VEER SURENDRA SAI UNIVRSITY OF TECNOLOGY, BURLA
Lesson plan

Semester: 5th
Subject: Chemical engineering thermodynamics

Lecture	Module	Topic
1	1	Introduction to Thermodynamics
2	1	Basic concepts: Thermodynamics system and surroundings, types of systems
3	1	Thermodynamic equilibrium and Phase Rule
4	1	Zeroth law of thermodynamics
5	1	State and Path dependent thermodynamic variables
6	1	Reversible and Irreversible thermodynamic Process
7	1	Concept of Ideal gas
8	1	P-V-T behaviour of pure substances
9	1	Virial equations of state
10	1	Applications of Virial equations, Cubic equation of state
11	1	Theorem of corresponding states
12	1	Heat Effects
13	2	The first law of Thermodynamics, Concept of Internal Energy and Enthalpy
14	2	Application of First law to Open Systems
15	2	Constant volume and Constant pressure process
16	2	Concept of Heat Engine , Carnot cycle and Second Law
17	2	Concept of Entropy, work function
18	2	Third law of Thermodynamics
19	2	Criteria of phase equilibrium
20	2	Concept of Ideal solutions, Raoult's law
21	2	Generation of P-x-y and T-x-y diagram for ideal solution
22	2	Concept of Non-ideality, Non – ideal behaviour of solution.
23	2	Partial Molar properties, Partial properties of Binary solution
24	2	Derivation of Gibbs – Duhem equation
25	2	Concept of Fugacity and fugacity coefficient
26	2	Lewis – Randall Rule, Activity coefficient for VLE data
27	3	Introduction to Solution Thermodynamics
28	3	Concept of Chemical Potential
29	3	Concept of Excess Properties and Residual Properties
30	3	properties of fluid mixtures using Redlich – Kwong equation of states.
31	3	properties of fluid mixtures using Redlich – Kwong equation of states.
32	4	Introduction to Chemical Reaction Equilibria
33	4	Concept of Reaction Coordinate & criteria to chemical reactions
34	4	Gibbs energy change , equilibrium constant of reaction
35	4	Equilibrium constant of reaction effect of temperature and Pressure on K
36	4	Calculation for single reaction in homogeneous and heterogeneous system
37	4	Calculation for single reaction in homogeneous and heterogeneous system
38	4	Class Test on Module-IV
39	4	Previous Year Question Paper Discussion
40	4	Previous Year Question Paper Discussion

Signature of the Faculty Member: Counter Signature of H.O.D
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