

DHABALESWAR INSTITUTE OF POLYTECHNIC

LESSON PLAN

Name of the Teaching Faculty S. K. Jena	
Discipline: MECH	Semester: 4th
Subject: T.E.D	No. of days per week Class Allotted: 5
Week	Semester from Dt. 14.02.23 to Dt. 23.05.23 No. of Weeks: 15
	Theory / Practical Topics
	<u>PERFORMANCE OF I.C. ENGINE.</u>
1st	1st Define mechanical efficiency,
	2nd Indicated thermal efficiency
	Relative efficiency, Brake thermal efficiency, Overall efficiency.
	3rd Mean effective pressure & Specific fuel consumption.
2nd	1st Define air fuel ratio and calorific value of fuel.
	2nd Numericals on efficiencies and Specific fuel consumption.
	<u>AIR COMPRESSORS</u>
	3rd 1. Explain functions of compressor and industrial use of compressor air.
	4th 2. Classification of air compressor and Principle of operation.
	5th 3. Parts and working principle of reciprocating air compressor.
3rd	1st 4. Terminology of reciprocating compressor: Bore, stroke, pressure ratio, free air delivered and vol. efficiency
	2nd 3. W.D. of single stage and two stage compressor with and without clearance

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Week	Class Day	Theory / Practical Topics
	3rd	6. Numericals on air compressor.
4th	1st	<u>PROPERTIES OF STEAM.</u>
	2nd	1. Difference between gas and vapour.
	3rd	2. Formation of steam.
	4th	3. Representation on P-V, T-S, H-S & T-H diagram.
	5th	4. Definition & properties of steam.
	6th	5. Use of steam table & Mollier chart.
	7th	6. Non flow and flow process of vapour.
	8th	7. P-V, T-S & H-S diagram.
	9th	8. changes in properties
5th	1st	9. Numericals on Properties of steam.
	2nd	10. - do -
	3rd	11. - do -
	4th	
	5th	<u>STEAM GENERATOR</u>
6th	1st	1. Classification and types of boiler.
	2nd	2. Important terms for boiler.
	3rd	
	4th	3. Comparison bet ⁿ fire tube and water tube boiler.
	5th	4. Description and working of Common boilers.

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8th	1st	Cochran Boiler.
	2nd	Lancashire Boiler.
	3rd	Babcock and Wilcox boiler.
9th	1st	Boiler Draught.
	2nd	Forced Draught, Induced Draught and Balanced Draught.
	3rd	Boiler Mounting and Accessories.
10th	1st	<u>STEAM POWER CYCLES.</u>
	2nd	1. Carnot cycle with vapour.
	3rd	2. Work and efficiency of the cycle.
11th	1st	3. Rankine cycle.
	2nd	Representation in P-V, T-S and h-s diagram.
	3rd	Derive work and efficiency.
12th	1st	Effect of various end conditions in Rankine cycle.
	2nd	Reheat cycle and regenerative cycle.
	3rd	Numericals on Carnot cycle.
13th	1st	- do -
	2nd	Numericals on Rankine cycle.
	3rd	- do -
14th	1st	<u>HEAT TRANSFER.</u>
	2nd	1. Modes of heat transfer.
	3rd	2. Conduction, Convection, Radiation.
15th	1st	3. Fourier law of heat conduction and thermal conductivity.
	2nd	4. Newton's laws of cooling.
	3rd	5. Radiation heat transfer.

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Week	Class Day	Theory / Practical Topics
14th	3rd 4th 5th 1st 2nd 3rd 4th	Stefan Boltzman's Law. Kirchhoff's law. Black body radiation.
15th	1st 2nd	Definition of emissivity, absorptivity and transmissivity.