NPTEL Video Course - Civil Engineering - Numerical Methods in Civil Engineering

Subject Co-ordinator - Dr. A. Deb

Co-ordinating Institute - IIT - Kharagpur

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

Lecture 1 - Introduction to Numerical Methods
Lecture 2 - Error Analysis
Lecture 3 - Introduction to Linear Systems - I
Lecture 4 - Linear Systems - II
Lecture 5 - Linear Systems - III
Lecture 6 - Linear Systems - Error Bounds
Lecture 7 - Error Bounds and Iterative Methods for Solving Linear Systems
Lecture 8 - Iterative Methods for Solving Linear Systems - I
Lecture 9 - Iterative Methods - II
Lecture 10 - Iterative Methods - III
Lecture 11 - Iterative Methods for Eigen Value Extraction
Lecture 12 - Solving Nonlinear Equations - I
Lecture 13 - Solving Nonlinear Equations - II
Lecture 14 - Solving Multi Dimensional Nonlinear Equations - I
Lecture 15 - Solving Multi Dimensional Nonlinear Equations - II
Lecture 16 - ARC Length and Gradient Based Methods
Lecture 17 - Gradient Based Methods
Lecture 18 - Conjugate Gradient Method - I
Lecture 19 - Conjugate Gradient Method - II
Lecture 20 - Nonlinear Conjugate Gradient and Introduction to PDEs
Lecture 21 - Eigenfunction Solutions for the Wave Equation
Lecture 22 - Analytical Methods for Solving the Wave Equation
Lecture 23 - Analytical Methods for Hyperbolic and Parabolic PDEs
Lecture 24 - Analytical Methods for Parabolic and Elliptic PDEs
Lecture 25 - Analytical Methods for Elliptic PDE\'s
Lecture 26 - Series Solutions for Elliptic PDE\'s and Introduction to Differential Operators
Lecture 27 - Differential Operators - I
Lecture 28 - Differential Operators - II
Lecture 29 - Differential Operators - III

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Lecture 30 - Interpolation
Lecture 31 - Polynomial Fitting
Lecture 32 - Orthogonal Polynomials - I
Lecture 33 - Orthogonal Polynomials - II
Lecture 34 - Orthogonal Polynomials - III
Lecture 35 - Spline Functions
Lecture 36 - Orthogonal Basis Functions for Solving PDE\'s - I
Lecture 37 - Orthogonal Basis Functions for Solving PDE\'s - II
Lecture 38 - Integral Equations - I
Lecture 39 - Integral Equations - II
Lecture 40 - Integral Equations - III
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