



JEYPORE SCHOOL OF ENGINEERING AND TECHNOLOGY, RANDAPALLI
DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

LESSON PLAN FOR YEAR:-2025-26

SUB:-REFRIGERATION AND AIR CONDITIONING

DISCIPLINE:
MECHANICAL ENGINEERING

SEM:- 4TH

NAME OF THE TEACHING FACULTY:-
MR.AMULYA KUMAR PANDA

NO.OFWEEK:- 15

NO.OF DAYS/PER
WEEK
CLASS ALLOTTED: 3

SEMESTER FROM DATE : 22/12/25
TO DATE:-18/04/26

**COURSE
OUTCOMES**

- **CO1:** Understand the performance and testing of Internal Combustion (IC) engines.
- **CO2:** Analyze the working of Air Compressors and their industrial applications.
- **CO3:** Evaluate the properties of steam and the performance of Boilers.
- **CO4:** Understand Steam Nozzles, Turbines, and Condensers.
- **CO5:** Grasp the fundamentals of Heat Transfer (Conduction, Convection, Radiation).

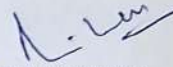
WEEK	PERIOD	THEORY/PRACTICAL TOPICS
1ST	1ST	Performance of IC Engines: Introduction and Engine terminology.
	2ND	Indicated Power, Brake Power, and Friction Power.
	3RD	Efficiencies: Mechanical, Thermal, and Relative efficiency.
	4TH	Numerical problems on IP, BP, and Mechanical Efficiency.
2ND	1ST	Heat Balance Sheet: Construction and significance.
	2ND	Morse Test for Multi-cylinder Engines.
	3RD	Numerical problems on Morse Test.
	4TH	QUIZ & ASSIGNMENT-I
3RD	1ST	Air Compressors: Classification and uses of compressed air.
	2ND	Single-stage Reciprocating Compressor: Working and PV Diagram.
	3RD	Work done and Volumetric Efficiency of Reciprocating Compressor.
	4TH	Effect of Clearance volume on performance.

WEEK	PERIOD	THEORY/PRACTICAL TOPICS
4TH	1ST	Multi-stage compression and Intercooling: Advantages.
	2ND	Rotary Compressors: Roots blower and Vane type.
	3RD	Centrifugal and Axial flow compressors.
	4TH	Numerical problems on Air Compressors.
5TH	1ST	Properties of Steam: Formation of steam at constant pressure.
	2ND	Definition of Saturated steam, Wet steam, and Superheated steam.
	3RD	Use of Steam Tables and Mollier Chart.
	4TH	Determination of Dryness Fraction using Calorimeters.
6TH	1ST	Steam Generators (Boilers): Classification and selection criteria.
	2ND	Fire Tube Boilers: Cochran and Lancashire Boilers.
	3RD	Water Tube Boilers: Babcock and Wilcox Boiler.
	4TH	Boiler Mountings: Safety valves, Water level indicator, Fusible plug.
7TH	1ST	Boiler Accessories: Economizer, Superheater, Air Preheater.
	2ND	Boiler Draught: Natural and Artificial (Forced/Induced).
	3RD	Performance of Boilers: Equivalent Evaporation and Efficiency.
	4TH	Numerical problems on Boiler Efficiency.
8TH	1ST	Steam Nozzles: Function and types of Steam Nozzles.
	2ND	Flow of steam through Nozzles: Velocity and Discharge.
	3RD	Condition for Maximum Discharge (Critical Pressure Ratio).
	4TH	QUIZ & ASSIGNMENT-II
9TH	1ST	Steam Turbines: Classification and Working Principle.
	2ND	Impulse Turbine: De-Laval Turbine and Velocity Triangles.
	3RD	Compounding of Impulse Turbines: Pressure and Velocity compounding.
	4TH	Reaction Turbine: Parson's Turbine and Degree of Reaction.
10TH	1ST	Governing of Steam Turbines: Throttle and Nozzle governing.
	2ND	Losses in Steam Turbines.

PERIOD	THEORY/PRACTICAL TOPICS
3RD	Numerical problems on Impulse Turbines.
4TH	QUIZ & ASSIGNMENT-III
1ST	Steam Condensers: Function and Classification.
2ND	Jet Condensers vs. Surface Condensers.
3RD	Condenser Efficiency and Vacuum Efficiency.
4TH	Sources of Air leakage and its effects.
12TH	Heat Transfer: Modes of Heat Transfer (Conduction, Convection, Radiation).
2ND	Fourier's Law of Heat Conduction.
3RD	Newton's Law of Cooling and Stefan-Boltzmann Law.
4TH	Heat Exchangers: Shell & Tube, Parallel & Counterflow.
13TH	1ST Revision: IC Engine Performance & Morse Test.
	2ND Revision: Reciprocating & Rotary Compressors.
	3RD Revision: Steam Properties & Boiler Performance.
	4TH QUIZ & ASSIGNMENT-IV
14TH	1ST Revision: Steam Nozzles & Turbines.
	2ND Revision: Heat Transfer Fundamentals.
	3RD Discussion on Previous Year Question Papers - Part 1.
	4TH Discussion on Previous Year Question Papers - Part 2.
15TH	1ST Doubt Clearing Session & Internal Marks Assessment.
	2ND Mock Test for Final Semester Preparation.
	3RD Lab Record Finalization and Practical Viva Prep.
	4TH Final Review of Important Formulae.


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