

**NM INSTITUTE OF ENGINEERING & TECHNOLOGY
BHUBANESWAR**

Mechanical Engineering Department



Education for a World Stage

**LESSON PLAN
Session 2022-2023**

Semester: 5th

Subject : REFRIGERATION & AIR CONDITIONING

Faculty Name: SUSHREE SUCHARITA KAR

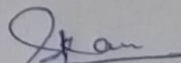
Subject: RACNo of Days/per week class allotted: 05Semester from date : 15.09.22 to date: 21.01.23 No. of Weeks: 15

Week	Class Day	Theory topics
1	1	Definition of refrigeration .
	2	Unit of refrigeration. Definition of COP
	3	Refrigerating effect (R.E)
	4	Principle of working of open air system of refrigeration.
2	1	Principle of working of closed air system of refrigeration.
	2	Calculation of COP of Bell-Coleman cycle and numerical on it.
	3	schematic diagram of simple vapors compression refrigeration system
	4	Types of simple vapors compression refrigeration system Cycle with dry saturated vapors after compression.
3	1	Cycle with wet vapors after compression.
	2	Cycle with superheated vapors after compression.
	3	Cycle with superheated vapors before compression.
	4	Cycle with sub cooling of refrigerant
4	1	Representation of above cycle on temperature entropy and pressure enthalpy diagram
	2	determination of COP, mass flow
	3	Simple vapor absorption refrigeration system
	4	Practical vapor absorption refrigeration system
5	1	COP of an ideal vapor absorption refrigeration system
	2	Numerical on COP.
	3	Principle of working and constructional details of reciprocating compressors.
	4	Principle of working and constructional details of rotary compressors.
6	1	Centrifugal compressor
	2	Important terms related to compressor
	3	Hermetically and semi hermetically sealed compressor.
	4	Principle of working and constructional details of air cooled condenser
7	1	Principle of working and constructional details of water cooled condenser
	2	Heat rejection ratio.
	3	Cooling tower and spray pond.
	4	Principle of working and constructional details of an evaporator.

Subject: RAC No of Days/per week class allotted: 04

Semester from date : 15.09.22 to date: 21.01.23 No. of Weeks: 15

Week	Class Day	Theory topics
8	1	Types of evaporator, Bare tube coil evaporator
	2	finned evaporator, shell and tube evaporator
	3	EXPANSION VALVES , Capillary tube
	4	Automatic expansion valve
9	1	Thermostatic expansion valve
	2	Classification of refrigerants
	3	Desirable properties of an ideal refrigerant.
	4	Designation of refrigerant.
10	1	Thermodynamic Properties of Refrigerants.
	2	Chemical properties of refrigerants. commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717 Substitute for CFC
	3	Applications of refrigeration cold storage dairy refrigeration
	4	ice plant water cooler frost free refrigerator
11	1	Introduction to PSYCHOMETRICS
	2	Explain COMFORT AIR CONDITIONING SYSTEMS
	3	Different Psychometric terms
	4	Adiabatic saturation of air by evaporation of water
12	1	Effective temperature and Comfort chart
	2	Psychometric processes Sensible heating and Cooling
	3	Cooling and Dehumidification
	4	Heating and Humidification
13	1	Adiabatic cooling with humidification
	2	Total heating of a cooling process
	3	SHF, BPF, Adiabatic mixing
	4	Problems on above
14	1	Effective temperature and Comfort chart
	2	Introduction to AIR CONDITIONING SYSTEMS
	3	Factors affecting comfort air conditioning.
	4	Equipment used in an air-conditioning.
15	1	Classification of air-conditioning system
	2	Winter Air Conditioning System
	3	Summer air-conditioning system.
	4	Numerical on above


 Signature of Faculty