

Discipline: Mechanical Engg.		Semester: 5th Sem,	Name of the Teaching Faculty: Er. Tapas Kumar Panda	
Subject: Refrigeration & Air Conditioning		No of Days/Week Class Allotted: 04	Semester From date: 15/09/22 To date: 22/12/22	No. of Weeks: 15
WEEK	Class Day	Theory Topics		
15/09/22 to 17/09/22 [1st week]	15/09/2022 1st (Thursday)	Air Refrigeration Cycle:- Introduction What is Refrigeration?		
	16/09/2022 2nd (Friday)	Definition of Refrigeration. Unit of refrigeration		
	17/09/2022 3rd (Saturday)	What is COP? Principle of open & closed air system. Study on Refrigeration Effect (RE)		
	4th			
	5th			
18/09/22 to 24/09/22 [2nd week]	19/09/2022 1st (Monday)	Calculate the COP of Bell-Coleman cycle & Numerical on it.		
	20/09/2022 2nd (Tuesday)	<u>Simple Vapour Compression Refrigeration System :-</u> Introduction		
	21/09/2022 3rd (Wednesday)	Schematic diagram of simple vapours compression refrigerant system.		
	22/09/2022 4th Friday	Types of Simple Vapour Compression Refrigeration System.		
	5th			
26/09/22 to 01/10/22 [3rd week]	26/09/2022 1st (Monday)	Cycle with dry saturated vapour after compression		
	27/09/2022 2nd (Tuesday)	Cycle with wet vapour after compression.		
	28/09/2022 3rd (Wednesday)	Cycle with super heated vapours after compression		
	29/09/2022 4th (Thursday)	Cycle with super heated vapours after compression		
	5th			

WEEK	Class Day	Theory Topics
10/10/22 to 15/10/22 [4th week]	10/10/22 1st (Monday)	Cycle with Sub-cooling of refrigerant.
	11/10/22 2nd (Tuesday)	Representation of above cycle on temp. entropy and pressure enthalpy diagram.
	12/10/22 3rd (Wednesday)	Numerical on Simple Vapour Compression Refrigerant. (Calculate the COP) & (Mass Flow)
	13/10/22 4th (Thursday)	Numerical on Simple Vapour Compression Refrigerant. (Calculate the COP & Mass Flow)
	5th	
17/10/22 to 22/10/22 [5th week]	17/10/22 1st (Monday)	Surprise class test - ①, assignment given to the student.
	18/10/22 2nd (Tuesday)	Discussion regarding 1st class test & doubt clearing class.
	19/10/22 3rd (Wednesday)	<u>Vapour Absorption Refrigeration System:-</u> Introduction & About
	20/10/22 4th (Thursday)	Simple Vapour absorption refrigeration System
	5th	
24/10/22 to 29/10/22 [6th week]	24/10/22 1st (Monday)	Practical Vapour absorption refrigeration System.
	25/10/22 2nd (Tuesday)	DIWALI (Holidays)
	26/10/22 3rd (Wednesday)	Numerical on COP, Coefficient performance of an ideal vapour absorption refrigerant system.
	27/10/22 4th (Thursday)	Numerical on COP.
	5th	

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WEEK	Class Day	Theory Topics
31/10/22 to 05/11/22 [7th week]	31/10/22 1st (Monday)	<u>Refrigeration Equipments</u> :- Refrigerant Compression
	01/11/22 2nd (Tuesday)	Working Principle & Constructional details of reciprocating and rotary compressor
	02/11/22 3rd (Wednesday)	Centrifugal Compressor only theory, & Important terms
	03/11/22 4th (Thursday)	Hermetically & Semi-hermetically sealed compressor
	5th	
07/11/22 to 12/11/22 [8th week]	07/11/22 1st (Monday)	<u>Condensers</u> :- Introduction & Working Principle, Constructional details
	08/11/22 2nd (Tuesday)	KARTIK PURNIMA (Holiday)
	09/11/22 3rd (Wednesday)	Heat rejection Ratio, Cooling tower & Spray Pond, Air cooled & water cooled condensers
	10/11/22 4th (Thursday)	<u>Evaporators</u> :- Introduction & Working Principle, Constructional details
	5th	
14/11/22 to 19/11/22 [9th week]	14/11/22 1st (Monday)	Types of evaporators & Working Principle of different type evaporators.
	15/11/22 2nd (Tuesday)	Bare tube coil evaporators, finned evaporators & shell and tube evaporators.
	16/11/22 3rd (Wednesday)	Surprise class test - (2) Assignment (2) given to the students.
	17/11/22 4th (Thursday)	discussion with students regarding class test (2) & Important Question from Module (3) & (4)
	5th	

WEEK	Class Day	Theory Topics
21/11/22 to 26/11/22 (10th week)	21/11/22 1st (Monday)	Refrigerant flow controls, Refrigerant & Application of Refrigerants :- Introduction
	22/11/22 2nd (Tuesday)	Expansion Valves :- Introduction & working Principle
	23/11/22 3rd (Wednesday)	Capillary tube Working Principle
	24/11/22 4th (Thursday)	Automatic expansion valve & Thermostatic expansion valve working Principle
	5th	
28/11/22 to 03/12/22 (11th week)	28/11/22 1st (Monday)	Refrigerants :- Classification of Refrigerants Describe properties of an ideal refrigerant.
	29/11/22 2nd (Tuesday)	Designation of Refrigerant & Thermodynamic properties of Refrigerant
	30/11/22 3rd (Wednesday)	Chemical Properties of refrigerant
	01/12/22 4th (Thursday)	Commonly Used Refrigerant R-11, R-12, R-22 R-13a, R-717, Substitute for CFC
	5th	
05/12/22 to 10/12/22 (12th week)	05/12/22 1st (Monday)	Applications of refrigeration :- cold storage
	06/12/22 2nd (Tuesday)	dairy refrigeration, Ice plant working Principle
	07/12/22 3rd (Wednesday)	Water Cooler, frost free refrigerator working Principle
	08/12/22 4th (Thursday)	Important Question of Module ①, ②, ③, ④ & ⑤ for semester & Assignment ③ given to student.
	5th	

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WEEK	Class Day	Theory Topics
12/12/22 to 17/12/22 [13 th week]	12/12/22 1 st (Monday)	Psychometrics & Comfort Air Conditioning System :- Introduction
	13/12/22 2 nd (Tuesday)	<u>Psychometric terms</u> :- Adiabatic saturation of air by evaporation of water.
	14/12/22 3 rd (Wednesday)	Psychometric chart and uses, Psychometric processes.
	15/12/22 4 th (Thursday)	Sensible heating & cooling, Cooling & dehumidification, Heating & Humidification.
	5 th	
19/12/22 to 24/12/22 [14 th week]	19/12/22 1 st (Monday)	Total heating of a cooling process, SHF, BPF Adiabatic mixing, Problems on above, Effect temp. & Comfort chart
	20/12/22 2 nd (Tuesday)	<u>Air Conditioning System</u> :- factor affecting comfort air conditioning, Equipment used in an air conditioning
	21/12/22 3 rd (Wednesday)	Classification of air-conditioning System, Winter air conditioning system, / Summer Air-conditioning system
	22/12/22 4 th (Thursday)	Numerical on above
	5 th	
26/12/22 to 31/12/22 [15 th week]	26/12/22 1 st (Monday)	Surprise class Test - (3) & Assignment (4) Given to the students.
	27/12/22 2 nd (Tuesday)	Important Questions & Answer discussion with students from Module (6) & (7)
	28/12/22 3 rd (Wednesday)	Syllabus totally revised & Give Important Question to students for Semester Preparation.
	29/12/22 4 th (Thursday)	Doubt clearing class & Solve all the types Numerical according to syllabus.
	5 th	