

LESSON PLAN (Summer-2026)

VENUS GROUP OF EDUCATIONAL & RESEARCH INSTITUTES, BAHANAGA, BALASORE-756042

Discipline: Mechanical Engg.	Semester: 4th	Name of the Teaching Faculty: Laxmi Kanta Das
Subject: Refrigeration & Air Conditioning (R & AC)	No. of days per week class allotted - 3	Semester from date: 22.12.2025 To date: 18.04.2026 No. of Weeks: 16
Week No.	Class Day	Theory/Practical Topics
1st	1st	Introduction to Refrigeration: Definition of Refrigeration; Refrigerating effect-
	2nd	unit of refrigeration- Coefficient of performance
	3rd	Types of Refrigeration-Ice,
	4th	dry ice, Steam jet,
2nd	1st	Throttling, Liquid nitrogen refrigeration;
	2nd	Carnot refrigeration Cycle;
	3rd	Air refrigeration- Bell - Coleman cycle,
	4th	PV & TS diagram;
3rd	1st	Advantage and disadvantages in air refrigeration
	2nd	Simple problems
	3rd	Simple problems
	4th	Refrigeration systems. Basic Components, Flow diagram of working of Vapour compression cycle.
4th	1st	Representation of the vapour compression cycle on P-H, T-S & P-V Diagram;
	2nd	Expression for Refrigerating effect, work done and power required;
	3rd	Types of Vapour Compression cycle; Effects of super heating and under cooling,
	4th	its advantages and disadvantages;
5th	1st	Simple Vapour absorptions cycle and its flow diagram;
	2nd	Simple Electrolux system for domestic units;
	3rd	Comparison of Vapour absorption and vapour compression system;
6th	1st	Simple problems on vapour compression cycle.
	2nd	Simple problems on vapour compression cycle.
	3rd	Refrigeration equipment: Compressor - types of compressors;
7th	1st	Hermetically sealed and Semi hermetically sealed compressor;
	2nd	Condensers - Air Cooled, water cooled
	3rd	natural and forced draught cooling system
	4th	Advantages and disadvantages of air cooled and water cooled condensers;
8th	1st	Evaporators -natural,
	2nd	convection,
9th	1st	forced convection types.
	2nd	Refrigerant flow controls: Capillary tube;
	3rd	Automatic Expansion valve;

10th	1st	Thermo-static expansion valve
	2nd	High side and low side float valve;
	3rd	Solenoid valve; Evaporator pressure regulator
	4th	Application of refrigeration: Slow and quick freezing;
11th	1st	Cold storage and Frozen storage;
	2nd	Dairy refrigeration; Ice making industry;
	3rd	Water coolers
	4th	Air conditioning: Introduction to Air conditioning;
12th	1st	Factors affecting Air conditioning;
	2nd	Psychometric chart and its use;
	3rd	Psychometric process-sensible heating and cooling,
13th	1st	Humidifying and dehumidifyin
	2nd	Adiabatic saturation process
14th	1st	Equipment used in air conditioning cycle;
	2nd	Air conditioning units and plants.
	3rd	Refrigeration and Air-conditioning tools: Tools used in refrigeration and Air conditioner installation
	4th	Installation procedure;
15th	1st	Faults in refrigeration and air conditioning system;
	2nd	Servicing procedure.
16th	1st	Revision
	2nd	Revision
	3rd	Revision