Lesson Plan

Name of the faculty: Sh. Vikas Goel, Senior Lecturer in Mechanical Engg.

Discipline: Mechanical

Semester: 5th Mechanical A & B

Subject: REFRIGERATION AND AIR CONDITIONING

Lesson Plan Duration: 15 weeks

Work Load (Lecture/ Practical) per week (in hours): Lectures- 03, Practicals- 02

Week	Theory		Practical	
	Lecture day	Topic (including assignment /test)	Practical Day	Topic
1st	1st	Introduction to refrigeration, and air conditioning	1st	Identify various tools of refrigeration kit and practicein cutting, bending, flaring, swaging and brazing of tubes.
	2nd	meaning of refrigerating effect, units of refrigeration, COP		
	3rd	methods of refrigeration, Introduction to air refrigerator	2nd	Identify various tools of refrigeration kit and practicein cutting, bending, flaring, swaging and brazing of tubes.
2nd	1st	working on reversed carnot cycle.	1st	Study of thermostatic switch, LP/HP cut out overload protector filters, strainers and filter driers
	2nd	Introduction of vapour compression system		
	3rd	Principle of vapour compression System, function of vapour compression system	2nd	Study of thermostatic switch, LP/HP cut out overload protector filters, strainers and filter driers
3rd	1st	parts of vapour compression system,	1st	Identify various parts of a refrigerator and window air conditioner.
	2nd	necessity of vapour compression system,		
	3rd	T- Chart, p– H chart.	2nd	Identify various parts of a refrigerator and window air conditioner.
4th	1st	dry, wet and superheated compression.	1st	To find COP of Refrigeration system
	2nd	Effect of sub cooling		
	3rd	super heating, mass flow rate	2nd	To find COP of Refrigeration system
5th	1st	entropy, enthalpy	1st	To detect trouble/faults in a refrigerator/window type air conditioner
	2nd	work done		
	3rd	Refrigerating effect, COP	2nd	To detect trouble/faults in a refrigerator/window type air conditioner
6th	1st	actual vapour compression system	1st	Charging of a refrigerator/window type air conditioner.
	2nd	Functions of refrigerants		
	3rd	classification of refrigerants, properties of R - 717	2nd	Charging of a refrigerator/window type air conditioner.
7th	1st	properties of R - 22	1st	Study of cut section of single cylinder compressor
	2nd	Properties of R–134 (a) and CO2		

	3rd	Properties of ideal refrigerant selection of refrigerant	2nd	Study of cut section of single cylinder compressor
8th	1st	Introduction of simple absorption System, Introduction of domestic electrolux refrigeration systems	1st	Visit to an ice plant, cold storage plant, central air conditioning plant
	2nd	Principle of simple absorption system		
	3rd	Principle of domestic electrolux refrigeration systems	2nd	Visit to an ice plant, cold storage plant, central airconditioning plant
9th	1st	Working of simple absorption system		
	2nd	Working of domestic electrolux refrigeration systems Solar power refrigeration system		
	3rd	advantages of solar power refrigeration system over vapour compression system.		
10th	1st	disadvantages of solar power refrigeration system over vapour compression system.		
	2nd	Refrigeration Equipment		
	3rd	Compressor, Function of compressors		
11th	1st	Various types of compressors.		
	2nd	Condenser – Function, various types of condensers		
	3rd	Evaporator - Function, types of evaporators		
12th	1st	Expansion Valve - Function, various types such as capillary tube, thermostatic expansion valve		
	2nd	low side and high side float valves, application of various expansion valves		
	3rd	Safety Devices-Thermostat Safety Devices- overload protector LP		
13th	1st	Safety Devices-HP cut out switch		
	2nd	Definition of Psychrometry		
	3rd	importance of Psychrometry, specific humidity, relative humidity		
14th	1st	degree of saturation		
	2nd	DBT, WBT, DPT, sensible heat, latent heat.		
	3rd	Total enthalpy of air		
15th	1st	Psychrometry chart and various processes of psychrometry		
	2nd	Study of window air-conditioning split type air conditioning		
	3rd	concept of central air- condition, automobile air-conditioning		