NPTEL Video Course - Mechanical Engineering - Computational Fluid Dynamics (Prof. S. Chakraborty)

Subject Co-ordinator - Prof. S. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

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

Lecture 1 - Introduction to Computational Fluid Dynamics and Principles of Conservation
Lecture 2 - Conservation of Mass and Momentum
Lecture 3 - Navier Stokes Equation (Continued.)
Lecture 4 - Energy Equation and General Structure of Conservation Equations
Lecture 5 - Classification of Partial Differential Equations and Physical Behaviour
Lecture 6 - Classification of Partial Differential Equations and Physical Behaviour (Continued.)
Lecture 7 - Approximate Solutions of Differential Equations
Lecture 8 - Approximate Solutions of Differential Equations
Lecture 9 - Weighted Residual Approach and Introduction to Discretization
Lecture 10 - Fundamentals of Discretization
Lecture 11 - Fundamentals of Discretization
Lecture 12 - Fundamentals of Discretization
Lecture 13 - Finite Volume Method
Lecture 14 - Finite Volume Method
Lecture 15 - Finite Volume Method
Lecture 16 - Important Consequences of Discretization of Unsteady State Problems
Lecture 17 - Important Consequences of Discretization of Time Dependent Diffusion Type Problems (Continued.)
Lecture 18 - Discretization of Hyperbolic Equations
Lecture 19 - PART 1
Lecture 20 - PART 1
Lecture 21 - Solution of Systems of Linear Algebraic Equations
Lecture 22 - Solution of Systems of Linear Algebraic Equations
Lecture 23 - Solution of Systems of Linear Algebraic Equations
Lecture 24 - Elimination Methods
Lecture 25 - Iterative Methods for Numerical Solution of Systems of Linear Algebraic Equations
Lecture 26 - Iterative Methods for Numerical Solution of Systems of Linear Algebraic Equations (Continued.)
Lecture 27 - Iterative Methods
Lecture 28 - PART 1
Lecture 29 - Gradient Search Methods (Continued.)

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Lecture 30 - Discretization of Convection-Diffusion Equations
Lecture 31 - Discretization of Convection-Diffusion Equations
Lecture 32 - Discretization of Convection- Diffusion Equations
Lecture 33 - Discretization of Convection -Diffusion Equations
Lecture 34 - Discretization of Convection-Diffusion Equations
Lecture 35 - Discretization of Navier Stokes Equations
Lecture 36 - Discretization of Navier Stokes Equations ( Continued.)
Lecture 37 - Discretization of Navier Stokes Equations ( Continued. )
Lecture 38 - PART 1
Lecture 39 - Unstructured Grid Formulation (Continued.)
Lecture 40 - What is there in implementing a CFD Code
Lecture 41 - Introduction to Turbulence Modeling
Lecture 42 - Introduction to Turbulence Modeling (Continued.)
Lecture 43 - End Semester Questions Review
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