

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

NPTEL Video Course - Mechanical Engineering - NOC: Fundamentals of Convective Heat Transfer

Subject Co-ordinator - Prof. Amaresh Dalal

Co-ordinating Institute - IIT - Guwahati

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

- Lecture 1 - Application of convective heat transfer
- Lecture 2 - Foundations of heat transfer
- Lecture 3 - Derivation of energy equation
- Lecture 4 - Derivation of boundary layer equation
- Lecture 5 - Derivation of boundary layer energy equation
- Lecture 6 - Blasius solution
- Lecture 7 - Pohlhausen solution
- Lecture 8 - Pohlhausen solution
- Lecture 9 - Falkner-Skan equation
- Lecture 10 - Momentum integral equation for flat plate boundary layer
- Lecture 11 - Laminar BL flow over flat plate
- Lecture 12 - Laminar BL flow over flat plate
- Lecture 13 - Solution of example problems
- Lecture 14 - Hydrodynamic and thermal regions
- Lecture 15 - Energy balance in channel flow
- Lecture 16 - Determination of heat transfer coefficient
- Lecture 17 - Velocity profile in fully-developed channel flows
- Lecture 18 - Thermally fully developed laminar slug flow with uniform wall heat flux condition
- Lecture 19 - Hydrodynamically and thermally fully developed flow with uniform wall heat flux condition
- Lecture 20 - Fully developed flow through parallel plate channel with uniform wall temperature
- Lecture 21 - Fully developed flow through circular pipe with uniform wall temperature
- Lecture 22 - Thermally developing flow through circular pipe with uniform wall heat flux
- Lecture 23 - Thermally developing flow through circular pipe with uniform wall temperature
- Lecture 24 - Heat transfer in plane Couette flow
- Lecture 25 - Solutions of example problems
- Lecture 26 - Introduction and scale analysis
- Lecture 27 - Natural convection over a vertical plate
- Lecture 28 - Natural convection over a vertical plate
- Lecture 29 - Natural convection over a vertical plate

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- Lecture 30 - Natural convection over inclined plate and mixed convection
- Lecture 31 - Natural convection inside enclosures
- Lecture 32 - Solution of example problems
- Lecture 33 - Basics of finite difference method
- Lecture 34 - Solution of Navier-Stokes equations
- Lecture 35 - Solution of energy equation
- Lecture 36 - Derivation of Reynolds Averaged Navier-Stokes Equations
- Lecture 37 - External Turbulent Flow
- Lecture 38 - Integral solution for turbulent boundary layer flow over a flat plate
- Lecture 39 - Convection in turbulent pipe flow
- Lecture 40 - Boiling regimes and boiling curve
- Lecture 41 - Laminar film condensation on a vertical plate
- Lecture 42 - Laminar film condensation on horizontal tube
- Lecture 43 - Solution of example problems