BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF MECHANICAL ENGINEERING

LESSON PLAN

SUBJECT: REFRIGERATION AND AIR CONDITIONING

FACULTY: MRS SUNITA SAMAL

ACCADEMIC SESSION: 2022-23

SEMESTER: 5TH

SEC: A

14/09/22

Sd/-

H O D (Mech.Engg.)

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

Discipline: Mechanical Engineering	**Semester: 5TH A**		**Name of the teaching faculty:** Mrs SUNITA SAMAL
Subject: Refrigeration and Air Conditioning	**No. of Days/ per week class allotted:** 04periods per week Mon-1 period, Tues-1 period , Wed-1 period,Thu-1 period,)		**Semester From Date: 15-09-2022 To Date: 22-12-2022** No. of weeks: 14 weeks
Week	**Class Day**	**No of period available**	**Theory Topics**
1ST(1)	15/09/2022	1	**1.0 AIR REFRIGERATION CYCLE.** 1.1Definition of refrigeration and unit of refrigeration 1.2Definition of COP, Refrigerating effect (R.E)
2ND(4)	19/09/2022	1	1.3Principle of working of open and closed air system of refrigeration.
	20/09/2022	1	1.3.1 Calculation of COP of Bell-Coleman cycle and numerical on it.
	21/09/2022	1	**2.0 SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM** 2.1 schematic diagram of simple vapors compression refrigeration system'
	22/09/2022	1	2.2 Types 2.2.1 Cycle with dry saturated vapors after compression.
3RD(4)	26/09/2022	1	2.2.2 Cycle with wet vapors after compression. 2.2.3 Cycle with superheated vapors after compression
	27/09/2022	1	2.2.4 Cycle with superheated vapors before compression. 2.2.5 Cycle with sub cooling of refrigerant
	28/09/2022	1	2.2.6 Representation of above cycle on temperature entropy and pressure enthalpy diagram
	29/09/2022	1	2.2.7 Numerical on above (determination of COP,mass flow)
4TH(4)	10/10/2022	1	2.2.7 Numerical on above (determination of COP,mass flow)
	11/10/2022	1	**3.0 VAPOUR ABSORPTION REFRIGERATION SYSTEM**

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			3.1 Simple vapor absorption refrigeration system
	12/10/2022	1	3.2 Practical vapor absorption refrigeration system
	13/10/2022	1	3.3 COP of an ideal vapor absorption refrigeration system
5^{TH}(4)	17/10/2022	1	3.4.Numerical on COP.
	18/10/2022	1	3.4.Numerical on COP.
	19/10/2022	1	**4.0 REFRIGERATION EQUIPMENTS** 4.1 REFRIGERANT COMPRESSORS 4.1.1 Principle of working and constructional details of reciprocating and rotary compressors.
	20/10/2022	1	4.1.2 Centrifugal compressor only theory 4.1.3 Important terms.
6^{TH}(3)	25/10/2022	1	4.1.4 Hermetically and semi hermetically sealed compressor.
	26/10/2022	1	**4.2 CONDENSERS** 4.2.1 Principle of working and constructional details of air cooled and water cooled condenser
	27/10/2022	1	**Class test-1**
7^{TH}(4)	31/10/2022	1	4.2.2 Heat rejection ratio
	01/11/2022	1	4.2.2 Heat rejection ratio
	02/11/2022	1	**4.3 EVAPORATORS** 4.3.1 Principle of working and constructional details of an evaporator.
	03/11/2022	1	4.3.2 Types of evaporator. 4.3.3 Bare tube coil evaporator, finned evaporator, shell and tube evaporator.
8^{TH}(3)	07/11/2022	1	**5.0 REFRIGERANT FLOW CONTROLS, REFRIGERANTS & APPLICATION OF REFRIGERANTS** 5.3.1 cold storage
	09/11/2022	1	5.1 EXPANSION VALVES 5.1.1 Capillary tube 5.1.2 Automatic expansion valve 5.1.3 Thermostatic expansion valve
	10/11/2022	1	5.2 REFRIGERANTS 5.2.1 Classification of refrigerants

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			5.2.2 Desirable properties of an ideal refrigerant.
9^{TH}(4)	14/11/2022	1	5.2.3 Designation of refrigerant. 5.2.4 Thermodynamic Properties of Refrigerants.
	15/11/2022	1	5.2.5 Chemical properties of refrigerants. 5.2.6 commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717 5.2.7 Substitute for CFC
	16/11/2022	1	**Internal Assessment**
	17/11/2022	1	5.3 Applications of refrigeration 5.3.1 cold storage 5.3.2 dairy refrigeration
10^{TH}(4)	21/11/2022	1	5.3.3 ice plant 5.3.4 water cooler 5.3.5 frost free refrigerator
	22/11/2022	1	**6.0 PSYCHOMETRICS &COMFORT AIR CONDITIONING SYSTEMS** 6.1 Psychometric terms 6.2 Adiabatic saturation of air by evaporation of water
	23/11/2022	1	6.3 Psychometric chart and uses. 6.4 Psychometric processes 6.4.1 Sensible heating and Cooling
	24/11/2022	1	6.4.2 Cooling and Dehumidification 6.4.3 Heating and Humidification
11^{TH}(4)	28/11/2022	1	6.4.4 Adiabatic cooling with humidification 6.4.5 Total heating of a cooling process
	29/11/2022	1	6.4.6 SHF, BPF, 6.4.7 Adiabatic mixing
	30/11/2022	1	6.4.8 Problems on above.
	01/12/2022	1	6.4.8 Problems on above.
12^{TH}(4)	05/12/2022	1	6.5 Effective temperature and Comfort chart
	06/12/2022	1	**7.0 AIR CONDITIONING SYSTEMS** 7.1 Factors affecting comfort air conditioning.
	07/12/2022	1	7.2 Equipment used in an air-conditioning. 7.3 Classification of air-conditioning system

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	08/12/2022	1	7.4 Winter Air Conditioning System
13^{TH}(4)	12/12/2022	1	7.5 Summer air-conditioning system.
	13/12/2022	1	7.6 Numerical on above
	14/12/2022	1	7.6 Numerical on above
	15/12/2022	1	**Class Test 2**
14^{TH}(4)	19/12/2022	1	Revision
	20/12/2022	1	Revision
	21/12/2022	1	Revision
	22/12/22	1	Previous Year Questions Discussion

EXTENTION OF CLOSING OF ATTENDANCE UPTO 21-01-23

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15^{TH}(4)	02/01/2023	1	7.5 Summer air-conditioning system.
	03/01/2023	1	7.6 Numerical on above
	04/01/2023	1	7.6 Numerical on above
	05/01/2023	1	**Class Test 2**
16^{TH}(4)	09/1/2023	1	Revision
	10/1/2023	1	Revision
	11/1/2023	1	Revision
	12/1/23	1	Revision
17^{TH} (4)	16/01/23	1	PREVIOUS FIVE YEAR QUESTION DISCUSSION
	17/01`/23	1	PREVIOUS FIVE YEAR QUESTION DISCUSSION
	18/01/23	1	PREVIOUS FIVE YEAR QUESTION DISCUSSION
	19/01/23	1	PREVIOUS FIVE YEAR QUESTION DISCUSSION