

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

LESSON PLAN

Semester: 5th

Subject: Chemical Engineering Thermodynamics (Theory)

Branch: Chemical Engineering

Name of the Faculty Member: Veda Prakash

Period	Module/Number	Topic to be covered
1	01	Definitions and common terms
2	01	Systems and surroundings, process
3	01	Homogeneous and heterogeneous systems
4	01	Open and closed system, isolated system
5	01	State and properties, intensive and extensive properties
6	01	State and path functions, first law of thermodynamics
7	01	Energy balance fore closed systems
8	02	Phase rule, reversible process
9	02	Constant volume and pressure process
10	02	Heat capacity and enthalpy
11	02	Mass and energy balance for open system
12	02	PVT behaviour of pure substances
13	02	Single phase region, ideal gas
14	02	Isothermal process, isobaric process
15	02	Isochoric and adiabatic process
16	03	Equations of state of real gases
17	03	Compressibility chart, principle of corresponding states
18	03	Standard heat of reaction, combustion, formation
19	03	Temperature of reaction, limitation of first law and second law
20	03	Second law of thermodynamics
21	03	Third law of thermodynamics, refrigeration
22	03	Property relations for homogeneous phases
23	03	Enthalpy and entropy as functions of T and P
24	03	U and S as functions of T and V
25	03	Gibbs energy, residual properties
26	04	Gibbs – Duhem equation
27	04	Ideal gas mixture, Gibbs theorem
28	04	Fugacity, fugacity coefficient
29	04	Fundamental residual relation
30	04	Ideal solution, excess property, excess Gibbs energy
31	04	Activity coefficient, chemical reaction equilibria
32	04	Equilibrium criteria to chemical reaction
33	04	Effect of temp. on equilibrium constant
34	04	Phase rule for reacting system
35	04	Duhem theorem