UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING		
DEPARTMENT OF MECHANICAL ENGINEERING		
LESSON PLAN		
Discipline: Mechanical	**Semester: 4th**	**Name of the Teaching faculty: Amit Kumar Marandi**
Subject: Thermal Engineering-II	**No of Days/Week class alloted: 4**	**Semester: 4TH from Date: 03.02.2022** **To Date: 30.04.2022 No of weeks: 13**
Week	**Class Day**	**Topics**
1st	1st	**CHAPTER-1 (Performance of I.C engine)** 1.1 Define mechanical efficiency, Indicated thermal efficiency, Relative Efficiency, brake thermal efficiency overall efficiency Mean effective pressure &specific fuel consumption.
	2nd	1.1 Define mechanical efficiency, Indicated thermal efficiency, Relative Efficiency, brake thermal efficiency overall efficiency Mean effective pressure &specific fuel consumption.
	3rd	1.2 Define air-fuel ratio & calorific value of fuel.
	4th	1.3 Work out problems to determine efficiencies & specific fuel consumption.
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	2nd	**CHAPTER-2(Air Compressor)** 2.1 Explain functions of compressor & industrial use of compressor air
	3rd	2.2 Classify air compressor & principle of operation.
	4th	2.3 Describe the parts and working principle of reciprocating Air compressor.
3rd	1st	2.4 Explain the terminology of reciprocating compressor such as bore, stroke, pressure ratio free air delivered &Volumetric efficiency.
	2nd	2.5 Derive the work done of single stage & two stage compressor with and without clearance.
	3rd	2.5 Derive the work done of single stage & two stage compressor with and without clearance.
	4th	2.6 Solve simple problems (without clearance only)
4th	1st	2.6 Solve simple problems (without clearance only)
	2nd	Revison and Doubt session of chapter-1,2
	3rd	Revison and Doubt session of chapter-1,2
	4th	**CHAPTER-3 (Properties of Steam)** 3.1 Difference between gas & vapours.
5th	1st	3.2 Formation of steam.
	2nd	3.3 Representation on P-V, T-S, H-S, & T-H diagram.

	3rd	3.4 Definition & Properties of Steam.
	4th	3.5 Use of steam table & mollier chart for finding unknown properties.
6th	1st	3.6 Non flow & flow process of vapour.
	2nd	3.7 P-V, T-S & H-S, diagram.
	3rd	3.8 Determine the changes in properties & solve simple numerical.
	4th	3.8 Determine the changes in properties & solve simple numerical.
7th	1st	**CHAPTER-4 (Steam Generator)**
	2nd	4.1 Classification & types of Boiler.
	3rd	4.2 Important terms for Boiler.
	4th	4.3 Comparison between fire tube & Water tube Boiler
8th	1st	4.4 Description & working of common boilers (Cochran, Lancashire, Babcock & Wilcox Boiler)
	2nd	4.5 Boiler Draught (Forced, induced & balanced)
	3rd	4.6 Boiler mountings & accessories.
	4th	Revision and Doubt clearing session of chapter-3,4
9th	1st	**CHAPTER-5 (Steam Power Cycles)** 5.1 Carnot cycle with vapour.
	2nd	5.2 Derive work & efficiency of the cycle.
	3rd	5.3 Rankine cycle
	4th	5.3.1 Representation in P-V, T-S & h-s diagram.
10th	1st	5.3.2 Derive Work & Efficiency.
	2nd	5.3.3 Effect of Various end conditions in Rankine cycle
	3rd	5.3.4 Reheat cycle & regenerative Cycle.
	4th	5.4 Solve simple numerical on Carnot vapour Cycle & Rankine Cycle.
11th	1st	**CHAPTER-6 (Heat Transfer)** 6.1 Modes of Heat Transfer (Conduction, Convection, Radiation).
	2nd	6.2 Fourier law of heat conduction and thermal conductivity (k).
	3rd	6.3 Newton's laws of cooling.
	4th	6.4 Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement, no derivation & no numerical problem.

12th	1st	6.5 Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility.
	2nd	Revision and Doubt clearing session of chapter-5,6
	3rd	Revision and Doubt clearing session of chapter-1,2,3
	4th	Revision and Doubt clearing session of chapter-4,5,6
13th	1st	Previous year question discussion
	2nd	Previous year question discussion
	3rd	Previous year question discussion
	4th	Previous year question discussion