NPTEL Video Course - Mechanical Engineering - NOC:Computational Fluid Dynamics

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Co-ordinating Institute - IIT - Kharagpur

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

Lecture 30 - Gaussian elemination and LU Decomposition methods
Lecture 31 - Illustrative example of elemination method
Lecture 32 - Tri-Diagonal Matrix Algorithm (TDMA)
Lecture 33 - Elimination Methods
Lecture 34 - Elimination Methods
Lecture 35 - Iteration methods
Lecture 36 - Generalized analysis of Iteration method
Lecture 37 - Further discussion on Iterative methods
Lecture 38 - Illustrative examples of Iterative methods
Lecture 39 - Gradient Search based methods
Lecture 40 - Steepest descent method (Continued...)
Lecture 41 - Conjugate gradient method
Lecture 42 - Convection diffusion equation
Lecture 43 - Central difference scheme applied to convection-diffusion equation
Lecture 44 - Upwind scheme
Lecture 45 - Illustrative examples
Lecture 46 - Exact solution of 1-D steady state convection diffusion equation (Continued...)
Lecture 47 - Exponential scheme
Lecture 48 - Generalized convection diffusion formulation
Lecture 49 - 2-D convection diffusion problem
Lecture 50 - False (numerical) diffusion scheme and the QUICK scheme
Lecture 51 - Discretization of Navier Stokes equation
Lecture 52 - Discretization of Navier Stokes equation (Continued...)
Lecture 53 - Concept of staggered grid
Lecture 54 - SIMPLE algorithm
Lecture 55 - Salient features of SIMPLE algorithm
Lecture 56 - Illustrative examples on the use of SIMPLE algorithm
Lecture 57 - SIMPLER algorithm
Lecture 58 - Illustrative examples of SIMPLER algorithm
Lecture 59 - What is there in implementing a CFD Code
Lecture 60 - Some representative case studies