

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

NPTEL Video Course - Chemical Engineering - Chemical Reaction Engineering

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Co-ordinating Institute - IISc - Bangalore

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

- Lecture 1 - Introduction & Overview
- Lecture 2 - Basic concepts
- Lecture 3 - Thermodynamics of Chemical Reactions - Part I
- Lecture 4 - Thermodynamics of Chemical Reactions - Part II
- Lecture 5 - Chemical Reaction Kinetics - Overview
- Lecture 6 - Chemical Reaction Kinetics & Reactor Design
- Lecture 7 - Chemical Reactor Design
- Lecture 8 - Problem Solving
- Lecture 9 - Complex Reactions - Introduction
- Lecture 10 - Complex Reactions - Yield & Selectivity
- Lecture 11 - Complex Reactions - Quasi Steady State and Quasi Equilibrium Approximations
- Lecture 12 - Complex Reactions - Kinetics of Chain Reactions & polymerization
- Lecture 13 - Catalytic reactions - Introduction
- Lecture 14 - Catalytic reactions - Adsorption & Desorption
- Lecture 15 - Catalytic reactions - Kinetics
- Lecture 16 - Monomolecular Reaction Network & Lumping Analysis
- Lecture 17 - Problem solving
- Lecture 18 - Gas-solid Catalytic Reactions - External diffusion
- Lecture 19 - Gas-solid Catalytic Reactions - Transport in Catalyst Pellet
- Lecture 20 - Gas-solid Catalytic Reactions - Diffusion & Reaction - I
- Lecture 21 - Gas-solid Catalytic Reactions - Diffusion & Reaction - II
- Lecture 22 - Gas-solid Catalytic Reactions - Diffusion & Reaction - III
- Lecture 23 - Gas-solid Catalytic Reactions - Nonisothermal effects
- Lecture 24 - Gas-solid Noncatalytic Reactions
- Lecture 25 - Gas-Liquid Reactions
- Lecture 26 - Problem solving
- Lecture 27 - Chemical Reactor Design
- Lecture 28 - Chemical Reactor Design
- Lecture 29 - Nonisothermal Reactor Operation

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- Lecture 30 - Case Study - Ethane dehydrogenation
- Lecture 31 - Case Study - Hydrogenation of Oil
- Lecture 32 - Case Study - Ammonia Synthesis
- Lecture 33 - Autothermal reactors
- Lecture 34 - Parametric Sensitivity
- Lecture 35 - CSTR - multiple steady states
- Lecture 36 - Stability Analysis - Basics
- Lecture 37 - Stability Analysis - Examples
- Lecture 38 - Nonideal flow and reactor performance - I
- Lecture 39 - Nonideal flow and reactor performance - II
- Lecture 40 - Problem solving