

SPINTRONIC TECHNOLOGY AND ADVANCE RESEARCH

MECHANICAL ENGINEERING

SUBJECT-THERMAL ENGINEERING II

LESSON PLAN SESSION-2025-26 (Summer-2025) SEM-4TH

NAME OF THE FACULTY-Er. D.MOHANTY (Asst. prof.)

SL NO.	NO OF PERIOD (TOPIC WISE)	TOTAL NO PERIOD	Cumulative no of periods
1.1	Define mechanical efficiency	1	1
1.2	Indicated thermal efficiency	1	2
1.3	Relative Efficiency,	1	3
1.4	brake thermal efficiency overall efficiency	1	4
1.5	Mean effective pressure & specific fuel consumption.	1	5
1.6	Define air-fuel ratio	1	6
1.7	calorific value of fuel	1	7
1.8	Work out problems to determine efficiencies	1	8
1.9	Work out problems to determine & specific fuel consumption	1	9
2.1	Explain functions of compressor	1	10
2.1	industrial use of compressor air	1	11
2.3	Classify air compressor	1	12
2.4	principle of operation of compressor	1	13
2.5	Describe the parts and of reciprocating Air compressor	1	14
2.6	Describe working principle of reciprocating Air compressor	1	15
2.7	Explain the terminology of reciprocating compressor such as bore, stroke,	1	16
2.8	pressure ratio free air delivered & Volumetric efficiency.	1	17
2.9	Derive the work done of single stage with clearance	1	18
2.10	Derive the work done of two stage compressor with clearance	1	19
2.11	Derive the work done of single stage compressor without clearance	1	20
2.12	Derive the work done of two stage compressor without clearance	1	21
2.13	Solve simple problems (without clearance only)	1	22
3.1	Difference between gas & vapours	1	23
3.2	Formation of steam.	1	24
3.3	Representation on P-V, T-S,	1	25
3.4	H-S, & T-H diagram	1	26
3.5	Definition & Properties of Steam	1	27
3.6	Use of steam table	1	28
3.7	Use of mollier chart for finding unknown properties.	1	29
3.8	Non flow process of vapour.	1	30
3.9	flow process of vapour.	1	31
3.10	P-V, T-S diagram	1	32

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3.11	H-S, diagram.	1	33
3.12	Determine the changes in properties	1	34
3.13	solve simple numerical.	1	35
4.1	Classification of Boiler.	1	36
4.2	types of Boiler.	1	37
4.3	Important terms for Boiler	1	38
4.4	Comparison between fire tube & Water tube Boiler.	1	39
4.5	Description & working of common boilers (Cochran, Boiler)	1	40
4.6	Description & working of common boilers (Lancashire Boiler)	1	41
4.7	Description & working of common boilers (Babcock Boiler)	1	42
4.8	Description & working of common boilers (Wilcox Boiler)	1	43
4.9	Boiler Draught (Forced, induced & balanced)	1	44
4.10	Boiler mountings & accessories	1	45
5.1	Carnot cycle with vapour	1	46
5.2	Derive work of the cycle	1	47
5.3	Derive efficiency of the cycle	1	48
5.4	Rankine cycle. Representation in P-V, T-S diagram.	1	49
5.5	Rankine cycle. Representation in h-s diagram.	1	50
5.6	Derive Work	1	51
5.7	Derive Efficiency	1	52
5.8	Effect of Various end conditions in Rankine cycle.	1	53
5.9	Reheat cycle Cycle	1	54
5.10	regenerative Cycle	1	55
5.11	Solve simple numerical on Carnot vapour Cycle & Rankine Cycle	1	56
6.1	Modes of Heat Transfer (Conduction, Convection, Radiation	1	57
6.2	Fourier law of heat conduction and thermal conductivity (k). Newton's laws of cooling	1	58
6.3	Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement, no derivation & no numerical problem.	1	59
6.4	Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility	1	60

Reference Books: Engineering Thermodynamics, P. Chattopadhyay
Thermal Engineering by Mahesh M Rathore