

C. V. RAMAN POLYTECHNIC, BHUBANESWAR

LESSON PLAN Session (2025-2026)

Discipline: Mechanical Engineering	Semester: 4th Semester, Summer/2026	Name of the Faculty: Dr. Shubhashree Mohapatra, Assistant Professor Email ID: shubha.shree@cvrp.edu.in
Subject: Refrigeration and Air Conditioning Theory- 04 (ME PE202)	No. of Days/week: 03	Start Date: 22/12/2025 End Date: 18/04/2026

Week	Class Day	Theory Topics
1st	1st	Introduction to Refrigeration
	2nd	Definition of Refrigeration; Refrigerating effect- unit of refrigeration- Coefficient of performance
	3rd	Types of Refrigeration-Ice, dry ice, Steam jet, Throttling, Liquid nitrogen refrigeration
2nd	1st	Introduction to Carnot refrigeration Cycle
	2nd	Introduction to Air refrigeration- Bell - Coleman cycle
	3rd	PV& TS diagram; Advantage and disadvantages in air refrigeration; Simple problems
3rd	1st	Simple Problems
	2nd	Refrigeration systems: Basic Components
	3rd	Flow diagram of working of Vapour compression cycle; Representation of the vapour compression cycle on P-H, T-S & P-V Diagram
4th	1st	Expression for Refrigerating effect, work done and power required; Types of Vapour Compression cycle
	2nd	Effects of super heating and under cooling, its advantages and disadvantages;
	3rd	Study of Simple Vapour absorptions cycle and its flow diagram; Simple Electrolux system for domestic units
5th	1st	Comparison of Vapour absorption and vapour compression system
	2nd	Simple problems on vapour compression cycle
	3rd	Simple problems on vapour compression cycle
6th	1st	Simple problems on vapour compression cycle
	2nd	Refrigeration equipment: Compressor - types of compressors
	3rd	Hermetically sealed and Semi hermetically sealed compressor
7th	1st	Advantages and disadvantages of air cooled and water cooled condensers
	2nd	Evaporators -natural, convection, forced convection types.
	3rd	Introduction to Refrigerant flow controls

8th	1st	Explanation of working of Capillary tube
	2nd	brief description of Automatic Expansion valve
	3rd	Brief description of Thermostatic expansion valve
9th	1st	Brief description of High side and low side float valve
	2nd	Brief description of Solenoid valve; Evaporator pressure regulator
	3rd	Application of refrigeration
10th	1st	Introduction to Slow and quick freezing; Cold storage and Frozen storage
	2nd	Dairy refrigeration; Ice making industry
	3rd	Working of Water coolers.
11th	1st	Introduction to Air conditioning system
	2nd	Factors affecting Air conditioning
	3rd	Psychometric chart and its use
12th	1st	Psychometric process-sensible heating and cooling
	2nd	Humidifying and dehumidifying process
	3rd	Adiabatic saturation process
13th	1st	Equipment used in air conditioning cycle
	2nd	Air conditioning units and plants.
	3rd	Tools used in refrigeration and Air conditioner installation
14th	1st	Installation procedure of Air conditioner
	2nd	Faults in refrigeration and air conditioning system
	3rd	Servicing procedure.
15th	1st	Servicing procedure.
	2nd	REVISION
	3rd	REVISION



Signature of Faculty



Signature of H.O.D.