA Implantation - III
- Lecture 49 - Neurosurgery-based MEA Implantation - IV
- Lecture 50 - Deep Brain Stimulation/Recording for Parkinson's - I
- Lecture 51 - Deep Brain Stimulation/Recording for Parkinson's - II
- Lecture 52 - Computational Neuroscience Fundamentals
- Lecture 53 - Mathematical Analysis in Neural Science
- Lecture 54 - Neuroanatomy for Neural Engineering

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

NPTEL Video Course - Electrical Engineering - NOC:Design of Electric Motors

Subject Co-ordinator - Dr. Prathap Reddy

Co-ordinating Institute - IISc - Bangalore

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

- Lecture 1 - History Prospect of Electrical Machines
- Lecture 2 - Electric Fields
- Lecture 3 - Magnetic Fields - 1
- Lecture 4 - Magnetic Fields - 2
- Lecture 5 - Electric and Magnetic Circuits Interface
- Lecture 6 - Magnetic Materials and Concepts of BH Curves
- Lecture 7 - Analysis of Magnetic Circuits With and Without Air Gaps
- Lecture 8 - Example Problems of Magnetic Circuits
- Lecture 9 - Magnetic Circuits with Multiple Windings and Permanent Magnets
- Lecture 10 - Force Equations in Electromechanical Systems - 1
- Lecture 11 - Force Equations in Electromechanical Systems - 2
- Lecture 12 - Design of Electromagnetic Systems
- Lecture 13 - Realization of Electrical Machines - 1
- Lecture 14 - Realization of Electrical Machines - 2
- Lecture 15 - Magnetic Fields in DC Machines - 1
- Lecture 16 - Magnetic Fields in AC Machines - 1
- Lecture 17 - Magnetic Fields in AC Machines - 2
- Lecture 18 - Magnetic Fields in AC Machines - 3
- Lecture 19 - MMFDistribution ofAC Machines
- Lecture 20 - Basics of Electrical Machine Windings
- Lecture 21 - Stator winding design-single layer winding
- Lecture 22 - Stator winding design-double layer winding
- Lecture 23 - Stator Winding Design-Fractional Slot Double Layer Winding
- Lecture 24 - Variable Pole Machine Stator Winding Design (Pole-Phase Modulation) - 1
- Lecture 25 - Variable Pole Machine Stator Winding Design (Pole-Phase Modulation) - 2
- Lecture 26 - Importance of Motor Design and Standards of Electric Motors
- Lecture 27 - Electric Machine Sizing Equations-Output Power and Volume (D2L) Product Equation
- Lecture 28 - Lab Session on Re-winding of Induction Motor (Example: Double Layer Winding)
- Lecture 29 - The Figure of Merits for Electric Motors and Aspect Ratio to Decouple the D2L Product

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

- Lecture 30 - Electric Machine Sizing Equations-Output Power Equation in terms of D3L Product - 1
- Lecture 31 - Electric Machine Sizing Equations-Output Power Equation in terms of D3L Product - 2
- Lecture 32 - Analysis of Copper Function and Output Function w r t the Electric Machine D3L Product Eqn
- Lecture 33 - Example Problems on Output Power Equation in terms of D3L Product
- Lecture 34 - Electric Machine Sizing Equations-Output Power Equation in terms of D the power 2.5 L Product
- Lecture 35 - Design Procedure of an Electric Machine
- Lecture 36 - Name Plate Details and Datasheets of Induction Motor
- Lecture 37 - Design of Induction Machine- Stator Design - 1 (Stator Core design)
- Lecture 38 - Design of Induction Machine- Stator Design - 2 (Stator Winding Design)
- Lecture 39 - Design of Induction Machine- Stator Design - 3 (Stator Slot Geometry)
- Lecture 40 - Design of Induction Machine- Rotor Design - 1 (Rotor Slots Selection)
- Lecture 41 - Design of Induction Machine- Rotor Design - 2 (Rotor MMF and Bar Currents)
- Lecture 42 - Design of Induction Machine- Rotor Design - 3 (Rotor Slot Geometry)
- Lecture 43 - Design of Induction Machine- Rotor Design - 4 (Skewing of Rotor)
- Lecture 44 - Design of Induction Machine- Rotor Design - 4 (Resistance of Rotor Winding)
- Lecture 45 - Carter's Coefficient of Electrical Machines
- Lecture 46 - Effective Length Equations of the Machine Core with Different Stator and Rotor Lengths
- Lecture 47 - Stator MMF and Magnetizing Current Equations of Induction Machine
- Lecture 48 - Magnetizing Inductance of Induction Machine
- Lecture 49 - Stator and Rotor Leakage Inductances of Induction Machine
- Lecture 50 - Equivalent Circuit Parameters of Induction Machine
- Lecture 51 - Loss Calculation of Induction Machine - 1
- Lecture 52 - Loss Calculation of Induction Machine - 2 and Performance Parameters of Induction Motor
- Lecture 53 - Switched Reluctance Machine Sizing Equations-Output Power and Volume (D2L) Product Equation
- Lecture 54 - The Figure of Merits for SRM and Example Problem on Output Power Equation i t f D2L Product
- Lecture 55 - Design of Switched Reluctance Machine: Stator Design - 1
- Lecture 56 - Design of Switched Reluctance Machine: Stator Design - 2 and Rotor Design
- Lecture 57 - Procedure for Calculation of SRM Inductance: Aligned Inductance - 1
- Lecture 58 - Calculation of SRM Inductance: Aligned Inductance - 2
- Lecture 59 - Efficiency and Loss Calculation of SRM
- Lecture 60 - Importance of Thermal Design and Thermal Limits for Electrical Machines
- Lecture 61 - Electric and Thermal Circuits Interface
- Lecture 62 - Heat Transfer Methods and Basic Equations for Thermal Resistance
- Lecture 63 - Heat Flow in Electrical Machines
- Lecture 64 - Cooling Methods and Standards for Electrical Machines
- Lecture 65 - Basics of Thermal Equivalent Circuits
- Lecture 66 - Thermal Equivalent Circuit - 1
- Lecture 67 - Thermal Equivalent Circuit - 2

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NPTEL Video Course - Electrical Engineering - NOC:Basics of Semiconductor Microwave Devices

Subject Co-ordinator - Prof Digbijoy N Nath

Co-ordinating Institute - IISc - Bangalore

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

- Lecture 1 - An Introduction to the course and outline of the course
- Lecture 2 - Historical overview of the development of microwave devices
- Lecture 3 - Applications of semiconductor microwave devices
- Lecture 4 - Applications of semiconductor microwave devices (Continued...)
- Lecture 5 - Heterojunction device physics
- Lecture 6 - Heterojunction device physics (Continued...) and III-nitrides
- Lecture 7 - III-nitrides and polarization
- Lecture 8 - III-nitride high electron mobility transistors
- Lecture 9 - Varactors and Schottky multipliers
- Lecture 10 - Varactors and Schottky multipliers (Continued...)
- Lecture 11 - Diodes for microwave applications
- Lecture 12 - IMPATT diode
- Lecture 13 - Tunnel diodes and Introduction to Gunn diodes
- Lecture 14 - Gunn diode and its modes
- Lecture 15 - Introduction to MESFETs
- Lecture 16 - Advanced concepts of GaAs MESFETs
- Lecture 17 - GaAs MESFET fabrication and practical aspects
- Lecture 18 - Practical aspects of FET design and small-signal model
- Lecture 19 - GaAs MESFETs: cut-off frequency and aspects of power devices
- Lecture 20 - GaAs MESFETs for power amplifiers
- Lecture 21 - Modulation doping in compound semiconductors
- Lecture 22 - Band diagram of MODFETs/HEMTs
- Lecture 23 - Design issues and methodology for microwave HEMTs
- Lecture 24 - Small-signal model and noise in HEMTs
- Lecture 25 - The concept of pseudomorphic or pHEMTs
- Lecture 26 - Multi-finger HEMTs
- Lecture 27 - pHEMTs for low noise and introduction to InP HEMT
- Lecture 28 - InP HEMTs for power and the concept of metamorphic HEMTs
- Lecture 29 - AlGaIn/GaN HEMT: applications, structure, substrates and FOM

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- Lecture 30 - AlGa_N/Ga_N HEMT: device basics, current collapse and passivation
- Lecture 31 - AlGa_N/Ga_N HEMT: gate process, field-plate and trade-offs in design
- Lecture 32 - AlGa_N/Ga_N HEMT: Practical aspects and commercial HEMTs
- Lecture 33 - Ga_N RF HEMT on eval board, and emerging topics of research
- Lecture 34 - Linearity in Ga_N HEMTs - A device perspective
- Lecture 35 - Nanoscale MOSFETs and short channel effects
- Lecture 36 - Parasitic resistances and capacitances in nanoscale MOSFETs
- Lecture 37 - RF MOSFET Layout and RF Silicon-on-insulator
- Lecture 38 - Noise in MOSFETs and Introduction to LDMOS
- Lecture 39 - Working of LDMOS and VDMOS
- Lecture 40 - LDMOS: Parasitics, and the concept of RESURF
- Lecture 41 - LDMOS: HCI, snapback, finger layout and some aspects of commercial devices
- Lecture 42 - BJT: common base and common emitter from the device point of view
- Lecture 43 - BJT: Kirk effect, Ebers-Moll model and base transit time
- Lecture 44 - BJT: small-signal model, gain and cut-off frequency
- Lecture 45 - BJT: Emitter and base designs and drift transistor
- Lecture 46 - Collector design in modern BJT and Introduction to HBTs
- Lecture 47 - HBT: base current and collapse of the current gain
- Lecture 48 - High-frequency HBT and Introduction to SiGe HBT
- Lecture 49 - SiGe HBT: various resistances and capacitances, scaling and aspects of BiCMOS
- Lecture 50 - Basics of microwave: transmission line theory
- Lecture 51 - Waveguides, T-lines and introduction to 2-port networks
- Lecture 52 - S-parameters and the basics of Smith Chart
- Lecture 53 - Smith chart and matching
- Lecture 54 - Impedance matching using Smith Chart and stub line
- Lecture 55 - Passives in microwave circuits
- Lecture 56 - Inductors in microwave circuits
- Lecture 57 - More on passive elements in microwave circuits
- Lecture 58 - On-wafer measurement and S-parameters
- Lecture 59 - On-wafer de-embedding
- Lecture 60 - On-wafer and fixture-based measurements and calibration
- Lecture 61 - More on fixtures and basic transistor concepts for power amplifiers