

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF  
ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN  
Session-2024-2025

Semester: 4<sup>th</sup> Discipline: Mechanical Engg.

Subject: Thermal Engg. II

Name of the Teaching Faculty: Shashanka Sekhar Bhoi

Subject: Thermal Engg-II No. of Days/per week class allotted 04

Semester From Date: 04/02/2025 To Date: 17/05/2025 No. of Weeks: 15

Week	Class Day	Theory / Practical Topics
01	1	Introduction to IC engine and its performance.
	2	Mechanical efficiency.
	3	Indicated thermal efficiency.
	4	Relative efficiency.
02	1	Brake thermal efficiency & overall efficiency.
	2	Mean effective pressure & specific fuel consumption.
	3	Air fuel ratio & calorific value of fuel.
	4	Workout problems.
03	1	Introduction to air compressor.
	2	Function of air compressor.
	3	Industrial use of air compressor.
	4	classification of air compressor.

*Shashank Seshwar Bhoir*  
Signature of the Faculty

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Semester From Date : 04/02/2025 To Date : 17/05/2025 No. of Weeks : 15

Week	Class Day	Theory / Practical Topics
04	1	principle operation of air compressor
	2	Description of parts of reciprocating air compressor.
	3	Working principle of reciprocating air compressor.
	4	Terminology of reciprocating air compressor.
05	1	workdone of single stage compressor without clearance.
	2	Two <del>stage</del> stage compressor with clearance.
	3	Two stage compressor without clearance.
	4	Introduction to properties of steam.
06	1	Difference between gas and vapours.
	2	Formation of steam.
	3	Representation on P-V, T-S, H-S, T-H diagram.
	4	Definition & properties of steam.

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Week	Class Day	Theory / Practical Topics
07	1	Use of steam table.
	2	Mollier chart.
	3	Non flow process of vapour.
	4	Flow process of vapour.
08	1	changes in properties.
	2	P-V, T-S, H-S diagram.
	3	Solve Numericals.
	4	Introduction to steam generators.
09	1	classification of boiler.
	2	Types of boiler.
	3	Important terms of boiler.
	4	Fire tube boiler.

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Semester From Date : 04/02/25 To Date : 17/05/25 No. of Weeks : 15

Week	Class Day	Theory / Practical Topics
10	1	Water tube boiler -
	2	<del>Comparison</del> <sup>comparison</sup> between fire tube & water tube boiler.
	3	Cochran boiler.
	4	Lancashire boiler.
11	1	Babcock & Wilcox boiler.
	2	Boiler draught.
	3	Boiler mountings and accessories.
	4	Introduction to steam power cycle.
12	1	Carnot cycle with vapour.
	2	Derive work & efficiency of the cycle.
	3	Rankine cycle.
	4	Derive work & efficiency of Rankine cycle.

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Subject: Thermal Engg- II No. of Days/per week class allotted 04

Semester From Date: 04/08/2025 To Date: 17/05/2025 No. of Weeks: 15

Week	Class Day	Theory / Practical Topics
13	1	Reheat cycle
	2	Regenerative cycle
	3	Numericals on Carnot cycle & Rankine cycle
	4	Introduction to heat transfer.
14	1	Modes of heat transfer (conduction)
	2	Convection
	3	Radiation
	4	Fourier law of heat conduction and thermal conductivity.
15	1	Newton's law of cooling
	2	Stefan Boltzmann law & Kirchhoff's law
	3	Blackbody radiation, emissivity, absorptivity & transmissibility
	4	Doubt clearing

*Shashank Sagar Phoi*  
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