

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

NPTEL Video Course - Mechanical Engineering - NOC: Fundamentals of Combustion

Subject Co-ordinator - Prof. V. Raghavan

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Fuel and their properties - Part 1
Lecture 2 - Fuel and their properties - Part 2 - Gaseous and Liquid fuels
Lecture 3 - Fuel and their properties - Part 3 - Liquid and Solid fuels
Lecture 4 - Review of basic thermodynamics of ideal gas mixtures - Part 1
Lecture 5 - Review of basic thermodynamics of ideal gas mixtures - Part 2
Lecture 6 - Stoichiometry - Part 1
Lecture 7 - Stoichiometry - Part 2 - Worked Examples
Lecture 8 - Stoichiometry - Part 3 - Worked Examples (Continued...)
Lecture 9 - First law and Second law of thermodynamics applied to combustion - Part 1 - Heat Calculation
Lecture 10 - First law and Second law of thermodynamics applied to combustion - Part 2 - Enthalpy Calculation
Lecture 11 - First law and Second law of thermodynamics applied to combustion - Part 3 - Calculation of flame
Lecture 12 - First law and Second law of thermodynamics applied to combustion - Part 4 - Chemical equilibrium
Lecture 13 - First law and Second law of thermodynamics applied to combustion - Part 5 - Chemical equilibrium
Lecture 14 - First law and Second law of thermodynamics applied to combustion - Part 6 - Worked examples
Lecture 15 - First law and Second law of thermodynamics applied to combustion - Part 7 - Worked examples (Con
Lecture 16 - Mass transfer basics - Part 1 - Fundamentals
Lecture 17 - Mass transfer basics - Part 2 - Calculation of diffusion velocity
Lecture 18 - Mass transfer basics - Part 3 - Steady evaporation (The Stefan Problem)
Lecture 19 - Mass transfer basics - Part 4 - Steady evaporation of liquid droplet and Worked examples
Lecture 20 - Fundamentals of combustion kinetics - Part 1 - Global and elementary reactions
Lecture 21 - Fundamentals of combustion kinetics - Part 2 - Reaction rates and equilibrium constant
Lecture 22 - Fundamentals of combustion kinetics - Part 3 - Steady state and partial equilibrium approximations
Lecture 23 - Fundamentals of combustion kinetics - Part 4 - Worked examples
Lecture 24 - Governing equations for reacting flow - Part 1 - Continuity, momentum and species conservation e
Lecture 25 - Governing equations for reacting flow - Part 2 - The energy equation
Lecture 26 - Governing equations for reacting flow - Part 3 - Estimation of thermo-physical properties and co
Lecture 27 - Governing equations for reacting flow - Part 4 - Control of combustion phenomena and simplified
Lecture 28 - Governing equations for reacting flow - Part 5 - Conserved scalars and mixture fraction approach
Lecture 29 - Characteristics of combustion flame and detonation - Part 1

Get DIGIMAT For High-Speed Video Streaming of NPTEL and Educational Video Courses in LAN

<http://www.digimat.in>

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

- Lecture 30 - Characteristics of combustion flame and detonation - Part 2
- Lecture 31 - Characteristics of combustion flame and detonation - Part 3 - Rankine-Hugoniot relation
- Lecture 32 - Characteristics of combustion flame and detonation - Part 4 - Estimation of detonation velocity
- Lecture 33 - Laminar Premixed Flames - Part 1 - Laminar flame propagation
- Lecture 34 - Laminar Premixed Flames - Part 2 - Laminar flame speed variation and Structure of premixed flame
- Lecture 35 - Laminar Premixed Flames - Part 3 - Flammability limits and Premixed flame theory
- Lecture 36 - Laminar Premixed Flames - Part 4 - Estimation of laminar flame speed
- Lecture 37 - Laminar Premixed Flames - Part 5 - Ignition of premixed mixture (Semenov's Analysis)
- Lecture 38 - Laminar Premixed Flames - Part 6 - Piloted ignition and Flame quenching
- Lecture 39 - Laminar Premixed Flames - Part 7 - Premixed flame stability
- Lecture 40 - Laminar Premixed Flames - Part 8 - Stability Maps and Worked examples
- Lecture 41 - Laminar Diffusion Flames - Part 1 - Theory of gas jets
- Lecture 42 - Laminar Diffusion Flames - Part 2 - Analysis of gas jets and jet diffusion flames
- Lecture 43 - Laminar Diffusion Flames - Part 3 - Diffusion flame characteristics and flame structure
- Lecture 44 - Laminar Diffusion Flames - Part 4 - Diffusion flame structure and Flame regimes
- Lecture 45 - Laminar Diffusion Flames - Part 5 - Diffusion flame regimes and Flame height correlations
- Lecture 46 - Laminar Diffusion Flames - Part 6 - Diffusion flame control
- Lecture 47 - Laminar Diffusion Flames - Part 7 - Diffusion flame configurations (coflow, crossflow and oppose)
- Lecture 48 - Laminar Diffusion Flames - Part 8 - Diffusion flame stability and Worked examples
- Lecture 49 - Turbulent Flames - Part 1 - Characteristics of turbulence
- Lecture 50 - Turbulent Flames - Part 2 - Turbulent length scales and turbulent stresses
- Lecture 51 - Turbulent Flames - Part 3 - Axisymmetric turbulent jet
- Lecture 52 - Turbulent Flames - Part 4 - Turbulent premixed flames and flame regimes
- Lecture 53 - Turbulent Flames - Part 5 - Turbulent diffusion flames
- Lecture 54 - Droplet evaporation and combustion - Part 1 - Steady evaporation of liquid droplet
- Lecture 55 - Droplet evaporation and combustion - Part 2 - Equilibrium under steady evaporation of liquid droplet
- Lecture 56 - Droplet evaporation and combustion - Part 3 - Droplet combustion (simplified analysis)
- Lecture 57 - Droplet evaporation and combustion - Part 4 - Species and temperature profiles
- Lecture 58 - Droplet evaporation and combustion - Part 5 - Evaluation of mass burning rate and worked examples
- Lecture 59 - Combustion of carbon particle - Part 1 - Coal combustion
- Lecture 60 - Combustion of carbon particle - Part 2 - One film model
- Lecture 61 - Combustion of carbon particle - Part 3 - Two film model and worked examples