GOVT. POLYTECHNIC MAYURBHANJ , TIKARPADA

ACADEMIC SESSION-2023-24 , LESSON PLAN

Discipline : MECHANICAL ENGG.		Semester: 5th Sem	Name of the Teaching Faculty :SASMITA SAHA
Subject : Refrigeration & air conditioning		No. of Days / per week class allotted : 04	Semester From date : 01/08 /23 To Date : 30 /11/23
MONTH	**Week**	**Day**	**Topics**
AUGUST	IST	3rd	**Chapter-1: AIR REFRIGERATION CYCLE -**Definition of refrigeration and unit of refrigeration. Definition of COP, Refrigerating effect (R.E)
		4th	Bell- Coleman air cycle
		5th	Principle of working of open and closed air system of refrigeration
	2nd	1st	Calculation of COP of Bell-Coleman cycle.
		3rd	solved problems
		4th	**Chapter- 2** : **Simple vapour compression refrigeration system** :-Schematic diagram of simple vapors compression refrigeration system'
		5th	Types of simple vapors compression refrigeration system' : Cycle with dry saturated vapors after compression. Solve problem
	3rd	1st	Cycle with wet vapors after compression. Solve problem
		3rd	Cycle with superheated vapors after compression.
		4th	Cycle with superheated vapors before compression.
		5th	solve problems
	4th	1st	. Cycle with sub cooling of refrigerant
		3rd	Representation of above cycle on temperature entropy and pressure enthalpy diagram
		4th	Numerical on above (determination of COP,mass flow)

		5th	Revisions
	5TH	1st	**Chapter -3 :Vapour absorption refrigeration system**
		4th	Simple vapor absorption refrigeration system.
SEPTEMBER	1st	5th	Practical vapor absorption refrigeration system
	2nd	1st	Practical vapor absorption refrigeration system
		4th	comparision between VARS and VCRS
		5th	COP of an ideal vapour absorption refrigerationsystem
	3rd	1st	Numerical on COP
		3rd	**Chapter-4: Refrigeration equipments :-** REFRIGERANT COMPRESSORS Principle of working and constructional details of reciprocating and rotary compressors. .
		4th	Principle of working and constructional details of rotary compressors. .
		5th	CLASS TEST- I
	4th	1st	Centrifugal compressor only theory and
		4th	Important terms, Hermetically and semi hermetically sealed compressor
		5TH	Principle of working and constructional details of air cooled and water cooled condenser
	5TH	1st	Heat rejection ratio, Cooling tower and spray pond.
		3RD	Principle of working and constructional details of an evaporator
		4TH	Types of evaporator Bare tube coil evaporator, finned evaporator, shell and tube evaporator
OCTOBER	lst	3rd	Chapter-5: Refrigerant flow control, refrigerants & applications of refrigerants-Capillary tube,Automatic expansion valve
		4th	Thermostatic expansion valve ,Classification of refrigerants
		5th	Desirable properties of an ideal refrigerant. Designation of refrigerant.
	2nd	Ist	Thermodynamic Properties of Refrigerants. Chemical properties of refrigerants
		3rd	Commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717
		4th	Substitute for CFC
		5th	**INTERNAL EXAMINATION**
		1st	Applications of refrigeration ,cold storage , dairy refrigeration

	3rd	3rd	ice plant , water cooler
		4th	frost free refrigerator
		5th	Revision
	4th	3rd	**Chapter-6 :Psychometrics & comfort air conditioning system :** Psychometric terms
		4th	Psychometric relations,Adiabatic saturation of air by evaporation of water
		5th	Psychometric chart and uses.
	5TH	1st	Psychometric processes - Sensible heating and Cooling, Cooling and Dehumidification .
NOVEMBER	IST	3rd	problems on above
		4th	Heating and Humidification ,Adiabatic cooling with humidification
		5th	solve problems
	2nd	1st	Total heating of a cooling process ,SHF, BPF, Adiabatic mixing
		3rd	solve problems
		4th	human confort ,Effective temperature
		5th	Comfort chart , Revision
	3rd	1st	**Chapter-7: Air conditioning system :**Factors affecting comfort air conditioning
		3rd	Factors affecting optimum effective temperature.
		4th	Equipment used in an air-conditioning
		5th	Classification of air-conditioning system
	4th	1st	Winter Air Conditioning System
		3rd	Summer air-conditioning system
		4th	Numerical on above
		5th	Numericals solve
	5TH	3rd	CLASS TEST-II
		4th	Revision