

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

NPTEL Video Course - Mechanical Engineering - NOC:Advanced Concepts in Fluid Mechanics

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Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Eulerian and Lagrangian Description of Fluid Motion
- Lecture 2 - Lines of Flow Visualization and Acceleration of Flow
- Lecture 3 - Angular Deformation of Fluid Elements
- Lecture 4 - Linear and Volumetric Deformation; Perspectives from Mass Conservation
- Lecture 5 - Continuity Equation in Integral Form
- Lecture 6 - Euler Equation for Inviscid Flow
- Lecture 7 - Bernoulli's Equation
- Lecture 8 - Examples of Bernoulli's Equation
- Lecture 9 - Reynolds Transport Equation
- Lecture 10 - Reynolds Transport Theorem
- Lecture 11 - Reynolds transport theorem
- Lecture 12 - Reynolds transport theorem
- Lecture 13 - Introduction to traction vector and stress tensor
- Lecture 14 - Cauchy/Navier equation
- Lecture 15 - Navier Stokes equation
- Lecture 16 - Navier Stokes equation (Continued...)
- Lecture 17 - Some exact solutions of the Navier Stokes equation
- Lecture 18 - Interfacial boundary conditions and example of thin film flows
- Lecture 19 - Exact solutions of the Navier Stokes equations in cylindrical polar coordinates
- Lecture 20 - Exact solutions of the Navier Stokes equation for some unsteady flows
- Lecture 21 - Confined oscillatory flows
- Lecture 22 - Introduction to Turbulence
- Lecture 23 - Statistical Treatment of Turbulence and Near - Wall Velocity Profiles
- Lecture 24 - Introduction to Boundary Layer Theory
- Lecture 25 - Similarity Solution of Boundary Layer Equation
- Lecture 26 - Momentum Integral Method
- Lecture 27 - Application of Momentum Integral Method and Boundary Layer Separation
- Lecture 28 - Potential Flow
- Lecture 29 - Potential Flow (Continued...)

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Lecture 30 - Potential Flow (Continued...)
Lecture 31 - Potential Flow (Continued...)
Lecture 32 - Potential Flow (Continued...)
Lecture 33 - Potential Flow (Continued...)
Lecture 34 - Stokes Flow past a Sphere
Lecture 35 - Stokes Flow past a Sphere (Continued...)
Lecture 36 - Stokes Flow past a Sphere (Continued...)
Lecture 37 - Lubrication Theory
Lecture 38 - Lubrication Theory (Continued...)
Lecture 39 - Lubrication Theory (Continued...)
Lecture 40 - Thin Film Dynamics
Lecture 41 - Thin Film Dynamics (Continued...)
Lecture 42 - Thin Film Dynamics (Continued...)
Lecture 43 - Thin Film Dynamics (Continued...)
Lecture 44 - Thin Film Dynamics (Continued...)
Lecture 45 - Thin Film Dynamics (Continued...)
Lecture 46 - Thin Film Dynamics (Continued...)
Lecture 47 - Thin Film Dynamics (Continued...)
Lecture 48 - Compressible Flows
Lecture 49 - Compressible Flows (Continued...)
Lecture 50 - Compressible Flows (Stagnation Properties)
Lecture 51 - Compressible Flows (Stagnation Properties, Variable Area)
Lecture 52 - Compressible Flows (Variable Area)
Lecture 53 - Compressible Flows (Variable Area)
Lecture 54 - Compressible Flows (Normal Shock)
Lecture 55 - Compressible Flows (Normal Shock) (Continued...)
Lecture 56 - Compressible Flows (Converging Nozzle)
Lecture 57 - Compressible Flows (Converging Diverging Nozzle)
Lecture 58 - Compressible Flows (Converging Diverging Nozzle) (Continued...)
Lecture 59 - Compressible Flows with Friction