

Lesson Plan

Discipline: Mechanical, Semester:5TH, Name of Faculty : B.SIVA SANKAR ACHARYA

Subject:

**REFRIGERATION
AND AIR
CONDITIONING**

**No. of days/
week Class
allotted: 04**

Semester From Date: 1.10.2021

To date : 18.1.2022

WEEK	Class	
1ST	01	INTRODUCTION TO SUBJECT
	02	AIR REFRIGERATION CYCLE. Definition of refrigeration and unit of refrigeration. Definition of COP, Refrigerating effect (R.E)
	03	Principle of working of open and closed air system of refrigeration. Calculation of COP of Bell-Coleman cycle and numerical on it.
	04	SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM schematic diagram of simple vapors compression refrigeration system' Types
2ND	05	Cycle with dry saturated vapors after compression. Cycle with wet vapors after compression.
	06	Cycle with superheated vapors after compression. Cycle with superheated vapors before compression.
	07	Cycle with sub cooling of refrigerant Representation of above cycle on temperature entropy and pressure enthalpy diagram
	08	Numerical (determination of COP, mass flow)
3RD	09	VAPOUR ABSORPTION REFRIGERATION SYSTEM Simple vapor absorption refrigeration system Practical vapor absorption refrigeration system
	10	COP of an ideal vapor absorption refrigeration system
	11	Numerical on COP.
	12	REFRIGERANT COMPRESSORS Principle of working and constructional details of reciprocating and rotary compressors.
4TH	13	Centrifugal compressor only theory Important terms.
	14	Hermetically and semi hermetically sealed compressor.
	15	CONDENSERS Principle of working and constructional details of air cooled and water cooled condenser
	16	Heat rejection ratio. Cooling tower and spray pond.
5TH	17	EVAPORATORS Principle of working and constructional details of an evaporator.
	18	Types of evaporator. Bare tube coil evaporator, finned evaporator, shell and tube evaporator
	19	EXPANSION VALVES Capillary tube
	20	Automatic expansion valve Thermostatic expansion valve
6TH	21	REFRIGERANTS Classification of refrigerants Desirable properties of an ideal refrigerant
	22	Designation of refrigerant. Thermodynamic Properties of Refrigerants. .
	23	Chemical properties of refrigerants
	24	commonly used refrigerants, R-11, R-12

R-22, R-134a, R-717 Substitute for CFC		
7 TH	25	
	26	quiz
	27	quiz
	28	Applications of refrigeration - cold storage , water cooler frost free refrigerator, ice plant
8 TH	29	
	30	PSYCHOMETRIC PROCESS Psychometric terms
	31	Adiabatic saturation of air by evaporation of water
	32	Psychometric chart and uses.
9 TH	33	Psychometric chart and uses.
	34	Psychometric processes Cooling and
	35	Dehumidification
	36	Heating and Humidification
10 TH	37	Adiabatic cooling with humidification
	38	Total heating of a cooling process
	39	SHF, BPF
	40	Adiabatic mixing
11 TH	41	numerical
	42	numerical
	43	numerical
	44	Effective temperature and Comfort chart
12 TH	45	Factors affecting comfort air conditioning
	46	Factors affecting comfort air conditioning.
	47	Equipment used in an air-conditioning.
	48	Classification of air-conditioning system
13 TH	49	Classification of air-conditioning system
	50	Winter air-conditioning system.
	51	Winter air-conditioning system.
	52	Summer air-conditioning system.
14 TH	53	Summer air-conditioning system.
	54	Numerical
	55	Numerical
	56	Numerical

15TH	57	Test
	58	test
	59	Test
	60	Test

B. Shiva Sankar Acharya

I. Acharya 10.29
 HOD MECHANICAL
 GOVT. POLYTECHNIC KATTAHAMAL
 PHULBANI