

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

NPTEL Video Course - Chemical Engineering - NOC:Transport Phenomena of Non-Newtonian Fluids

Subject Co-ordinator - Prof. N. Kishore

Co-ordinating Institute - IIT - Guwahati

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

- Lecture 1 - Introduction and Basic Concepts
- Lecture 2 - Classification of Non-Newtonian Fluids
- Lecture 3 - Mathematical Models for Non-Newtonian Fluids
- Lecture 4 - Viscoelastic Non-Newtonian Fluids
- Lecture 5 - Capillary Viscometers: Sources of Errors and Correction Methods
- Lecture 6 - Rotational Viscometers
- Lecture 7 - Capillary Viscometers - Errors and Corrections II
- Lecture 8 - Equation of Change for Non-Isothermal Systems
- Lecture 9 - Rotational Viscometers - II
- Lecture 10 - Rotational Viscometers - III
- Lecture 11 - Transition from Laminar to Turbulent Flow in Pipes for GNF
- Lecture 12 - Equations of Change for Isothermal Systems
- Lecture 13 - Equations of Change for Non-Isothermal Systems
- Lecture 14 - Power-law Fluids Flow in Concentric Annulus
- Lecture 15 - Power-law and Ellis Model Fluids Flow Through Pipes
- Lecture 16 - Bingham Plastic Fluids Flow through Pipes
- Lecture 17 - Herschel Bulkley Fluids Flow through Pipes
- Lecture 18 - Transition and Turbulent Flow of GNF in Pipes - I
- Lecture 19 - Transition and Turbulent Flow of GNF in Pipes - II
- Lecture 20 - Laminar flow of GNFs between Parallel Plates and along Inclined Surface
- Lecture 21 - Laminar flow of GNFs along Inclined Surface and Concentric Annulus
- Lecture 22 - Flow of Non-Newtonian Fluids through Packed Beds
- Lecture 23 - Dispersion in Packed Beds: Non-Newtonian Effects
- Lecture 24 - Liquid-Solid Fluidization by Power-law Liquids
- Lecture 25 - Free Convection between Two Vertical Plates
- Lecture 26 - Viscous Heat Generation
- Lecture 27 - Temperature distribution in fluids confined between co-axial cylinders
- Lecture 28 - Temperature distribution for FDF of Newtonian fluids in tubes
- Lecture 29 - Heat Transfer Combined with Chemical Reactions

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- Lecture 30 - Transpiration Cooling
- Lecture 31 - Basics of MT; Diffusion Through Stagnant Gas Film
- Lecture 32 - Non-Isothermal Diffusive MT and Forced Convective MT
- Lecture 33 - Simultaneous Heat and Mass Transfer
- Lecture 34 - Mass Transfer Combined with Chemical Reactions
- Lecture 35 - Quasi-Steady Analysis of Simultaneous HT, MT and Chemical Reaction
- Lecture 36 - Quasi-Steady Analysis of Simultaneous HT and MT - I
- Lecture 37 - Quasi-Steady Analysis of Simultaneous HT and MT - II
- Lecture 38 - Quasi-Steady Analysis of Simultaneous HT and MT - III
- Lecture 39 - Momentum and Thermal Boundary Layer Flows
- Lecture 40 - Momentum Boundary Layer Thickness of Non-Newtonian Fluids
- Lecture 41 - Thermal and Concentration Boundary Layer Thickness of Non-Newtonian Fluids