

Badriprasad Institute of Technology, Sambalpur

Lesson plan for Theory -5, Refrigeration and Air-conditioning

Semester & Branch: 5th Sem. Mechanical Engineering

Total Periods- 60

Name of the Faculty : Mr. Siddharth Purohit

No of periods /week- 4

Week	Class days	Theory/Practical
1st	1st	AIR REFRIGERATION CYCLE- Definition of refrigeration and unit of refrigeration.
	2nd	Definition of COP, Refrigerating effect (R.E)
	3rd	Principle of working of open and closed air system of refrigeration
	4th	Principle of working of open and closed air system of refrigeration - continue
2nd	5th	Calculation of COP of Bell-Coleman cycle
	6th	Problem related to Bell-colemn cycle
	7th	SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM- schematic diagram of simple vapours compression refrigeration system and it's type
	8th	Cycle with dry saturated vapours after compression.
3rd	9th	Cycle with wet vapours after compression.
	10th	Cycle with superheated vapours after compression
	11th	Cycle with superheated vapours before compression
	12th	Cycle with sub cooling of refrigerant
4th	13th	Representation of above cycle on temperature entropy and pressure enthalpy diagram
	14th	Numerical on above topic
	15th	Numerical on above topic -continue
	16th	Simple vapours absorption refrigeration system
5th	17th	Continue.
	18th	Practical vapours absorption refrigeration system
	19th	continue.
	20th	COP of an ideal vapours absorption refrigeration system
6th	21st	Numerical on COP
	22nd	Numerical continue
	23rd	REFRIGERATION EQUIPMENTS- REFRIGERANT COMPRESSORS- Principle of working and constructional details of reciprocating and rotary compressors
	24th	Centrifugal compressor (only theory); Important terms.
7th	25th	Hermetically and semi hermetically sealed compressor.
	26th	CONDENSERS -Principle of working and constructional details of air cooled and water cooled condenser
	27th	Heat rejection ratio. Cooling tower and spray pond.
	28th	EVAPORATORS; Principle of working and constructional details of an evaporator
8th	29th	Types of evaporator. Bare tube coil evaporator, finned evaporator
	30th	Shell and tube evaporator
	31st	REFRIGERANT FLOW CONTROLS, REFRIGERANTS & APPLICATION OF REFRIGERANTS EXPANSION VALVES, Capillary tube Automatic expansion valve
	32nd	Thermostatic expansion valve
9th	33rd	REFRIGERANTS - Classification of refrigerants Desirable properties of an ideal refrigerant.
	34th	Designation of refrigerant. Thermodynamic Properties of Refrigerants.
	35th	Chemical properties of refrigerants.
	36th	commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717

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10th	37th	Substitute for CFC
	38th	Applications of refrigeration, cold storage, dairy refrigeration
	39th	ice plant and water cooler
	40th	frost free refrigerator
11th	41st	PSYCHOMETRICS & COMFORT AIR CONDITIONING SYSTEMS Psychrometric terms Adiabatic saturation of air by evaporation of water
	42nd	Psychrometric chart and uses.
	43rd	Psychrometric processes Sensible heating and Cooling
	44th	Cooling and Dehumidification Heating and Humidification
12th	45th	Adiabatic cooling with humidification Total heating of a cooling process
	46th	SHF, BPF, and Adiabatic mixing
	47th	Problems
	48th	Problems continue
13th	49th	Effective temperature and Comfort chart
	50th	AIR CONDITIONING SYSTEMS Factors affecting comfort air conditioning. Equipment used in an Air-conditioning. Classification of air-conditioning system
	51st	Winter Air Conditioning System
	52nd	Summer air-conditioning system.
14th	53rd	Numerical on above
	54th	Numerical continue
	55th	Doubt clearing on Air conditioning system
	56th	Revision class on Psychrometric chart
15th	57th	Revision class on Psychrometric chart
	58th	Doubt clearing on Bell coleman Cycle
	59th	Problem related to Bell-coleman cycle
	60th	Problem related to simple vapour compression refrigeration system

Sign of Faculty

Sign of HOD