

GOVT. POLYTECHNIC MAYURBHANJ , TIKARPADA

ACADEMIC SESSION-2025-26 , LESSON PLAN

Discipline : MECHANICAL ENGG.		Semester: 5th Sem	Name of the Teaching Faculty :SASMITA SAHA	
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 system Simple 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		1ST	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	
	4th	5th	Thermodynamic Properties of Refrigerants. Chemical properties of refrigerants	
		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	3rd	5th	Adiabatic saturation of air by evaporation of water	
		1st	Psychrometric chart and uses.	
		2nd	Psychrometric 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	
		1st	Classification of air-conditioning system	
	NOVEMBER	2nd	2nd	Winter Air Conditioning System
			4th	Summer air-conditioning system
5th			Numerical on above	
1st			CLASS TEST-II	
3rd		2nd	previous year question discussion	
		4th	Revision	
		5th	Revision	