DHABALESWAR INSTITUTE OF POLYTECHNIC

DIScipline: MECHANICAL	Semester: 4th	Name of the Teachin g Faculty: S K JENA
Subject: THERMAL ENGG-II	No. of days/per (veek class allotted: 4	Semester From date: **10.03.2022** To date: **30.06.2022** No of weeks: 15
Week	Class Day	**Theory Topics:**

Week	Class Day	Theory Topics:
1ᵗ		**Performance of I.C engine** Definition of mechanical efficiency, Indicated thermal efficiency,
	2"	Definition of Relative Efficiency, br.ake thermal efficiency overall efficiency
	3ʳᵈ	Definition of Mean effective pressure & specific fuel consumption.
	4"	Definition of air-fuel ratio & calorific value of fuel.
2"	1"	Numerical on detemiination of efficiencies
	2'ᵈ	Numerical on determination of efficiencies
	3ʳᵈ	Numerical on determination of specific fuel consumption
	4"	Numerical on determination of specific fuel consumption
3"		**Air Compressor** functions of comprcssor & Industrial use of compressor air
	2*'	Classifications of air comprcssor.
	3 Fd	Principle of opcration of air compressor.
	4ᵗʰ	Description of parts of a Reciprocating air compressor
4ᵗʰ	1"	Working principle of Reciprocating Air compressor.
	2 nd	Terminologies of reciprocating compressor such as bore, stroke, pressure ratio free air delivered & Volumetric efficiency.
	3"	Derivation of work done of single stage compressor with clearance.
	tb	Derivation of work done of single stage compressor without clearance.
S"	1ˢᵗ	Derivation of work done of two stage compressor with clearance.
	2 nd	Derivation of work done of two stage compressor without cleai'ance.
	Z•	Numerical on air compressor (Without Clearance)
	4"	Numerical on air compressor (Without Clearance)

6 th		**Properties of Steam** Difference between gas & vapours.
	2"	Formation of steam.
	3"	Representation on P-V, T-S, H-S, & T-H diagram.
	4"	Definition & Properties of Steam.
7 th	1"	Use of steam table & mollier chart for finding unknown properties.
	2 nd	Use of steam table & mollier chart for finding unknown properties.
	3 rcl	Non flow & flow process of vapour.
	4 th	P-V, T-S & H-S. diagram.
lh	1 st	Determine the changes in properties
	2 '"	Numerical on steam and its flow
	3 '"	Numerical on steam and its flow
	4 th	Numerical on steam and its flow
9th		**Steam Generators** Boilers bits use in a Power plant/Engine Classification & types of l3oiler.
	2 " "	Classification of Boilers.
	3 rtl	Types of Boilers
	4, ll	Important tennis used Boiler.
10"'	1 "	Coiilparison between fire tube & Water tube Boiler.
	2 nd	Description & working of Cochran Boiler
	3, d	Description & working of Lancashire Boiler
	4 '"	Description & working of Babcock & Wilcox Boiler
11'*	1 =	Boiler Draught (Forced, induced & balanced)
	2 R,	Boiler Mountings
	3 "	Boiler Accessories.
	4"	Revision on Steam Generators
12th.		**Steam Power Cycle** Cannot cycle with vapour.
	2. d	Derive work & efficiency of the cycle.
	3 rd	Rankine cycle.
	4"	Representation of Rankine Cycle on P-V, T-S & h-s diagram.

13'h	1=	Derivation of Work & Efficiency of a Rankine Cycle.
	2'd	Effect of Various end conditions in Rankine cycle.
	3"	Reheat cycle & Regenerative Cycle.
	4"	Simple numerical on Carnot vapour Cycle & Rankine Cycle.
14'*		**Reat Transfer** Modes of Heat Transfer (Conduction, Convection, Radiation).
	2nd	Fourier law of heat conduction and thermal conductivity (k).
	3rd	Newton's laws of cooling.
	4th	Radiation heat transfer Stefan Boltzmann law (only statement)
15'*	1st	Radiation heat transfer Kirchhoffis law (only statement)
	2"	Black body Radiation
	3"	Definition of Emissivity, absorptivity, & transmissibility
	4"	Revision Class on heat Transfer

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HOD MECHANICAL ENGINEERING