Discipline : MECHANICAL ENGG	Semester : 5th	Name of the Teaching Faculty: LALATENDU DASH
Subject: RAC(TH-5)	No. of days/per week class allotted: 04	Semester From date: 15.09.2022 To Date: 22.12.2022 No. of Weeks: 15
Week	Class Day	Theory / Practical Topics
	1 ST	 1.AIR REFRIGERATION CYCLE. Definition of refrigeration and unit of refrigeration.
1 ST	2^{ND}	• Definition of COP, Refrigerating effect (R.E)
1	3 RD	Principle of working of open and closed air system of refrigeration
	4 TH	• Calculation of COP of Bell-Coleman cycle and numerical on it
2 ND	1 ST	 Calculation of COP of Bell-Coleman cycle and numerical on it 2.SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM schematic diagram of simple vapors compression refrigeration system
	3 RD	TypesCycle with dry saturated vapors after compression.
	4 TH	Cycle with wet vapors after compression.
	1 ST	Cycle with superheated vapors after compression
- 0.0	2 ND	Cycle with superheated vapors before compression.
3 RD	3 RD	Cycle with sub cooling of refrigerant
	4 TH	Representation of above cycle on temperature entropy and pressure enthalpydiagram
	1 ST	• Numerical on above (determination of COP, mass flow)
	2 ND	• Numerical on above (determination of COP, mass flow)
4^{TH}	3 RD	Discussion of probable question
	4 TH	 3.VAPOUR ABSORPTION REFRIGERATION SYSTEM Simple vapor absorption refrigeration system
	1 ST	Practical vapor absorption refrigeration system
5^{TH}	2^{ND}	COP of an ideal vapor absorption refrigeration system
5'''	3 RD	Numerical on COP.
	4 TH	• Numerical on COP.
6 TH	1 ST	• Numerical on COP.
	2 ND	CLASS TEST
	3RD	4.REFRIGERATION EQUIPMENTS REFRIGERANT COMPRESSORS
6 ^{1H}	5	• Principle of working and constructional details of reciprocating and rotary compressors
6 ¹ ^H	5	 Principle of working and constructional details of reciprocating and rotary compressors Centrifugal compressor only theory Important terms

2 ND CONDENSERS 3 RD Principle of working and constructional details of air cooled andwater cooledcondenser 3 RD Heat rejection ratio. Cooling tower and spray pond. 4 TH EVAPORATORS 4 TH Principle of working and constructional details of an evaporator. 2 ND Bare tube coil evaporator. 2 ND Bare tube coil evaporator. finned evaporator, shell and tube cvaporator. 2 ND Bare tube coil evaporator. 3 RD Classification of PRFRIGERANTS & APPLICATION OF PRFRIGERANTS & APPLICATION OF PRFRIGERANTS 3 RD Classification of refrigerants 3 RD Classification of refrigerants. 3 ^{RTH} 3 RD 4 TH Classification of refrigerants. 3 RD commodynamic Properties of an ideal properties of refrigerant. 3 ^{RTH} 3 RD 3 RD commodynamic Properties of Refrigerants. Chemical properties of refrigerants. 3 RD commodynamic Properties of Refrigerants. 3 RD commodynamic Properties of Refrigerant. 10 TH Substitute for CIC 1 ^{SR} Applications of refrigerants. 1 ^{SR}			
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$\frac{2^{\text{ND}}}{3^{\text{RD}}} = \frac{2^{\text{ND}}}{\text{Psychometric chart and uses.}}$ $\frac{3^{\text{RD}}}{4^{\text{TH}}} = \frac{2^{\text{ND}}}{\text{Cooling and Dehumidification Heating and Humidification}}$ $\frac{1^{\text{ST}}}{12^{\text{TH}}} = \frac{1^{\text{ST}}}{12^{\text{TH}}} = \frac{1^{\text{ST}}}{12^{\text{TH}}} = \frac{1^{\text{ST}}}{12^{\text{ST}}} = 1^{\text$		2 ND	Adiabatic saturation of air by evaporation of water
4^{TH} • Cooling and Dehumidification Heating and Humidification 1^{ST} • Adiabatic cooling with humidification • Total heating of a cooling process 12^{TH} 2^{ND} • SHF, BPF, 3^{RD} • Adiabatic mixing • Problems on above.			
12 TH 1 ST • Adiabatic cooling with humidification 12 TH 2 ND • SHF, BPF, 3 RD • Adiabatic mixing • Problems on above.		3 RD	Psychometric processes Sensible heating and Cooling
$12^{\text{TH}} = \frac{137}{\text{Total heating of a cooling process}}$ $12^{\text{TH}} = \frac{2^{\text{ND}}}{3^{\text{RD}}} = \frac{3^{\text{RD}}}{\text{Adiabatic mixing}}$ $= \frac{3^{\text{RD}}}{\text{Problems on above.}}$		4 TH	• Cooling and Dehumidification Heating and Humidification
$12^{\text{TH}} = \frac{137}{\text{Total heating of a cooling process}}$ $12^{\text{TH}} = \frac{2^{\text{ND}}}{3^{\text{RD}}} = \frac{3^{\text{RD}}}{\text{Adiabatic mixing}}$ $= \frac{3^{\text{RD}}}{\text{Problems on above.}}$	12 TH	1 ST	Adiabatic cooling with humidification
12^{TH} 2^{ND} • SHF, BPF, 3^{RD} • Adiabatic mixing • Problems on above.			
$\frac{2}{3^{RD}} = \frac{3^{RD}}{9^{RD}}$ • Adiabatic mixing • Problems on above.		• ND	• Total heating of a cooling process
• Problems on above.		2 ND	• SHF, BPF,
• Problems on above.		3 RD	Adiabatic mixing
Δ^{TH} • Effective temperature and Comfort chart			
		4 TH	Effective temperature and Comfort chart

13 TH	1 ST	Problems on above.
	2^{ND}	Discussion of probable question
	3 RD	CLASS TEST
	4 TH	 7.AIR CONDITIONING SYSTEMS Factors affecting comfort air conditioning Equipment used in an air-conditioning
14 TH	1 ST	Classification of air-conditioning system
	2^{ND}	Winter Air Conditioning System
	3 RD	Summer air-conditioning system.
	4 TH	Numerical on above
15TH	1 ST	Numerical on above
	2^{ND}	Numerical on above
	3 RD	Discussion of probable question
	4 TH	CLASS TEST

Learning Resouces:

- 01. REFRIGERATION AND AIRCONDITIONING BY C.P ARRORA,TMH
- $02. \ REFRIGERATION AND AIR CONDITIONING BYR.S. KHURMI \& J.K. GOPTA, S. CHAND BYR.S. KHURMI & J.K. SOPTA, S. SOPTA, S. K$
- 03. REFRIGERATION AND AIRCONDITIONING BY P.L BALLANY, KHANNAPUBLISHER
- 04. REFRIGERATION AND AIRCONDITIONINGBY DOMKUNDRA ANDARORA, DHANPAT RAYAND SONS