

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

NPTEL Video Course - Mechanical Engineering - NOC:Computational Fluid Dynamics and Heat Transfer

Subject Co-ordinator - Prof. Gautam Biswas

Co-ordinating Institute - IIT - Kanpur

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

- Lecture 1 - Historical Perspectives and Introduction to the Course
- Lecture 2 - Finite Difference Method - Basic Idea of Discretization
- Lecture 3 - Explicit and Implicit Formulations, Stability Analysis - Part 1
- Lecture 4 - Stability Analysis - Part 2
- Lecture 5 - Important Aspects of Flow Modelling - Part 1
- Lecture 6 - Important Aspects of Flow Modelling - Part 2
- Lecture 7 - Important Aspects of Flow Modelling - Part 3
- Lecture 8 - Applications of Our Knowledge to a Problem of Practical Interest and Setting up an Algorithm
- Lecture 9 - Finite Volume Method - Part 1
- Lecture 10 - Finite Volume Method - Part 2
- Lecture 11 - Finite Volume Method - Part 3
- Lecture 12 - Introduction to Finite Element Method (Preliminary Concepts)
- Lecture 13 - Introduction to Finite Element Method (Galerkin Weighted Residual Method)
- Lecture 14 - Introduction to Finite element Method (Elemental contributions and formation of Global Matrix)
- Lecture 15 - Vorticity Stream Function Approach (Formulation and Algorithm)
- Lecture 16 - Vorticity-Stream Function Approach For Solving Navier-Stokes Equations
- Lecture 17 - Solving Navier-Stokes Equations For Incompressible Flows using SIMPLE Algorithm - Part 1
- Lecture 18 - Solving Navier-Stokes Equations For Incompressible Flows using SIMPLE Algorithm - Part 2
- Lecture 19 - Solving Navier-Stokes Equations For Incompressible Flows using MAC Algorithm - Part 2
- Lecture 20 - MAC Algorithm (Pressure - Velocity Iteration and the Solution)
- Lecture 21 - MAC Algorithm (Solution of Energy Equation)
- Lecture 22 - A Finite Volume Method to solve NS Equations in 3D Complex Geometry - Part 1
- Lecture 23 - A Finite Volume Method to solve NS Equations in 3D Complex Geometry - Part 2
- Lecture 24 - A Finite Volume Method to solve NS Equations in 3D Complex Geometry - Part 3
- Lecture 25 - Mathematical Approaches to Turbulent Flows (Preliminaries and Modeling Framework)
- Lecture 26 - Mathematical Approaches to Turbulent Flows (Modeling on the basis of RANS)

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