GOVT. POLYTECHNIC BOLANGIR
LESSON PLAN

Discipline : Mechanical	Semester:5th	Name of the Teaching Faculty : Manabhanjan Bhoi
Subject : R & AC	No. of Days / per week class allotted : 4	Semester From date : 15.09.2022 to Date :22.12.2022 No. of Weesks : 14
Week	**Class Day**	**Topics**
15.9 - 17.9	1st	1.1 Definition of refrigeration and unit of refrigeration.
	2nd	1.2 Definition of COP, Refrigerating effect (R.E)
	3rd	1.3 Principle of working of open and closed air system of refrigeration.
	4th	1.3.1 Calculation of COP of Bell-Coleman cycle and numerical on it.
19.9-24.9	1st	2.1 schematic diagram of simple vapors compression refrigeration system
	2nd	2.2.1 Cycle with dry saturated vapors after compression.
	3rd	2.2.2 Cycle with wet vapors after compression.
	4th	2.2.3 Cycle with superheated vapors after compression.
26.9-1.10	1st	2.2.4 Cycle with superheated vapors before compression.
	2nd	2.2.5 Cycle with sub cooling of refrigerant
	3rd	2.2.6 Representation of above cycle on temperature entropy and pressure enthalpy diagram
	4th	2.2.6 Representation of above cycle on temperature entropy and pressure enthalpy diagram
10.10-15.10	1st	2.2.7 Numerical on above (determination of COP,mass flow)
	2nd	2.2.7 Numerical on above (determination of COP,mass flow)
	3rd	3.1 Simple vapor absorption refrigeration system
	4th	3.1 Simple vapor absorption refrigeration system
17.10-22.10	1st	3.2 Practical vapor absorption refrigeration system
	2nd	3.2 Practical vapor absorption refrigeration system
	3rd	3.3 COP of an ideal vapor absorption
	4th	3.4.Numerical on COP.
24.10-29.10	1st	3.4.Numerical on COP.
	2nd	4.1 REFRIGERANT COMPRESSORS 4.1.1 Principle of working and constructional details of reciprocating and rotary compressors.
	3rd	4.1.2 Centrifugal compressor only theory 4.1.3 Important terms.
	4th	4.1.4 Hermetically and semi hermetically sealed compressor.
31.10-5.11	1st	4.2.1 Principle of working and constructional details of air cooled and water cooled condenser
	2nd	4.2.2 Heat rejection ratio. 4.2.3 Cooling tower and spray pond.
	3rd	4.2.3 Cooling tower and spray pond.
	4th	1.6.1 Principle of working and constructional details of an evaporator.
7.11-12.11	1st	1.6.2 Types of evaporator. 1.6.3 Bare tube coil evaporator, finned evaporator, shell and tube evaporator.
	2nd	5.1 EXPANSION VALVES 5.1.1 Capillary tube
	3rd	5.1.2 Automatic expansion valve 5.1.3 Thermostatic expansion valve
	4th	5.2.1 Classification of refrigerants 5.2.2 Desirable properties of an ideal refrigerant.
14.11-19.11	1st	5.2.3 Designation of refrigerant.
	2nd	5.2.4 Thermodynamic Properties of Refrigerants. 5.2.5 Chemical properties of refrigerants.

14.11-19.11	3rd	5.2.6 commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717 5.2.7 Substitute for CFC
	4th	5.3 Applications of refrigeration
21.11-26.11	1st	5.3.1 cold storage
	2nd	5.3.2 dairy refrigeration
	3rd	5.3.3 ice plant
	4th	5.3.4 water cooler 5.3.5 frost free refrigerator
28.11-3.12	1st	6.1 Psychometric terms
	2nd	6.2 Adiabatic saturation of air by evaporation of water
	3rd	6.3 Psychometric chart and uses.
	4th	6.4.1 Sensible heating and Cooling 6.4.2 Cooling and Dehumidification
5.12-10.12	1st	6.4.3 Heating and Humidification 6.4.4 Adiabatic cooling with humidification
	2nd	6.4.5 Total heating of a cooling process
	3rd	6.4.6 SHF, BPF,
	4th	6.4.7 Adiabatic mixing
12.12-17.12	1st	6.4.8 Problems on above.
	2nd	6.5 Effective temperature and Comfort chart
	3rd	7.1 Factors affecting comfort air conditioning. .
	4th	7.2 Equipment used in an air-conditioning.
19.12-22.12	1st	7.3 Classification of air-conditioning system
	2nd	7.4 Winter Air Conditioning System
	3rd	7.5 Summer air-conditioning system.
	4th	7.6 Numerical on above