NPTEL Video Course - Mathematics - NOC:Mathematical Methods in Physics 2

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Co-ordinating Institute - IISER - Bhopal

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

Lecture 30 - Liouville's theorem and the Fundamental theorem of algebra
Lecture 31 - Taylor Series
Lecture 32 - Laurent Series
Lecture 33 - Convergence
Lecture 34 - Differentiation and integration of power series
Lecture 35 - Isolated Singularities
Lecture 36 - Residues
Lecture 37 - Residue Theorem
Lecture 38 - Evaluation of integrals - I
Lecture 39 - Evaluation of integrals - II
Lecture 40 - Analytic Continuation
Lecture 41 - Introduction of orthogonal polynomials
Lecture 42 - How to construct orthogonal polynomials
Lecture 43 - The weight function
Lecture 44 - Recursion relations
Lecture 45 - Differential equation satisfied by the orthogonal polynomials
Lecture 46 - Hermite polynomials
Lecture 47 - Properties of Hemite polynomials
Lecture 48 - Legendre polynomials
Lecture 49 - Legendre polynomials: recurrence relation
Lecture 50 - Differential equation corresponding to Legendre polynomials
Lecture 51 - The generating function corresponding to Legendre polynomials
Lecture 52 - Laguerre Polynomials
Lecture 53 - Laguerre Polynomials: recurrence relation
Lecture 54 - Laguerre polynomials: differential equation
Lecture 55 - Laguerre polynomials: generating function
Lecture 56 - Bessel functions: series defination
Lecture 57 - Bessel functions: recurrence relations
Lecture 58 - Bessel functions: differential equation
Lecture 59 - Bessel functions of integral order: generating function
Lecture 60 - Bessel functions: orthogonality
Lecture 61 - Classification of Second Order PDEs
Lecture 62 - Canonical Forms for Hyperbolic PDEs
Lecture 63 - Canonical Forms for Parabolic PDEs
Lecture 64 - Canonical Forms for Elliptic PDEs
Lecture 65 - Tha Laplace Equation
Lecture 66 - The Laplace Equation: Separation of Variables
Lecture 67 - The Laplace Equation: Dirichlet and Neumann boundary conditions
Lecture 68 - The Laplace Equation in Cartesian coordinates

Lecture 69 - The Laplace Equation for a 3-D rectangular box
Lecture 70 - The Laplace Equation in spherical coordinates
Lecture 71 - The Laplace Equation in Spherical Coordinates: Solution
Lecture 72 - The Laplace Equation in Spherical Coordinates: illustrative examples
Lecture 73 - The Poisson's Equation: Green's function solution
Lecture 74 - The heat equation: a heuristic discussion
Lecture 75 - From the random walk to the diffusion equation
Lecture 76 - Solution of the Diffusion equation
Lecture 77 - The Diffusion equation with Dirichlet and Neumann boundary conditions
Lecture 78 - The Heat equation: illustrative examples
Lecture 79 - The Wave equation: Method of characteristics
Lecture 80 - The Wave equation: Separation of variables