

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

NPTEL Video Course - Chemical Engineering - NOC:Hydrogen Energy: Production, Storage, Transportation and Safety

Subject Co-ordinator - Prof. Pratibha Sharma

Co-ordinating Institute - IIT - Bombay

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

- Lecture 1 - Properties of Hydrogen
- Lecture 2 - Status of Hydrogen Supply and Demand
- Lecture 3 - Methods of Hydrogen Production
- Lecture 4 - Steam Methane Reforming - Part 1
- Lecture 5 - Steam Methane Reforming - Part 2
- Lecture 6 - Steam Reforming of Higher Hydrocarbons
- Lecture 7 - Tutorial-1
- Lecture 8 - Advanced Methods of Steam Reforming
- Lecture 9 - Partial Oxidation Method for Hydrogen Production
- Lecture 10 - Autothermal Reforming
- Lecture 11 - Combined, Dry, Bi and Tri Reforming
- Lecture 12 - Reforming using Alternate Energy Sources
- Lecture 13 - Tutorial-2
- Lecture 14 - Hydrogen Production by Methane Decomposition
- Lecture 15 - Hydrogen Production from Biomass - Part 1
- Lecture 16 - Hydrogen Production from Biomass - Part 2
- Lecture 17 - Hydrogen Production from Biomass - Part 3
- Lecture 18 - Hydrogen Production from Coal
- Lecture 19 - Tutorial-3
- Lecture 20 - Hydrogen Separation and Purification - Part 1
- Lecture 21 - Hydrogen Separation and Purification - Part 2
- Lecture 22 - Thermochemical Cycles for Hydrogen Production
- Lecture 23 - Electrolysis of Water for Hydrogen Production
- Lecture 24 - Fundamental of Electrolysis of Water
- Lecture 25 - Electrolytic Cell Components and Electrolyzer stack
- Lecture 26 - Different Types of Electrolyzer Technologies
- Lecture 27 - Photoelectrochemical Hydrogen Production
- Lecture 28 - Tutorial-4
- Lecture 29 - Technical Comparison of Various Hydrogen Production Routes

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- Lecture 30 - Economics and Status of Various Hydrogen Production Routes
- Lecture 31 - Introduction to Hydrogen Storage
- Lecture 32 - Underground Hydrogen Storage
- Lecture 33 - Fundamentals of Hydrogen Compression and Expansion
- Lecture 34 - Thermodynamics of Hydrogen Compression - Part 1
- Lecture 35 - Thermodynamics of Hydrogen Compression - Part 2
- Lecture 36 - Reciprocating and Diaphragm compressors for Hydrogen Compression
- Lecture 37 - Linear and Liquid Hydrogen Compressors
- Lecture 38 - Cryogenic and Metal Hydride based Hydrogen Compressors
- Lecture 39 - Electrochemical and Adsorption based Compressors
- Lecture 40 - Compressed Hydrogen Tanks
- Lecture 41 - Tutorial-5
- Lecture 42 - Hydrogen Liquefaction
- Lecture 43 - Liquid State Hydrogen Storage
- Lecture 44 - Fundamentals of Adsorption based Materials for Hydrogen Storage
- Lecture 45 - Adsorption based Solid State Hydrogen Storage Materials
- Lecture 46 - Metal Hydrides for Solid State Hydrogen Storage - Part 1
- Lecture 47 - Fundamentals of Metal hydrides for Solid State Hydrogen Storage - Part 1
- Lecture 48 - Fundamentals of Metal Hydrides for Solid State Hydrogen Storage - Part 2
- Lecture 49 - Different Types of Hydrides for Hydrogen Storage
- Lecture 50 - Tailoring Metal Hydrides for Practical Applications: Nanostructure - Part 1
- Lecture 51 - Tailoring Metal Hydrides for Practical Applications: Nanostructure - Part 2
- Lecture 52 - MH System Design and Experimental Facilities on SolidState Hydrogen Storage
- Lecture 53 - Tutorial-6 (MH systems design)
- Lecture 54 - Novel Materials and Overall Storage
- Lecture 55 - Overview of Storage Methods and Economics
- Lecture 56 - Hydrogen Transportation via H₂ Pipelines
- Lecture 57 - Other Options for Long Distance Hydrogen Transmission
- Lecture 58 - Hydrogen Transport via Road
- Lecture 59 - Hydrogen Refuelling Stations
- Lecture 60 - Use of Hydrogen in Internal Combustion Engines - Part 1
- Lecture 61 - Use of Hydrogen in Internal Combustion Engines - Part 2
- Lecture 62 - Use of Hydrogen in Fuel Cells
- Lecture 63 - Hydrogen Sensing - Part 1
- Lecture 64 - Hydrogen Sensing - Part 2
- Lecture 65 - Properties of Hydrogen Associated with Accidents
- Lecture 66 - Classification of Hydrogen related Hazards
- Lecture 67 - Compressed and Liquid Hydrogen Related Hazards
- Lecture 68 - Regulations, Codes and Standards

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Lecture 69 - Utilisation in Different Sectors, Global Status and Future Directions

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