NPTEL Video Course - Mathematics - NOC:Numerical Methods - Finite Difference Approach

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Co-ordinating Institute - IIT - Roorkee

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

Lecture 1 - Introduction to Numerical solutions
Lecture 2 - Numerical Solution of ODE
Lecture 3 - Numerical solution of PDE
Lecture 4 - Finite difference approximation
Lecture 5 - Polynomial fitting and one-sided approximation
Lecture 6 - Solution of parabolic equation
Lecture 7 - Implicit and C-N scheme for solving 1D parabolic equation
Lecture 8 - Stability analysis of Explicit scheme for solving parabolic equation
Lecture 9 - Stability of Crank-Nicoloson's scheme
Lecture 10 - Approximation of derivative boundary conditions
Lecture 11 - Solution of two-dimensional parabolic equation
Lecture 12 - Solution of 2D parabolic equation using ADI scheme
Lecture 13 - Solution of Elliptic Equation
Lecture 14 - Solution of Elliptic equation using SOR method
Lecture 15 - Solution of Elliptic equation using ADI scheme
Lecture 16 - Solution of Hyperbolic equation
Lecture 17 - Stability analysis for Hyperbolic equations
Lecture 18 - Characteristics of PDE
Lecture 19 - Lax-Wendroff's method
Lecture 20 - Wendroff's method

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