

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

NPTEL Video Course - Mathematics - Advanced Engineering Mathematics

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Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Review Groups, Fields and Matrices
- Lecture 2 - Vector Spaces, Subspaces, Linearly Dependent/Independent of Vectors
- Lecture 3 - Basis, Dimension, Rank and Matrix Inverse
- Lecture 4 - Linear Transformation, Isomorphism and Matrix Representation
- Lecture 5 - System of Linear Equations, Eigenvalues and Eigenvectors
- Lecture 6 - Method to Find Eigenvalues and Eigenvectors, Diagonalization of Matrices
- Lecture 7 - Jordan Canonical Form, Cayley Hamilton Theorem
- Lecture 8 - Inner Product Spaces, Cauchy-Schwarz Inequality
- Lecture 9 - Orthogonality, Gram-Schmidt Orthogonalization Process
- Lecture 10 - Spectrum of special matrices, positive/negative definite matrices
- Lecture 11 - Concept of Domain, Limit, Continuity and Differentiability
- Lecture 12 - Analytic Functions, C-R Equations
- Lecture 13 - Harmonic Functions
- Lecture 14 - Line Integral in the Complex
- Lecture 15 - Cauchy Integral Theorem
- Lecture 16 - Cauchy Integral Theorem (Continued.)
- Lecture 17 - Cauchy Integral Formula
- Lecture 18 - Power and Taylor's Series of Complex Numbers
- Lecture 19 - Power and Taylor's Series of Complex Numbers (Continued.)
- Lecture 20 - Taylor's, Laurent Series of $f(z)$ and Singularities
- Lecture 21 - Classification of Singularities, Residue and Residue Theorem
- Lecture 22 - Laplace Transform and its Existence
- Lecture 23 - Properties of Laplace Transform
- Lecture 24 - Evaluation of Laplace and Inverse Laplace Transform
- Lecture 25 - Applications of Laplace Transform to Integral Equations and ODEs
- Lecture 26 - Applications of Laplace Transform to PDEs
- Lecture 27 - Fourier Series
- Lecture 28 - Fourier Series (Continued.)
- Lecture 29 - Fourier Integral Representation of a Function

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- Lecture 30 - Introduction to Fourier Transform
- Lecture 31 - Applications of Fourier Transform to PDEs
- Lecture 32 - Laws of Probability - I
- Lecture 33 - Laws of Probability - II
- Lecture 34 - Problems in Probability
- Lecture 35 - Random Variables
- Lecture 36 - Special Discrete Distributions
- Lecture 37 - Special Continuous Distributions
- Lecture 38 - Joint Distributions and Sampling Distributions
- Lecture 39 - Point Estimation
- Lecture 40 - Interval Estimation
- Lecture 41 - Basic Concepts of Testing of Hypothesis
- Lecture 42 - Tests for Normal Populations