

**"PVC NSSK" Govt. Polytechnic Bilaspur at Kalol (H.P.)  
Lecture Planning (Theory)**

Branch : Mechanical Engineering Semester : 6th

Subject : Refrigeration and Air Conditioning Session: March – June ,2022

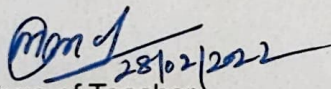
Teacher : Manoj Kumar

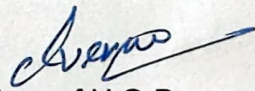
Sr. No.	No. of Lectures	Chapter/ Unit Description	Detail of Contents	Remarks
1.	7	<b>1. Principles of Refrigeration</b>	1.1 Meaning 1.2 Refrigeration Methods 1.3 Units of Refrigeration 1.4 Reversed Carnet cycle 1.5 Heat pump 1.6 Coefficient of Performance 1.7 Rating of refrigeration machines	
2.	10	<b>2. Refrigeration Systems</b>	2.1 Air refrigeration cycle- applications and its limitations 2.2 Vapour Compression Cycle 2.3 Effect of sub cooling and super heating 2.4 Departure of Actual vapour compression cycle from theoretical cycle 2.5 Effect of varying condensing and suction temperature on coefficient of performance. 2.6 Simple mathematical calculation with pressure-enthalpy charts. 2.7 Vapour Absorption cycle 2.8 Actual vapour absorption cycle and application	
3.	6	<b>3. Refrigerants</b>	3.1 Important properties of a refrigerant 3.2 Properties and applications of commonly used refrigerants such as R11, R12, R22, NH3 and Water. 3.3 Newer Refrigerants	Class test-1 will be in the 2 <sup>nd</sup> week of April, 2022
4.	7	<b>4. Refrigeration System, Components and Controls</b>	4.1 Function, types, specification and constructional details of components such as compressor, condenser, throttling device, evaporator, oil separator, accumulator, header. 4.2 Various controls- Solenoid Valve, thermostat, low pressure/high pressure cutout, oil safety switch	
5.	8	<b>5. Psychometry</b>	5.1 Various terms-Dry and wet bulb temperatures, Saturation, Dew point, adiabatic saturation, temperature, Relative humidity, absolute humidity, humidity ratio. 5.2 Psychometric chart and its uses 5.3 Psychometric processes-Sensible heating and sensible cooling, humidification and dehumidification, cooling and dehumidification, heating and humidification, and their representation on psychometric chart. 5.4 Simple Problems	Class test-2 will be in the 2 <sup>nd</sup> week of May, 2022

6.	5	<b>6. Air-conditioning</b>	6.1 Introduction 6.2 Metabolism in human body 6.3 Human comfort 6.4 Applications of air-conditioning	
7.	5	<b>7. Heat Loads</b>	7.1 Various types of loads 7.2 Sensible and latent heat load 7.3 Load calculations	House Test will be in the 1st week of June, 2022
8.	5	<b>8. Air-conditioning System</b>	8.1 Description of room air conditioner 8.2 Central air-conditioning system 8.3 Round the year air conditioning system 8.4 Air distribution systems: concept of filter, damper, fan, blower, air register and diffuser	
9.	3	<b>9. Miscellaneous Topics</b>	9.1 Evaporative cooling - Principle, Desert air cooler	

Teaching Resources:-

- R1. Refrigeration and Air Conditioning by G.S Aulakh, Eagle Prakashan  
R2. Refrigeration and Air Conditioning by R.S Khurmi, S Chand and Company .  
R3. Refrigeration & Air condition by A.S Sarao, Satyaprakashan  
R4. Refrigeration and Air Conditioning by C.P Arora, Tata Mc Graw Hills

  
Signature of Teacher

  
Signature of H.O.D.