NPTEL Video Course - Chemical Engineering - NOC:Chemical Engineering Thermodynamics

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Co-ordinating Institute - IIT - Guwahati

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

Lecture 1 - Introduction
Lecture 2 - First law for closed systems
Lecture 3 - First law for open systems
Lecture 4 - Simple processes
Lecture 5 - Processes involving liquids and ideal gases
Lecture 6 - Temperature dependency of Cp in an ideal gas
Lecture 7 - Efficiency of Heat engines and Statement of Second Law
Lecture 8 - Entropy
Lecture 9 - Lost Work
Lecture 10 - Maxwell's Relations
Lecture 11 - Thermodynamic Diagrams
Lecture 12 - Thermodynamic Tables, Residual Properties
Lecture 13 - Virial Equation of State
Lecture 14 - Residual property relations from EoS
Lecture 15 - Cubic Equation of State
Lecture 16 - Cubic Equation of State
Lecture 17 - Thermodynamic Tables
Lecture 18 - Correlations for Liquids
Lecture 19 - Process Involving Phase Changes
Lecture 20 - Chemical potential
Lecture 21 - Partial molar properties
Lecture 22 - Examples
Lecture 23 - Ideal Solutions
Lecture 24 - Excess Properties
Lecture 25 - Fugacity
Lecture 26 - Calculation of Fugacity using EoS - Part 1
Lecture 27 - Calculation of Fugacity using EoS - Part 2
Lecture 28 - Calculation of Fugacity in Mixtures using Cubic EoS
Lecture 29 - Fugacity in Liquids, Activity Coeffcient

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Lecture 30 - Models for Excess Gibbs free energy - Part 1
Lecture 31 - Models for Excess Gibbs free energy - Part 2
Lecture 32 - Vapor Liquid Equilibrium - Part 1
Lecture 33 - Vapor Liquid Equilibrium - Part 2
Lecture 34 - Azeotropes
Lecture 35 - Gamma/Phi Formulation
Lecture 36 - LLE
Lecture 37 - VLLE
Lecture 38 - Enthalpy changes upon reaction
Lecture 39 - Reaction coordinate
Lecture 40 - Equilibrium constant
Lecture 41 - Examples
Lecture 42 - Conclusion
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