LESSON PLAN OF 5th SEMESTER(2022-23) CHEMICAL ENGINEERING		
DISCIPLINE: CHEMICAL	**Semester:-5TH**	**NAME OF THE TEACHING FACULTY** **PRATEEK KUMAR DAS**
SUBJECT: CHEMICAL ENGINEERING THERMODYNAMICS	**No of days per Week Allotted : 04**	**SEMESTER: SEPTEMBER TO DECEMBER No of Weeks:- 15**
Week	**Class/ Day**	**Theory/ Practical Topics**
1ST	1st	Scope and limitations of Thermodynamics
	2nd	System, surrounding and boundary
	3rd	Different types of systems
	4th	Processes, state, properties
2ND	1st	Path and State functions
	2nd	Heat and Work
	3rd	Equilibrium state and phases
	4th	Zeroth law of Thermodynamics
3rd	1st	State and explain first law of Thermodynamics
	2nd	State and explain first law of Thermodynamics
	3rd	Concept of internal energy, Enthalpy, heat capacity
	4th	Concept of internal energy, Enthalpy, heat capacity
4th	1st	First law of thermodynamics for cyclic process, non-flow process, and flow process
	2nd	First law of thermodynamics for cyclic process, non-flow process, and flow process
	3rd	First law of thermodynamics for cyclic process, non-flow process, and flow process
	4th	Solve numerical on application of 1ST law of thermodynamics
5th	1st	Solve numerical on application of 1ST law of thermodynamics
	2nd	Constant volume process for ideal gases
	3rd	Constant pressure process for ideal gases
	4th	Constant temperature process for ideal gases
6th	1st	Adiabatic process for ideal gases
	2nd	Polytrophic process for ideal gases
	3rd	Solve simple problems
	4th	Solve simple problems
7th	1st	Solve simple problems
	2nd	Equation of state and ideal gas
	3rd	P-V-T behavior of pure fluid
	4th	P-V-T behavior of pure fluid

8th	1st	Concept of heat reservoir, heat engine, and heat pump
	2nd	Concept of heat reservoir, heat engine, and heat pump
	3rd	State and explain second law of thermodynamics
	4th	Concept of entropy
9th	1st	Concept of entropy
	2nd	Calculate change of entropy for various conditions
	3rd	Calculate change of entropy for various conditions
	4th	Calculate change of entropy for various conditions
10th	1st	Third law of Thermodynamics
	2nd	Solve simple problems
	3rd	Solve simple problems
	4th	Classify thermodynamic properties
11th	1st	Work function and Gibb's free energ
	2nd	Work function and Gibb's free energ
	3rd	Gibb's phase rule
	4th	Various relationships among thermodynamic properties
12th	1st	Maxwell equation
	2nd	Maxwell equation
	3rd	Clapeyron equation
	4th	Entropy-heat capacity relation
13th	1st	Differential equation for entropy
	2nd	Effect of temperature, pressure and volume on U,H and S, relationship between Cp and Cv
	3rd	Effect of temperature, pressure and volume on U,H and S, relationship between Cp and Cv
	4th	Gibb's-Helmholtz equation
14TH	1st	Fugacity co-efficient, effect of temperature and pressure on fugacity, fugacity of pure gases, solids and liquids
	2nd	Fugacity co-efficient, effect of temperature and pressure on fugacity, fugacity of pure gases, solids and liquids
	3rd	Concept of activity, Effect of pressure and temperature on activity
	4th	Concept of activity, Effect of pressure and temperature on activity
15TH	1st	Concept of Refrigeration and liquefaction process
	2nd	Objective Questions discussion
	3rd	Objective Questions discussion
	4th	Objective Questions discussion