GANDHI SCHOOL OF ENGINEERING
BHABANDHA, BERHAMPUR
SESSION PLAN
5TH SEMESTER, BRANCH-MECHANICAL(GROUP 1)

REFRIGERATION AND AIR CONDITIONING(TH-5)

Name of the Faculty – ER. DATI JAYARAM

Topics to be taken				Actually taken		
SL NO & CHAPTER	**No. of Periods assigned by SCTE & VT**	**Details of the topics**	**PLANNED DATE**	**Details of the topics**	**ACTUAL DATE**	**Remarks**
1. AIR REFRIGERATION CYCLE.	**5**	1.1 Definition of refrigeration and unit of refrigeration 1.2 Definition of COP, Refrigerating effect (R.E) 1.3 Principle of working of open and closed air system of refrigeration. 1.3.1 Calculation of COP of Bell-Coleman cycle and numerical on it	**1.08.2023 TO 8.08.2023**	1.1 Definition of refrigeration and unit of refrigeration 1.2 Definition of COP, Refrigerating effect (R.E) 1.3 Principle of working of open and closed air system of refrigeration. 1.3.1 Calculation of COP of Bell-Coleman cycle and numerical on it	**1.08.2023** **2.08.2023** **4.08.2023** **5.08.2023** **8.08.2023**	

2. SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM	**10**	2.1 schematic diagram of simple vapors compression refrigeration system' 2.2 Types 2.2.1 Cycle with dry saturated vapors after compression. 2.2.2 Cycle with wet vapors after compression. 2.2.3 Cycle with superheated vapors after compression. 2.2.4 Cycle with superheated vapors before compression. 2.2.5 Cycle with sub cooling of refrigerant 2.2.6 Representation of above cycle on temperature entropy and pressure enthalpy diagram 2.2.7 Numerical on above (determination of COP,mass flow)	**9.08.2023 TO 26.08.2023**	2.1 schematic diagram of simple vapors compression refrigeration system' 2.2 Types 2.2.1 Cycle with dry saturated vapors after compression. 2.2.2 Cycle with wet vapors after compression. 2.2.3 Cycle with superheated vapors after compression. 2.2.4 Cycle with superheated vapors before compression. 2.2.5 Cycle with sub cooling of refrigerant 2.2.6 Representation of above cycle on temperature entropy and pressure enthalpy diagram 2.2.7 Numerical on above (determination of COP,mass flow)	**9.08.2023** **11.08.2023** **12.08.2023** **16.08.2023** **18.08.2023** **19.08.2023** **22.08.2023** **23.08.2023** **25.08.2023** **26.08.2023**	
3. VAPOUR ABSORPTION REFRIGERATION SYSTEM	**7**	3.1 Simple vapor absorption refrigeration system 3.2 Practical vapor absorption refrigeration system 3.3 COP of an ideal vapor absorption refrigeration system 3.4.Numerical on COP.	**29.08.2023 TO 12.09.2023**	3.1 Simple vapor absorption refrigeration system 3.2 Practical vapor absorption refrigeration system 3.3 COP of an ideal vapor absorption refrigeration system 3.4.Numerical on COP.	**29.08.2023** **1.09.2023** **2.09.2023** **4.09.2023** **8.09.2023** **9.09.2023** **12.09.2023**	

4. REFRIGERATION EQUIPMENTS	**8**	4.1 REFRIGERANT COMPRESSORS 4.1.1 Principle of working and constructional details of reciprocating and rotary compressors. 4.1.2 Centrifugal compressor only theory 4.1.3 Important terms. 4.1.4 Hermetically and semi hermetically sealed compressor. 4.2 CONDENSERS 4.2.1 Principle of working and constructional details of air cooled and water cooled condenser 4.2.2 Heat rejection ratio. 4.2.3 Cooling tower and spray pond. 4.3 EVAPORATORS 1.6.1 Principle of working and constructional details of an evaporator. 1.6.2 Types of evaporator. 1.6.3 Bare tube coil evaporator, finned evaporator, shell and tube evaporator.	**13.09.2023 TO 27.09.2023**	4.1 REFRIGERANT COMPRESSORS 4.1.1 Principle of working and constructional details of reciprocating and rotary compressors. 4.1.2 Centrifugal compressor only theory 4.1.3 Important terms. 4.1.4 Hermetically and semi hermetically sealed compressor. 4.2 CONDENSERS 4.2.1 Principle of working and constructional details of air cooled and water cooled condenser 4.2.2 Heat rejection ratio. 4.2.3 Cooling tower and spray pond. 4.3 EVAPORATORS 1.6.1 Principle of working and constructional details of an evaporator. 1.6.2 Types of evaporator. 1.6.3 Bare tube coil evaporator, finned evaporator, shell and tube evaporator.	**13.09.2023** **15.09.2023** **16.09.2023** **20.09.2023** **22.09.2023** **23.09.2023** **26.09.2023** **27.09.2023**	

5. REFRIGERANT FLOW CONTROLS, REFRIGERANTS & APPLICATION OF REFRIGERANTS	**10**	5.1 EXPANSION VALVES 5.1.1 Capillary tube 5.1.2 Automatic expansion valve 5.1.3 Thermostatic expansion valve 5.2 REFRIGERANTS 5.2.1 Classification of refrigerants 5.2.2 Desirable properties of an ideal refrigerant. 5.2.3 Designation of refrigerant. 5.2.4 Thermodynamic Properties of Refrigerants. 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 5.3 Applications of refrigeration 5.3.1 cold storage 5.3.2 dairy refrigeration 5.3.3 ice plant 5.3.4 water cooler 5.3.5 frost free refrigerator	**29.09.2023 TO 17.10.2023**	5.1 EXPANSION VALVES 5.1.1 Capillary tube 5.1.2 Automatic expansion valve 5.1.3 Thermostatic expansion valve 5.2 REFRIGERANTS 5.2.1 Classification of refrigerants 5.2.2 Desirable properties of an ideal refrigerant. 5.2.3 Designation of refrigerant. 5.2.4 Thermodynamic Properties of Refrigerants. 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 5.3 Applications of refrigeration 5.3.1 cold storage 5.3.2 dairy refrigeration 5.3.3 ice plant 5.3.4 water cooler 5.3.5 frost free refrigerator	**29.09.2023** **30.09.2023** **3.10.2023** **4.10.2023** **6.10.2023** **7.10.2023** **10.10.2023** **11.10.2023** **13.10.2023** **17.10.2023**	

6. PSYCHOMETRICS &COMFORT AIR CONDITIONING SYSTEMS	**10**	6.1 Psychometric terms 6.2 Adiabatic saturation of air by evaporation of water 6.3 Psychometric chart and uses. 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 6.4.5 Total heating of a cooling process 6.4.6 SHF, BPF, 6.4.7 Adiabatic mixing 6.4.8 Problems on above. 6.5 Effective temperature and Comfort chart	**18.10.2023 TO 11.11.2023**	6.1 Psychometric terms 6.2 Adiabatic saturation of air by evaporation of water 6.3 Psychometric chart and uses. 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 6.4.5 Total heating of a cooling process 6.4.6 SHF, BPF, 6.4.7 Adiabatic mixing 6.4.8 Problems on above. 6.5 Effective temperature and Comfort chart	**18.10.2023** **31.10.2023** **1.11.2023** **2.11.2023** **3.11.2023** **4.11.2023** **7.11.2023** **8.11.2023** **10.11.2023** **11.11.2023**	

7. AIR CONDITIONING SYSTEMS	**10**	7.1 Factors affecting comfort air conditioning. . 7.2 Equipment used in an air-conditioning. 7.3 Classification of air-conditioning system 7.4 Winter Air Conditioning System 7.5 Summer air-conditioning system. 7.6 Numerical on above	**15.11.2023 TO 1.12.2023**	7.1 Factors affecting comfort air conditioning. . 7.2 Equipment used in an air-conditioning. 7.3 Classification of air-conditioning system 7.4 Winter Air Conditioning System 7.5 Summer air-conditioning system. 7.6 Numerical on above REVISION-	**15.11.2023** **17.11.2023** **18.11.2023** **21.11.2023** **22.11.2023** **24.11.2023** **25.11.2023** **28.11.2023** **29.11.2023** **1.12.2023** **2.12.2023** **6.12.2023** **8.12.2023**	

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2. SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM	**10**	2.1 schematic diagram of simple vapors compression refrigeration system' 2.2 Types 2.2.1 Cycle with dry saturated vapors after compression. 2.2.2 Cycle with wet vapors after compression. 2.2.3 Cycle with superheated vapors after compression. 2.2.4 Cycle with superheated vapors before compression. 2.2.5 Cycle with sub cooling of refrigerant 2.2.6 Representation of above cycle on temperature entropy and pressure enthalpy diagram 2.2.7 Numerical on above (determination of COP,mass flow)	**10.08.2023 TO 28.08.2023**	2.1 schematic diagram of simple vapors compression refrigeration system' 2.2 Types 2.2.1 Cycle with dry saturated vapors after compression. 2.2.2 Cycle with wet vapors after compression. 2.2.3 Cycle with superheated vapors after compression. 2.2.4 Cycle with superheated vapors before compression. 2.2.5 Cycle with sub cooling of refrigerant 2.2.6 Representation of above cycle on temperature entropy and pressure enthalpy diagram 2.2.7 Numerical on above (determination of COP,mass flow)	**10.08.2023** **11.08.2023** **14.08.2023** **17.08.2023** **18.08.2023** **21.08.2023** **22.08.2023** **24.08.2023** **25.08.2023** **28.08.2023**	
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