

LESSON PLAN OF 4TH SEMESTER(2020-21) CHEMICAL ENGINEERING

DISCIPLINE: CHEMICAL	Semester:-4TH	NAME OF THE TEACHING FACULTY PRATEEK KUMAR DAS
SUBJECT: HEAT TRANSFER	No of days per Week Allotted : 04	SEMESTER: APRIL TO AUGUST No of Weeks:- 15
Week	Class/ Day	Theory/ Practical Topics
1 ST	1 st	Heat flow concept in conduction
	2 nd	Steady state and unsteady state heat flow
	3 rd	State Fourier's law of conduction
	4 th	Heat flow through single
2 ND	1 st	Heat flow through composite walls
	2 nd	Heat flow through cylinder
	3 rd	Heat flow through spheres
	4 th	Heat flow in single and series medium
3 rd	1 st	Thermal insulation
	2 nd	critical radius of insulation
	3 rd	Solve simple numerical problems on conduction
	4 th	Solve simple numerical problems on conduction
4 th	1 st	Solve simple numerical problems on conduction
	2 nd	Concept of heat flow by convection
	3 rd	Free Convection
	4 th	Forced Convection
5 th	1 st	Individual and overall heat transfer coefficient
	2 nd	Application of dimensional analysis in Convection
	3 rd	Use of Empirical equations for different flow regime
	4 th	Parallels, co current and counter current flow
6 th	1 st	Log mean temperature difference
	2 nd	Problems on Convection
	3 rd	Problems on Convection
	4 th	Classify heat exchanger
7 th	1 st	Construction and working of shell and tube heat exchanger
	2 nd	Multi pass and single pass heat exchanger
	3 rd	Derive energy balance for shell and tube heat exchanger
	4 th	Construction and operation of Finned tube heat exchanger
8 th	1 st	Construction and operation of Plate type heat exchanger

	2 nd	Construction and operation of Scrapped surface heat exchanger
	3 rd	Heat transfer in agitated vessel
	4 th	Problems on Heat Exchangers
9 th	1 st	Problems on Heat Exchangers
	2 nd	Define condensation
	3 rd	Drop wise and film type condensation
	4 th	Principle in radiation heat transfe
10 th	1 st	Concept of black body
	2 nd	Emissivity
	3 rd	Gray Body
	4 th	Mono chromatic emissive power
11 th	1 st	Derivation of total emissive power
	2 nd	Kirchhoff's Law
	3 rd	Stefan Boltzmann's Law
	4 th	Wien's law
12 th	1 st	Plank's law
	2 nd	Estimate heat transfer by radiation
	3 rd	Estimate heat transfer by radiation
	4 th	Estimate heat transfer by radiation
13 th	1 st	Objective of Evaporation
	2 nd	Performance, capacity, economy of evaporator
	3 rd	Differentiate among various types of evaporator
	4 th	Construction and operation of standard basket evaporator
14 TH	1 st	Construction and operation of long tube forced circulation type evaporator
	2 nd	Elementary principle of single and multiple effect evaporators
	3 rd	Material and energy balance of single effect evaporators
	4 th	Boiling point elevation
15 TH	1 st	Vapour recompression, mechanical recompression and thermal recompression
	2 nd	Solve simple problems on evaporators
	3 rd	Solve simple problems on evaporators
	4 th	Solve simple problems on evaporators