BIT POLYTECHNIC BALASORE , SOMANATHPUR

ACADEMIC SESSION-2025-26 , LESSON PLAN

Discipline : MECHANICAL ENGG.	Semester: 5th Sem	Name of the Teaching Faculty : BIBATSA PANDA
Course : Refrigeration & air conditioning	No. of Days / per week class allotted : 04	Semester From date : 14/07 /25 To Date : 15/11/25

MONTH	Week	Day	Topics
JULY	3rd	1st	**Chapter-1: AIR REFRIGERATION CYCLE** -Definition of refrigeration and unit of refrigeration.
		2nd	Bell- Coleman air cycle
		4th	Principle of working of open and closed air system of refrigeration
		5th	Calculation of COP of Bell-Coleman cycle., Revision
	4th	1st	solved problems
		2nd	**Chapter- 2 : Simple vapour compression refrigeration system** :-Schematic diagram of simple vapors compression refrigeration system'
		4th	Types of simple vapors compression refrigeration system' :Cycle with dry saturated vapors after compression. Solve problem
		5th	Cycle with wet vapors after compression. Solve problem
	5TH	1st	Cycle with superheated vapors after compression.
		4th	Solve problem
AUGUST	1st	5th	Cycle with superheated vapors before compression,
	2nd	1st	solve problems
		2nd	Cycle with sub cooling of refrigerant
		4th	Representation of above cycle on temperature entropy and pressure enthalpy diagram
		5th	Numerical on above (determination of COP,mass flow)
	3rd	1st	Revisions
		2nd	solve problems
		4th	Monthly Test-I
	4th	1st	Chapter -3 :Vapour absorption refrigeration systemSimple vapor absorption refrigeration system.
		2nd	Practical vapor absorption refrigeration system
		4th	Practical vapor absorption refrigeration system
		5TH	comparision between VARS and VCRS
	5TH	1st	COP of an ideal vapour absorption refrigerationsystem , Numerical on COP
		2nd	**Chapter-4: Refrigeration equipments :-** REFRIGERANT COMPRESSORS Principle of working and constructional details of reciprocating and rotary compressors. .
		5TH	Principle of working and constructional details of rotary compressors. .
SEPTEMBER	IST	1st	Centrifugal compressor only theory and
		2nd	Important terms, Hermetically and semi hermetically sealed compressor
		4th	Principle of working and constructional details of air cooled and water cooled condenser
	2nd	1st	Heat rejection ratio. Cooling tower and spray pond.
		2nd	Principle of working and constructional details of an evaporator
		4th	Types of evaporator Bare tube coil evaporator, finned evaporator, shell and tube evaporator
		5th	Chapter-5: Refrigerant flow control, refrigerants & applications of refrigerants-Capillary tube,Automatic expansion valve
	3rd	1st	Thermostatic expansion valve ,Classification of refrigerants
		2nd	Desirable properties of an ideal refrigerant. Designation of refrigerant.
		4th	Internal assesment-I
		5th	Thermodynamic Properties of Refrigerants. Chemical properties of refrigerants
	4th	1st	Commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717
		2nd	Substitute for CFC
		4th	Applications of refrigeration ,cold storage , dairy refrigeration
		5th	ice plant , water cooler
	1st	5th	frost free refrigerator ,Revision
	2nd	1st	Chapter-6 :Psychometrics & comfort air conditioning system : Psychometric terms
		4th	Psychometric relations

OCTOBER		5th	Adiabatic saturation of air by evaporation of water
	3rd	1st	Psychometric chart and uses.
		2nd	Psychometric processes - Sensible heating and Cooling, Cooling and Dehumidification .
		4th	problems on above,Revision
		5th	Internal assesment-II
	4th	1st	Heating and Humidification ,Adiabatic cooling with humidification
		4th	Total heating of a cooling process ,SHF, BPF, Adiabatic mixing
		5th	human confort ,Effective temperature
	5TH	1st	Comfort chart
		2nd	Chapter-7: Air conditioning system :Factors affecting comfort air conditioning
		4th	Factors affecting optimum effective temperature.
		5th	Equipment used in an air-conditioning
NOVEMBER	2nd	1st	Classification of air-conditioning system
		2nd	Winter Air Conditioning System
		4th	Summer air-conditioning system
		5th	Numerical on above
	3rd	1st	CLASS TEST-II
		2nd	previous year question discussion
		4th	Revision
		5th	Revision