NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE & Affiliated to SCTE&VT, Odisha)

SL NO.	TOPIC	No. of Periods as per the Syllabus	No. of periods actually needed
1	AIR REFRIGIERATION CYCLE	05	05
2	SIMLE VAPOUR COMPRESSION REFRIGERATION SYSTEM	10	10
3	VAPOUR ABSORPTION REFRIGERATION SYSTEM	07	06
4	REFRIGERATRION EQUIPMENTS	08	11
5	REFRIGERATRION FLOW CONTROLS, REFRIGERANTS & APPLICATION OF REFRIGERANTS	10	09
6	PSYCHOMETRICS & COMFORT AIR CONDITIONING SYSTEM	10	10
7	AIR CONDITIONING SYSTEM	10	09
TOTAL		60	60

Discipline: Mechanical Engg	**Semester: 5th**	**Name of the Teaching Faculty: Er. Manoranjan Behera**
Week	Class Day	Theory / Practical Topics
1st	1st	1.0 AIR REFRIGERATION CYCLE, Definition of refrigeration and unit of refrigeration
	2nd	. Definition of COP, Refrigerating effect (R.E)
	3rd	1.3 Principle of working of open and closed air system of refrigeration
	4th	1.3.1 Calculation of COP of Bell-Coleman cycle and numerical on it.
2nd	1st	1.3.1 Calculation of COP of Bell-Coleman cycle and numerical on it.
	2nd	2.0 SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM
	3rd	2.1 schematic diagram of simple vapors compression refrigeration system'
	4th	2.2 Types 2.2.1 Cycle with dry saturated vapors after compression

3rd	1st	2.2.2 Cycle with wet vapors after compression.
	2nd	2.2.3 Cycle with superheated vapors after compression
	4th	2.2.4 Cycle with superheated vapors before compression
4th	1st	2.2.5 Cycle with sub cooling of refrigerant
	2nd	2.2.6 Representation of above cycle on temperature entropy and pressure enthalpy diagram
	3rd	2.2.7 Numerical on above (determination of COP,mass flow)
	4th	2.2.7 Numerical on above (determination of COP,mass flow)
5th	1st	VAPOUR ABSORPTION REFRIGERATION SYSTEM
	2nd	3.1 Simple vapor absorption refrigeration system
	3rd	3.1 Simple vapor absorption refrigeration system
	4th	3.2 Practical vapor absorption refrigeration system
6th	1st	3.3 COP of an ideal vapor absorption refrigeration system
	2nd	3.4.Numerical on COP.
	3rd	3.4.Numerical on COP.
	4th	4.0 REFRIGERATION EQUIPMENTS
7th	1st	4.1.1 Principle of working and constructional details of reciprocating and rotary compressors.
	2nd	4.1.1 Principle of working and constructional details of reciprocating and rotary compressors.
	3rd	4.1.1 Principle of working and constructional details of reciprocating and rotary compressors.
	4th	4.1.2 Centrifugal compressor only theory
8th	1st	4.1.3 Important terms. 4.1.4 Hermetically and semi hermetically sealed compressor.
	2nd	4.2 CONDENSERS 4.2.1 Principle of working and constructional details of air cooled and water cooled condenser
	3rd	4.2 CONDENSERS 4.2.1 Principle of working and constructional details of air cooled and water cooled condenser
	4th	4.2.2 Heat rejection ratio. 4.2.3 Cooling tower and spray pond.
9th	1st	. 4.3 EVAPORATORS 1.6.1 Principle of working and constructional details of an evaporator
	2nd	1.6.2 Types of evaporator. 1.6.3 Bare tube coil evaporator, finned evaporator, shell and tube

		evaporator.
	3rd	5.0 REFRIGERANT FLOW CONTROLS, REFRIGERANTS & APPLICATION OF REFRIGERANTS 5.1 EXPANSION VALVES 5.1.1 Capillary tube
	4th	5.1.2 Automatic expansion valve 5.1.3 Thermostatic expansion valve
	5th	5.2 REFRIGERANTS 5.2.1 Classification of refrigerants 5.2.2 Desirable properties of an ideal refrigerant.
10th	1st	5.2.3 Designation of refrigerant. 5.2.4 Thermodynamic Properties of Refrigerants.
	2nd	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
	3rd	5.3 Applications of refrigeration 5.3.1 cold storage 5.3.2 dairy refrigeratio
	4th	5.3.3 ice plant 5.3.4 water cooler 5.3.5 frost free refrigerator
11th	1st	6.0 PSYCHOMETRICS &COMFORT AIR CONDITIONING SYSTEMS 6.1 Psychometric terms
	2nd	6.2 Adiabatic saturation of air by evaporation of water 6.3 Psychometric chart and uses.
	3rd	6.4 Psychometric processes 6.4.1 Sensible heating and Cooling 6.4.2 Cooling and Dehumidification 6.4.3 Heating and Humidification 6.4.4 Adiabatic cooling with humidification
	4th	6.4.5 Total heating of a cooling process 6.4.6 SHF, BPF,
12th	1st	6.4.7 Adiabatic mixing
	2nd	6.4.8 Problems on above
	3rd	6.4.8 Problems on above
	4th	6.4.8 Problems on above
13th	1st	6.5 Effective temperature and Comfort chart
	2nd	7.0 AIR CONDITIONING SYSTEMS 7.1 Factors affecting comfort air conditioning.
	3rd	7.2 Equipment used in an air-conditioning
	4th	7.3 Classification of air-conditioning system
14th	1st	7.4 Winter Air Conditioning System
	2nd	7.5 Summer air-conditioning system.
	3rd	7.6 Numerical on above
	4th	7.6 Numerical on above