BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF MECHANICAL ENGINEERING
LESSON PLAN

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LESSON PLAN

SUBJECT: REFRIGERATION AND AIR CONDITIONING

FACULTY: MRS SUNITA SAMAL

ACCADEMIC SESSION: 2024-25(W)

SEMESTER: 5TH

SEC: A

Sd/-
H O D (Mech.Engg.)

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DISCIPLINE: MECHANICAL ENGINEERING	SEMESTER: 5TH (A)		NAME OF THE TEACHING FACULTY: MRS SUNITA SAMAL
SUBJECT: REFRIGERATION AND AIR CONDITIONING(TH-5)	NO. OF DAYS/ PER WEEK CLASS ALLOTTED: 04 PERIODS PER WEEK (Tues-1 period ,Thu-1 period, Fri-1 period, sat-1 period)		SEMESTER FROM DATE: 01-07-2024 TO DATE: 08-11-2024 NO. OF WEEKS: 19WEEKS
WEEK	CLASS DAY	NO OF PERIODS AVAILABLE	THEORY TOPICS
1ST(4)	02/07/24	1	**INTRODUCTION ON REFRIGERATION AND AIR CONDITIONING AND SYLLABUS DISCUSSION.**
	04/07/24	1	**1.0 AIR REFRIGERATION CYCLE.** 1.1 Definition of refrigeration and unit of refrigeration
	05/07/24	1	1.2 Definition of COP, Refrigerating effect (R.E)
	06/07/24	1	1.3 Principle of working of open and closed air system of refrigeration.
2ND(4)	09/07/24	1	1.3 Principle of working of open and closed air system of refrigeration.
	11/07/24	1	1.3.1 Calculation of COP of Bell-Coleman cycle and numerical on it.
	12/07/24	1	**2.0 SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM** 2.1 schematic diagram of simple vapors compression refrigeration system'
	13/07/24	1	2.1 schematic diagram of simple vapors compression refrigeration system'
3RD(4)	16/07/24	1	2.2.1 Cycle with dry saturated vapors after compression.
	18/07/24	1	2.2.2 Cycle with wet vapors after compression.
	19/07/24	1	2.2.3 Cycle with superheated vapors after compression.
	20/07/24	1	2.2.4 Cycle with superheated vapors before compression.
4TH(4)	23/07/24	1	2.2.5 Cycle with sub cooling of refrigerant
	25/07/24	1	2.2.6 Representation of above cycle on temperature entropy and pressure enthalpy diagram

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
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LESSON PLAN

	26/07/24	1	2.2.7 Numerical on above (determination of COP, mass flow)
	27/07/24	1	2.2.7 Numerical on above (determination of COP, mass flow)
5TH(4)	30/07/24	1	2.2.7 Numerical on above (determination of COP, mass flow)
	01/08/24	1	**3.0 VAPOUR ABSORPTION REFRIGERATION SYSTEM** 3.1 Simple vapour absorption refrigeration system
	02/08/24	1	3.2 Practical vapour absorption refrigeration system
	03/08/24	1	3.2 Practical vapour absorption refrigeration system
6TH(4)	06/08/24	1	3.3 COP of an ideal vapour absorption refrigeration system .
	08/08/24	1	3.4.Numerical on COP
	09/08/24	1	**CLASS TEST-1**
	10/08/24	1	**4.0 REFRIGERATION EQUIPMENTS** 4.1 REFRIGERANT COMPRESSORS 4.1.1 Principle of working and constructional details of reciprocating and rotary compressors.
7TH(3)	13/08/24	1	4.1.1 Principle of working and constructional details of reciprocating and rotary compressors.
	16/08/24	1	4.1.2 Centrifugal compressor only theory 4.1.3 Important terms.
	17/08/24	1	4.1.4 Hermetically and semi hermetically sealed compressor.
8TH(4)	20/08/24	1	**4.2 CONDENSERS** 4.2.1 Principle of working and constructional details of air cooled and water cooled condenser
	22/08/24	1	4.2.2 Heat rejection ratio. 4.2.3 Cooling tower and spray pond.
	23/08/24	1	**4.3 EVAPORATORS** 1.6.1 Principle of working and constructional details of an evaporator.
	24/08/24	1	1.6.2 Types of evaporator
9TH(3)	27/08/24	1	. 1.6.3 Bare tube coil evaporator, finned evaporator, shell and tube evaporator..

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LESSON PLAN

	29/08/24	1	1.6.3 Bare tube coil evaporator, finned evaporator, shell and tube evaporator..
	30/08/24	1	1.6.3 Bare tube coil evaporator, finned evaporator, shell and tube evaporator..4.2.2 Pressure regulation valves
	31/08/24	1	**5.0 REFRIGERANT FLOW CONTROLS, REFRIGERANTS & APPLICATION OF REFRIGERANTS** 5.1 EXPANSION VALVES 5.1.1 Capillary tube
10^{TH}(3)	03/09/24	1	5.1.2 Automatic expansion valve
	05/09/24	1	5.1.3 Thermostatic expansion valve
	06/09/24	1	5.2 REFRIGERANTS 5.2.1 Classification of refrigerants 5.2.2 Desirable properties of an ideal refrigerant
11^{TH}(4)	10/09/24	1	5.2.3 Designation of refrigerant.
	12/09/24	1	**INTERNAL ASSESSMENT-I**
	13/09/24	1	5.2.4 Thermodynamic Properties of Refrigerants. 5.2.5 Chemical properties of refrigerants.
	14/09/24	1	5.2.6 commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717
12^{TH}(4)	17/09/24	1	5.2.7 Substitute for CFC 4.5
	19/09/24	1	5.3 Applications of refrigeration 5.3.1 cold storage 5.3.2 dairy refrigeration
	20/09/24	1	5.3.3 ice plant 5.3.4 water cooler
	21/09/24	1	5.3.5 frost free refrigerator
13^{TH}(4)	24/09/24	1	**6.0 PSYCHOMETRICS &COMFORT AIR CONDITIONING SYSTEMS** 6.1 Psychometric terms 6.2 Adiabatic saturation of air by evaporation of water

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DEPARTMENT OF MECHANICAL ENGINEERING
LESSON PLAN

	26/09/24	1	6.3 Psychometric chart and uses.
	27/09/24	1	6.4 Psychometric processes 6.4.1 Sensible heating and Cooling
	28/09/24	1	6.4.2 Cooling and Dehumidification
14TH(4)	01/10/24	1	6.4.3 Heating and Humidification
	03/10/24	1	6.4.4 Adiabatic cooling with humidification 6.4.5 Total heating of a cooling process
	04/10/24	1	6.4.6 SHF, BPF, 6.4.7 Adiabatic mixing
	05/10/24	1	6.4.8 Problems on above.
15TH			**PUJA VACATION**
16TH(4)	15/10/24	1	6.5 Effective temperature and Comfort chart
	17/10/24	1	**7.0 AIR CONDITIONING SYSTEMS** 7.1 Factors affecting comfort air conditioning.
	18/10/24	1	7.2 Equipment used in air-conditioning.
	19/10/24	1	7.3 Classification of air-conditioning system 7.4 Winter Air Conditioning System
17TH(4)	22/10/24	1	7.5 Summer air-conditioning system.
	24/10/24	1	7.6 Numerical on above
	25/10/24	1	7.6 Numerical on above
	26/10/24	1	7.6 Numerical on above
18TH(3)	29/10/24	1	DOUBT CLEARING CLASS
	01/11/24	1	DOUBT CLEARING CLASS
	02/11/24	1	Revision
19TH (3)	05/11/24	1	**CLASS TEST-II**
	07/11/24	1	Previous year question discussion
	08/11/24	1	Previous year question discussion

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EXTENTION OF CLOSING OF ATTENDANCE

WEEK	CLASS DAY	NO OF PERIOD AVAILABLE	THEORY TOPICS