

LESSON PLAN FOR ACADEMIC SESSION 2025-26 (Summer)

Discipline: Mechanical Engineering	Semester: 4th	Name of the Faculty: Dinesh Kumar Sahu
Subject: TH-4 Refrigeration & Air-conditioning	No of days/ week class allotted -03	Semester from 22/12/2025 to 18/04/2026
Week	Class Day	Theory Topics
1st	1st	1. Introduction to Refrigeration: Definition of Refrigeration; Refrigerating effect- unit of refrigeration
	2 nd	Coefficient of performance
	3 rd	Types of Refrigeration -Ice, dry ice, Steam jet,
2nd	1st	Throttling, Liquid nitrogen refrigeration
	2 nd	Carnot refrigeration Cycle
	3 rd	Air refrigeration- Bell - Coleman cycle
3 rd	1 st	PV& TS diagram
	2 nd	Advantage and disadvantages in air refrigeration;
	3 rd	Simple problems
4th	1st	Simple problems
	2 nd	Refrigeration systems: Basic Components, Flow diagram of working of Vapour compression cycle
	3 rd	Representation of the vapour compression cycle on P-H, T-S & P-V Diagram
5th	1 st	Expression for Refrigerating effect, work done and power required
	2 nd	Types of Vapour Compression cycle
	3 rd	Effects of super heating and under cooling, its advantages and disadvantages
6th	1 st	Simple Vapour absorptions cycle and its flow diagram;
	2 nd	Simple Electrolux system for domestic units
	3 rd	Comparison of Vapour absorption and vapour compression system;
7th	1 st	Simple problems on vapour compression cycle.
	2 nd	Simple problems on vapour compression cycle.
	3 rd	Refrigeration equipment: Compressor - types of compressors; Hermetically sealed and Semi hermetically sealed compressor
8th	1 st	Condensers - Air Cooled,
	2 nd	water cooled Condenser
	3 rd	Natural cooling system
9th	1 st	forced draught cooling system .
	2 nd	Advantages and disadvantages of air cooled and water cooled condensers
	3 rd	Evaporators -natural, convection
10th	1 st	Forced convection types evaporators
	2 nd	Refrigerant flow controls: Capillary tube
	3 rd	Automatic Expansion valve
11th	1 st	Thermo- static expansion valve;
	2 nd	High side and low side float valve
	3 rd	Solenoid valve; Evaporator pressure regulator.
12th	1 st	Application of refrigeration: Slow and quick freezing; Cold storage and Frozen storage
	2 nd	Dairy refrigeration; Ice making industry
	3 rd	Water coolers.
13th	1 st	Air conditioning: Introduction to Air conditioning;
	2 nd	Factors affecting Air conditioning; Psychometric chart and its use;
	3 rd	Psychometric process-sensible heating and cooling,

14th	1 st	Humidifying and dehumidifying;
	2 nd	Adiabatic saturation process; Equipment used in air conditioning cycle
	3 rd	Air conditioning units and plants
15th	1 st	Refrigeration and Air-conditioning tools: Tools used in refrigeration and Air conditioner installation;
	2 nd	Installation procedure: Faults in refrigeration and air conditioning system
	3 rd	Servicing procedure

Dinesh
21/12/25

Prepared By

Dinesh Kumar Sahu

Lecturer stage-1 (MECHANICAL)

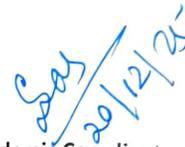
G P SONEPUR


21/12/25

Head of the Department

(Mechanical)

G P sonepur


20/12/25

Academic Coordinator

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