NPTEL Video Course - Chemical Engineering - Chemical Engineering Thermodynamics

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Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Thermodynamics and the Chemical Industry
Lecture 2 - James Prescot Joule and the first law
Lecture 3 - Sadi Carnot and the second law
Lecture 4 - Equilibrium and Extrema in work
Lecture 5 - Illustrative Calculations - I
Lecture 6 - Properties of pure substances
Lecture 7 - The p-h chart
Lecture 8 - Work calculation
Lecture 9 - Illustrative Calculations - II
Lecture 10 - Heat-Work Interconversion Devices
Lecture 11 - Refrigeration / Thermodynamics of mixtures
Lecture 12 - The Gibbs Duhem equation
Lecture 13 - Models for Excess Gibbs Free Energy
Lecture 14 - Van Laar model
Lecture 15 - Gaseous and liquid mixtures
Lecture 16 - Separation Work / Equations of state
Lecture 17 - Chemical potentials in gas and condensed phases
Lecture 18 - Vapour Liquid Equilibria - I
Lecture 19 - Vapour Liquid Equilibria - II
Lecture 20 - Solvent-Solvent mixtures
Lecture 21 - Solvent-Solute mixtures
Lecture 22 - Liquid-liquid equilibria
Lecture 23 - An industrial example
Lecture 24 - Liquid-liquid equilibria / Reaction Equilibria
Lecture 25 - Reaction Equilibria
Lecture 26 - Illustrative Examples - I
Lecture 27 - Illustrative Examples - II
Lecture 28 - Illustrative Examples - III
Lecture 29 - Simultaneous Relations

Lecture 30 - Thermodynamic Consistency / Reverse Osmosis
Lecture 31 - Miscellaneous topics in phase equilibria
Lecture 32 - Absorption Refrigeration
Lecture 33 - Summary of Classical Thermodynamics
Lecture 34 - Molecular basis of Thermodynamics - I
Lecture 35 - Molecular basis of Thermodynamics - II