LESSON PLAN

SESSION	SUMMER 2023
SEMESTER	4TH
BRANCH	MECHANICAL ENGINEERING
SECTION	A&B
THEORY NO.	4
SUBJECT	THERMAL ENGINEERING-II
LECTURER	Er. JITENDRA SANTARA & Er SURANJAN MOHANTY

SL NO.	MONTH	CHAPTER NO.	DATE	TOPICS TO BE COVERED	NO. OF ACADEMIC DAYS AVAILABLE FOR THE SUBJECT	% COVERED
1	FEB	1	23.2.23	1.1 Define mechanical efficiency, Indicated thermal efficiency, Relative Efficiency	5	9%
			24.2.23	brake thermal efficiency overall efficiency,Mean effective pressure &specific fuel consumption.		
			25.2.23	1.2 Define air-fuel ratio & calorific value of fuel.		
			27.2.23	1.3 Work out problems to determine efficiencies & specific fuel consumption.		
			28.2.23	1.3 Work out problems to determine efficiencies & specific fuel consumption.		
2	MARCH	2	1.3.23	1.3 Work out problems to determine efficiencies & specific fuel consumption.	24	43%
			2.3.23	2.1 Explain functions of compressor & industrial use of compressor air		
			3.3.23	2.2 Classify air compressor & principle of operation.		
			4.3.23	2.3 Describe the parts and working principle of reciprocating Air compressor		
			6.3.23	2.3 Describe the parts and working principle of reciprocating Air compressor		
			9.3.23	2.4 Explain the terminology of reciprocating compressor such as bore, stroke, pressure ratio free air delivered &Volumetric efficiency		
			10.3.23	2.4 Explain the terminology of reciprocating compressor such as bore, stroke, pressure ratio free air delivered &Volumetric efficiency		
			11.3.23	2.5 Derive the work done of single stage & two stage compressor with and without clearance.		
			13.3.23	2.5 Derive the work done of single stage & two stage compressor with and without clearance.		
			14.3.23	2.6 Solve simple problems (without clearance only)		
			15.3.23	2.6 Solve simple problems (without clearance only)		
			16.3.23	2.6 Solve simple problems (without clearance only)		
			17.3.23	3.1 Difference between gas & vapours.		
			18.3.23	3.2 Formation of steam.		
			20.3.23	3.3 Representation on P-V, T-S, H-S, & T-H diagram		

		3	21.3.23	3.4 Definition & Properties of Steam. 3.5 Use of steam table & moller chart for finding unknown properties.		
			22.3.23	3.6 Non flow & flow process of vapour.		
			23.3.23	3.7 P-V, T-S & H-S, diagram		
			24.3.23	3.8 Determine the changes in properties & solve simple numerical.		
			25.3.23	3.8 Determine the changes in properties & solve simple numerical.		
			27.3.23	3.8 Determine the changes in properties & solve simple numerical.		
			28.3.23	4.1 Classification & types of Boiler.		
			29.3.23	4.2 Important terms for Boiler.		
			31.3.23	4.3 Comparison between fire tube & Water tube Boiler.		
3	APRIL	4	3.4.23	4.4 Description & working of common boilers (Cochran, Lancashire, Babcock & Wilcox Boiler)	15	27%
			4.4.23	4.4 Description & working of common boilers (Cochran, Lancashire, Babcock & Wilcox Boiler)		
			5.4.23	4.4 Description & working of common boilers (Cochran, Lancashire, Babcock & Wilcox Boiler)		
			6.4.23	4.5 Boiler Draught (Forced, induced & balanced)		
			8.4.23	4.6 Boiler mountings & accessories.		
			10.4.23	4.6 Boiler mountings & accessories.		
			11.4.23	4.6 Boiler mountings & accessories.		
		5	12.4.23	5.1 Carnot cycle with vapour.		
			13.4.23	5.2 Derive work & efficiency of the cycle.		
			24.4.23	5.3.1 Representation in P-V, T-S & h-s diagram.		
			25.4.23	5.3.2 Derive Work & Efficiency		
			26.4.23	5.3.3 Effect of Various end conditions in Rankine cycle.		
			27.4.23	5.3.4 Reheat cycle & regenerative Cycle.		
			28.4.23	5.3.4 Reheat cycle & regenerative Cycle.		
			29.4.23	5.4 Solve simple numerical on Carnot vapour Cycle & Rankine Cycle.		
4	MAY	6	1.5.23	5.4 Solve simple numerical on Carnot vapour Cycle & Rankine Cycle.	11	21%
			2.5.23	5.4 Solve simple numerical on Carnot vapour Cycle & Rankine Cycle.		
			3.5.23	5.4 Solve simple numerical on Carnot vapour Cycle & Rankine Cycle.		
			4.5.23	6.1 Modes of Heat Transfer (Conduction, Convection, Radiation)		
			6.5.23	6.2 Fourier law of heat conduction and thermal conductivity (k).		
			8.5.23	6.2 Fourier law of heat conduction and thermal conductivity (k).		
			9.5.23	6.3 Newton's laws of cooling.		
			10.5.23	6.4 Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement, no derivation & no numerical problem.		

			11.5.23	6.4 Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement, no derivation & no numerical problem.		
			12.5.23	6.5 Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility.		
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BRIEF SUMMARY OF THE PLAN

SL. NO.	MONTH	UNIT/CHAPTER TO BE COVERED	% COVERAGE
1	Feb-23	CH-1.3	9%
2	Mar-23	CH-1,CH-2,CH-3,CH-4.3	43%
3	Apr-23	CH-4,CH-5.3	27%
4	May-23	CH-5,CH-6	21%

21.2.23

SIGNATURE OF FACULTY

J. Santra
21-02-23

21/2/23

SIGNATURE OF HOD

SIGNATURE OF PRINCIPAL
21/2/23