

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

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Numerical Methods and Programming

Subject Co-ordinator - Prof. P.B. Sunil Kumar

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Programming Basics
Lecture 2 - Introduction to Pointers
Lecture 3 - Pointers And Arrays
Lecture 4 - External Functions and Argument Passing
Lecture 5 - Representation of Numbers
Lecture 6 - Numerical Error
Lecture 7 - Error Propagation and Stability
Lecture 8 - Polynomial Interpolation-1
Lecture 9 - Polynomial Interpolation-2
Lecture 10 - Error In Interpolation Polynomial
Lecture 11 - Polynomial Interpolation
Lecture 12 - Cubic Spline Interpolation
Lecture 13 - Data Fitting
Lecture 14 - Data Fitting
Lecture 15 - Data Fitting
Lecture 16 - Matrix Elimination and Solution
Lecture 17 - Solution To Linear Equations
Lecture 18 - Matrix Elimination
Lecture 19 - Eigen Values of A Matrix
Lecture 20 - Eigen Values And Eigen Vectors
Lecture 21 - Solving NonLinear Equations
Lecture 22 - Solving NonLinear Equations Newton Raphson Method
Lecture 23 - Methods For Solving NonLinear Equations
Lecture 24 - System of NonLinear Equations
Lecture 25 - Numerical Derivations
Lecture 26 - High order Derivatives From Difference Formula
Lecture 27 - Numerical Integration - Basic Rules
Lecture 28 - Comparison of Different Basic Rules
Lecture 29 - Gaussian Rules

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- Lecture 30 - Comparison of Gaussian Rules
- Lecture 31 - Solving Ordinary Differential Equations
- Lecture 32 - Solving ordinary differential equations
- Lecture 33 - Adaptive step size Runge Kutta scheme
- Lecture 34 - Partial Differential Equations
- Lecture 35 - Explicit and Implicit Methods
- Lecture 36 - The Crank - Nicholson Scheme For Two Spatial
- Lecture 37 - Fourier Transforms
- Lecture 38 - Fast Fourier Transforms