

# Lesson plan summer - 2022

Discipline :Mechanical engineering.	Semester:4th	Name of the Teaching Faculty :Mrutunjay jena
Subject: THERMALENGINEERING-II	No of Days /Per week class allotted	Semester from date 14.03.2022 to ----- No of week:15
Week	Class day	Theory/Practical topics
1st	1st	<b>UNIT .1-Performance of I.C engine</b> <b>Define mechanical efficiency, Indicated thermal efficiency</b>
	2nd	Relative Efficiency, brake thermal efficiency overall efficiency.
	3rd	Mean effective pressure & specific fuel consumption.
	4th	Define air-fuel ratio & calorific value of fuel.
2nd	1st	Work out problems to determine efficiencies.
	2nd	<b>Simple numerical solve.</b>
	3rd	Work out problems to determine specific fuel consumption.
	4th	<b>Simple numerical solve.</b>
3rd	1st	<b>UNIT 2- Air Compressor</b> <b>Introduction.</b>
	2nd	Explain functions of compressor.
	3rd	Industrial use of compressor air.
	4th	Classify air compressor.
4th	1st	Principle of operation of compressor.
	2nd	Describe the parts and working principle of reciprocating Air compressor.
	3rd	Numerical on reciprocating compressor.
	4th	Numerical on reciprocating compressor.
5th	1st	Explain the terminology of reciprocating compressor such as bore, stroke pressure ratio free air delivered Volumetric efficiency
	2nd	Simple problems on above.
	3rd	Derive the work done of single stage & two stage compressor with and without clearance.
	4th	Solve simple problems.
6th	1st	<b>Unit 3- Properties of Steam.</b> <b>Difference between gas &amp; vapors.</b>
	2nd	Formation of steam.
	3rd	Representation on P-V, T-S, H-S, & T-H diagram.
	4th	Solve simple problems.

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7th	1st	Definition & Properties of Steam.
	2nd	Use of steam table.
	3rd	Solve simple problems.
	4th	Use of mollier chart for finding unknown properties
8th	1st	Solve simple problems.
	2nd	Non flow & flow process of vapor.
	3rd	P-V, T-S & H-S, diagram.
	4th	Determine the changes in properties & solve simple numerical.
9th	1st	<b>Unit 4 - Steam Generator.</b> <b>Classification &amp; types of Boiler.</b>
	2nd	Important terms for Boiler.
	3rd	Comparison between fire tube & Water tube Boiler.
	4th	Description & working of common boilers. Classification of boiler.
10th	1st	Cochran boiler.
	2nd	Lancashire boiler.
	3rd	Babcock & Wilcox Boiler.
	4th	Boiler Draught. explain it
11th	1st	Forced Boiler Draught.
	2nd	Induced Boiler Draught.
	3rd	Balanced Boiler Draught.
	4th	Boiler mountings & accessories.
12th	1st	<b>Unit 5 - Steam Power Cycles</b> <b>Carnot cycle with vapour.</b>
	2nd	Derive work & efficiency of the cycle.
	3rd	Solve simple problems.
	4th	Rankine cycle.
13th	1st	Derive work & efficiency of the cycle.
	2nd	Solve simple problems.
	3rd	Representation in P-V, T-S & h-s diagram. Derive Work & Efficiency.
	4th	Effect of various end conditions in Rankine cycle. Reheat cycle & regenerative cycle.
	1st	<b>UNIT 6 - Heat Transfer.</b> Modes of Heat Transfer (Conduction, Convection, Radiation).



4th	2nd	Fourierlawofheatconductionand thermalconductivity(k).
	3rd	Solvesimpleproblems.
	4th	Basicconceptofnatural,forced&dampedvibration.
15th	1st	Torsional Vibration.
	2nd	Numerical on it
	3rd	Newton'slawsofcooling. Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement.
	4th	BlackbodyRadiation,DefinitionofEmissivity,absorptivity,&transmissibility.