GOVT. POLYTECHNIC, NAYAGARH

5th SEMESTER MECHANICAL ENGINEERING(2022-23)

SUBJECT- REFRIGERATION AND AIR CONDITIONING **TOTAL PERIOD-60**

NAME OF FACULTY:Devasis Sahoo,PTGF(MECH) **THEORY-4P/WEEK**

Sl No.	week	Day	Topics to be covered
1	1st	1st day	Definition of refrigeration and unit of refrigeration
		2nd day	Definition of COP, Refrigerating effect (R.E)
		3rd day	Principle of working of open and closed air system of refrigeration.
		4th day	Calculation of COP of Bell-Coleman cycle and numerical on it.
Sl No.	**week**	**Day**	**Topics to be covered**
2	2nd	1st day	Simple vapour compression refrigeration system Introduction
		2nd day	Schematic diagram of simple vapors compression refrigeration system.
		3rd day	Cycle with dry saturated vapors after compression.
		4th day	Cycle with wet vapors after compression.
Sl No.	**week**	**Day**	**Topics to be covered**
3	3rd	1st day	Cycle with superheated vapors after compression.
		2nd day	Cycle with superheated vapors before compression.
		3rd day	Cycle with sub cooling of refrigerant
		4th day	Representation of above cycle on temperature entropy and pressure enthalpy diagram and Numericals
Sl No.	**week**	**Day**	**Topics to be covered**
4	4th	1st day	Simple vapour absorption refrigeration system
		2nd day	Practical vapour absorption refrigeration system
		3rd day	COP of an ideal vapour absorption refrigeration system
		4th day	Numerical on COP.
Sl No.	**week**	**Day**	**Topics to be covered**
5	5th	1st day	Principle of working and constructional details of reciprocating and rotary compressors.
		2nd day	Centrifugal compressor only theory
		3rd day	Hermetically and semi hermetically sealed compressor
		4th day	Principle of working and constructional details of air cooled and water cooled condenser
Sl No.	**week**	**Day**	**Topics to be covered**
6	6th	1st day	Heat rejection ratio
		2nd day	Cooling tower and spray pond of condenser
		3rd day	Principle of working and constructional details of an evaporator
		4th day	Types of evaporator
Sl No.	**week**	**Day**	**Topics to be covered**

7	7th	1st day	EXPANSION VALVES
		2nd day	Capillary tube and Automatic expansion valve
		3rd day	Thermostatic expansion valve
		4th day	Classification of refrigerants
Sl No.	**week**	**Day**	**Topics to be covered**
8	8th	1st day	Desirable properties of an ideal refrigerant.
		2nd day	Thermodynamic Properties of Refrigerants.
		3rd day	Chemical properties of refrigerants.
		4th day	Commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717
Sl No.	**week**	**Day**	**Topics to be covered**
9	9th	1st day	Applications of refrigeration
		2nd day	cold storage,dairy refrigeration & water cooler
		3rd day	Frost free refrigerator
		4th day	Psychometric terms
Sl No.	**week**	**Day**	**Topics to be covered**
10	10th	1st day	Adiabatic saturation of air by evaporation of water
		2nd day	Psychometric chart and uses
		3rd day	Psychometric processes
		4th day	Sensible heating and Cooling
Sl No.	**week**	**Day**	**Topics to be covered**
11	11th	1st day	Cooling and Dehumidification
		2nd day	Heating and Humidification
		3rd day	Adiabatic cooling with humidification
		4th day	Total heating of a cooling process
Sl No.	**week**	**Day**	**Topics to be covered**
12	12th	1st day	SHF, BPF
		2nd day	Adiabatic mixing
		3rd day	Problems on above
		4th day	
Sl No.	**week**	**Day**	**Topics to be covered**
13	13th	1st day	AIR CONDITIONING SYSTEMS
		2nd day	Factors affecting comfort air conditioning.
		3rd day	Equipment used in an air-conditioning

		4th day	Classification of air-conditioning system
Sl No.	**week**	**Day**	**Topics to be covered**
14	14th	1st day	Winter Air Conditioning System
		2nd day	Summer air-conditioning system.
		3rd day	Numerical Problem solving
		4th day	Numerical Problem solving
Sl No.	**week**	**Day**	**Topics to be covered**
15	15th	1st day	Summer air-conditioning system.
		2nd day	Numericals problem solving
		3rd day	Doubt clearance and Revision
		4th day	Doubt clearance and Revision