

LESSON PLAN

NAME OF FACULTY: SH. HITESH AGGARWAL

DISCIPLINE: MECHANICAL ENGINEERING SEMESTER: V

SUBJECT: REFRIGERATION AND AIR CONDITIONING

LESSON PLAN DURATION: 15 WEEKS

WORK LOAD (LECTURE/PRACTICAL) PER WEEK: (4 lectures, 2 Practical)

WEEK	THEORY		PRACTICALS
	LECTURE NOS	TOPIC	TOPIC
1 st	1	Unit-1 – REFRIGERATION , Fundamentals of Refrigeration	Practical-1 Identify various tools of refrigeration kit and practice in cutting, bending, flaring, swaging and brazing of tubes
	2	Introduction to refrigeration, and air conditioning	
	3	meaning of refrigerating effect, units of refrigeration, COP, methods of refrigeration	
2 nd	4	Introduction to air refrigerator working on reversed carnot cycle.	Practical-2 Study of thermostatic switch, LP/HP cut out overload protector filters, strainers and filter driers.
	5	Unit-2 Vapour Compression System	
	6	Introduction, principle, function, parts and necessity of vapour compression system,	
3 rd	7	T- ϕ and p– H charts, dry, wet and superheated compression.	Practical-3 Identify various parts of a refrigerator and window air conditioner.
	8	Effect of sub cooling, super heating,	
	9	mass flow rate, entropy, enthalpy	
4 th	10	work done, Refrigerating effect and COP.	Practical-4 To find COP of Refrigeration system
	11	actual vapour compression system	
	12	Refrigerants, Functions,	
5 th	13	SESSIONAL TEST -I	Repeat Practical 1 to 4
	14	Unit-3 Refrigerants, Functions, classification of refrigerants, properties of R - 717	
	15	R – 22, R–134 (a) and CO ₂	
6 th	16	Properties of ideal refrigerant, selection of refrigerant	Repeat Practical 1 to 4
	17	Unit-4- Vapour Absorption System	
	18	Introduction, principle and working of simple absorption system and domestic electrolux refrigeration systems	
7 th	19	Solar power refrigeration system, advantages and disadvantages of	Repeat Practical 1 to 4

		solar power refrigeration system over vapour compression system	
	20	Unit-5-Refrigeration Equipment, Compressor - Function, various types of compressors	
	21	Condenser - Function, various types of condensers, Evaporator - Function, types of evaporators	
8 th	22	Expansion Valve - Function, various types such as capillary tube, thermostatic	Practical-5 To detect trouble / faults in a refrigerator/window type air conditioner
	23	expansion valve, low side and high side float valves, application of various expansion valves	
	24	Safety Devices-Thermostat, overload protector LP, HP cut out switch	
9 th	25	SESSIONAL TEST -II	Practical-6 Charging of a refrigerator/window type air conditioner.
	26	Unit-6- Psychrometry Definition, importance,	
	27	specific humidity, relative humidity,	
10 th	28	degree of saturation DBT	Practical-7 Study of cut section of single cylinder compressor
	29	WBT, DPT,	
	30	sensible heat, latent heat	
11 th	31	Total enthalpy of air. Psychrometry chart and various processes of psychrometry	Practical-8 Visit to an ice plant, cold storage plant, central air conditioning plant
	32	Unit-7-Air-Conditioner	
	33	Study of window air-conditioning,	
12 th	34	split type air conditioning,	Repeat Practical 5 to 8
	35	concept of central air-condition,	
	36	automobile air-conditioning	
13 th	37	SESSIONAL TEST -III	Repeat Practical 5 to 8
	38	Revised Sessional Test -1	
	39	Revised Sessional Test -2	
14 th	40	Revised Sessional Test -3	Repeat Practical 5 to 8
	41	Seminar	
	42	Seminar	
15 th	43	Any Other Query	Repeat Practical

