

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

NPTEL Video Course - Mechanical Engineering - NOC:Convective Heat Transfer (2018)

Subject Co-ordinator - Prof. Saptarshi Basu

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Introduction to convective heat transfer
Lecture 2 - Governing equations I - Momentum Conservation
Lecture 3 - Governing equations II - Energy Conservation
Lecture 4 - Introduction to external forced convection
Lecture 5 - Scaling Analysis - Momentum
Lecture 6 - Scaling Analysis - Energy I
Lecture 7 - Scaling Analysis - Energy II
Lecture 8 - Similarity solution - Momentum
Lecture 9 - Similarity solution - Energy
Lecture 10 - Integral solutions - Momentum
Lecture 11 - Integral solutions - Energy
Lecture 12 - Suction and Blowing
Lecture 13 - Falkner-Skan solution
Lecture 14 - Arbitrary Wall temperature
Lecture 15 - Internal forced convection - Developing flow
Lecture 16 - Hydrodynamic fully developed flow
Lecture 17 - Mean temperature in fully developed flow
Lecture 18 - Uniform heat flux
Lecture 19 - Uniform wall temperature
Lecture 20 - Tube surrounded by isothermal flow
Lecture 21 - Heat transfer to fully developed flow - I
Lecture 22 - Heat transfer to fully developed flow - II
Lecture 23 - Laminar slug flow
Lecture 24 - Power law fluids
Lecture 25 - Forced convection - Tutorial I
Lecture 26 - Forced convection - Tutorial II
Lecture 27 - Forced convection - Tutorial III
Lecture 28 - Introduction to external natural convection
Lecture 29 - Scaling analysis - I

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- Lecture 30 - Scaling analysis - II
- Lecture 31 - Integral solution
- Lecture 32 - Similarity solution
- Lecture 33 - Uniform wall heat flux
- Lecture 34 - Thermal stratification
- Lecture 35 - Mixed convection
- Lecture 36 - Internal natural convection - Scaling analysis
- Lecture 37 - Heat transfer regimes
- Lecture 38 - Regime III
- Lecture 39 - Regime IV - Shallow enclosure limit - I
- Lecture 40 - Regime IV - Shallow enclosure limit - II
- Lecture 41 - Partially divided enclosures
- Lecture 42 - Inclined enclosures
- Lecture 43 - Natural convection - Tutorial I
- Lecture 44 - Natural convection - Tutorial II
- Lecture 45 - Introduction to Turbulence
- Lecture 46 - Reynold's Averaged Navier Stokes equation - I
- Lecture 47 - Reynold's Averaged Navier Stokes equation - II
- Lecture 48 - Turbulent boundary layer - Viscous sub layer
- Lecture 49 - Turbulent boundary layer - Fully turbulent sub layer
- Lecture 50 - Heat transfer in turbulent boundary layer
- Lecture 51 - Turbulent internal flow - I
- Lecture 52 - Turbulent internal flow - II
- Lecture 53 - Turbulent internal flow - III
- Lecture 54 - $k - \epsilon$ model
- Lecture 55 - Turbulence - Tutorial
- Lecture 56 - Experimental techniques - Thermochromic liquid crystals
- Lecture 57 - Experimental techniques - IR thermography
- Lecture 58 - Droplet evaporation - Sessile I
- Lecture 59 - Droplet evaporation - Sessile II
- Lecture 60 - Droplet evaporation - Contact free