

Discipline : MECHANICAL ENGG	Semester : 5th	Name of the Teaching Faculty: : MUKESH KUMAR DALEI
Subject: RAC	No. of days/per week class allotted: 04	No. of Weeks: 15 Semester From date : 15.09.2022 To Date: 22.12.22
Week	Class Day	Theory / Practical Topics
1 ST	1 ST	AIR REFRIGERATION CYCLE. Definition of refrigeration and unit of refrigeration.
	2 ND	Definition of COP, Refrigerating effect (R.E)
	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 ND	SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM schematic diagram of simple vapors compression refrigeration system
	3 RD	Types Cycle with dry saturated vapors after compression.
	4 TH	Cycle with wet vapors after compression.
3 RD	1 ST	Cycle with superheated vapors after compression
	2 ND	Cycle with superheated vapors before compression.
	3 RD	Cycle with sub cooling of refrigerant
	4 TH	Representation of above cycle on temperature entropy and pressure enthalpy diagram
4 TH	1 ST	Numerical on above (determination of COP, mass flow)
	2 ND	Numerical on above (determination of COP, mass flow)
	3 RD	Numerical on above (determination of COP, mass flow)
	4 TH	VAPOUR ABSORPTION REFRIGERATION SYSTEM Simple vapor absorption refrigeration system
5 TH	1 ST	Practical vapor absorption refrigeration system
	2 ND	COP of an ideal vapor absorption refrigeration system
	3 RD	Numerical on COP.
	4 TH	Numerical on COP.
6 TH	1 ST	Numerical on COP.
	2 ND	Numerical on COP.
	3 RD	REFRIGERATION EQUIPMENTS REFRIGERANT COMPRESSORS Principle of working and constructional details of reciprocating and rotary compressors
	4 TH	Centrifugal compressor only theory Important terms
7 TH	1 ST	Hermetically and semi hermetically sealed compressor.
	2 ND	CONDENSERS Principle of working and constructional details of air cooled and water cooled condenser
	3 RD	Heat rejection ratio.

	4 TH	Cooling tower and spray pond.
		EVAPORATORS
8 TH	1 ST	Principle of working and constructional details of an evaporator.
	2 ND	Types of evaporator.
	3 RD	Bare tube coil evaporator, finned evaporator, shell and tube evaporator.
		REFRIGERANT FLOW CONTROLS, REFRIGERANTS & APPLICATION OF REFRIGERANTS
		EXPANSION VALVES
		Capillary tube
		Automatic expansion valve
		Thermostatic expansion valve
	4 TH	REFRIGERANTS
		Classification of refrigerants
9 TH	1 ST	Desirable properties of an ideal refrigerant.
		Designation of refrigerant.
	2 ND	Thermodynamic Properties of Refrigerants.
		Chemical properties of refrigerants.
	3 RD	commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717
	4 TH	Substitute for CFC
10 TH	1 ST	Applications of refrigeration cold storage
	2 ND	dairy refrigeration
	3 RD	ice plant water cooler
	4 TH	frost free refrigerator
11 TH	1 ST	PSYCHOMETRICS & COMFORT AIR CONDITIONING SYSTEMS
		Psychometric terms
	2 ND	Adiabatic saturation of air by evaporation of water Psychometric chart and uses.
	3 RD	Psychometric processes Sensible heating and Cooling
	4 TH	Cooling and Dehumidification Heating and Humidification
12 TH	1 ST	Adiabatic cooling with humidification Total heating of a cooling process
	2 ND	SHF, BPF,

		Adiabatic mixing
	3 RD	Problems on above.
	4 TH	Problems on above.
13 TH	1 ST	Problems on above.
	2 ND	Effective temperature and Comfort chart
	3 RD	AIR CONDITIONING SYSTEMS Factors affecting comfort air conditioning. .
	4 TH	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
15 TH	1 ST	Numerical on above
	2 ND	Numerical on above
	3 RD	Numerical on above
	4 TH	Numerical on above

Learning Resources:

01. REFRIGERATION AND AIRCONDITIONING BY C.P ARRORA, TMH
02. REFRIGERATION AND AIRCONDITIONING BY R.S.KHURMI&J.K.GOPTA, S.CHAND
03. REFRIGERATION AND AIRCONDITIONING BY P.L BALLANY, KHANNA PUBLISHER
04. REFRIGERATION AND AIRCONDITIONING BY DOMKUNDRA ANDARORA, DHANPAT RAYAND SONS

Mukesh Datta
Teaching Faculty

M.S.
HOD(Mech)