

GOVT. POLYTECHNIC MAYURBHANJ , TIKARPADA

ACADEMIC SESSION-2024-25 , 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 : 01/07 /24 To Date : 08/11/24
MONTH	Week	Day	Topics
JULY	1st	1st	Chapter-1: AIR REFRIGERATION CYCLE -Definition of refrigeration and unit of refrigeration. Definition of COP, Refrigerating effect (R.E)
		3rd	Bell- Coleman air cycle
		4th	Principle of working of open and closed air system of refrigeration
		5th	Calculation of COP of Bell-Coleman cycle.
	2nd	1st	solved problems
		3rd	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.
		5th	Cycle with wet vapors after compression. Solve problem
	3rd	1st	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
		3rd	Simple vapor absorption refrigeration system.

AUGUST	1st	4th	Practical vapor absorption refrigeration system
		5th	Practical vapor absorption refrigeration system
	2nd	1st	comparison between VARS and VCRS
		3rd	COP of an ideal vapour absorption refrigerationsystem
		4th	Numerical on COP
		5th	CLASS TEST- I
	3rd	1st	Chapter-4: Refrigeration equipments :- REFRIGERANT COMPRESSORS Principle of working and constructional details of reciprocating and rotary compressors. .
		3rd	Principle of working and constructional details of rotary compressors. .
		5th	Centrifugal compressor only theory and
	4th	3rd	Important terms, Hermetically and semi hermetically sealed compressor
		4th	Principle of working and constructional details of air cooled and water cooled condenser
		5TH	Heat rejection ratio. Cooling tower and spray pond. .
	5TH	3rd	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
SEPTEMBER	1ST	1st	Thermostatic expansion valve ,Classification of refrigerants
		3rd	Desirable properties of an ideal refrigerant. Designation of refrigerant.
		4th	Thermodynamic Properties of Refrigerants. Chemical properties of refrigerants
		5th	Commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717
	2nd	3rd	Substitute for CFC
		4th	Applications of refrigeration ,cold storage , dairy refrigeration
		5th	ice plant , water cooler
	3rd	1st	frost free refrigerator
		3rd	Revision
		4th	Chapter-6 :Psychometrics & comfort air conditioning system : Psychometric terms

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