

GOVT. POLYTECHNIC, NAYAGARH
LESSON PLAN
4th SEMESTER MECHANICAL ENGINEERING (2023-24)
SUBJECT- THERMAL ENGINEERING-II
(w.e.f 16/01/2024)

TOTAL PERIOD-60
THEORY-4P/WEEK

NAME OF FACULTY : MONALISA SAHOO (Sr. Lect.)

SI No.	week	Day	Topics to be covered
1	1 st	1 st day	Introduction to I.C .Engine.
		2 nd day	Define Mechanical efficiency
		3 rd day	Indicated power, Indicated Thermal efficiency, Relative Efficiency
		4 th day	Brake power, Brake Thermal Efficiency
SI No.	week	Day	Topics to be covered
2	2 nd	1 st day	efficiency, overall efficiency
		2 nd day	Mean effective pressure& Specific fuel consumption
		3 rd day	Define air-fuel ratio , calorific value of fuel
		4 th day	Work out problems to determine efficiencies & specific fuel consumption
SI No.	week	Day	Topics to be covered
3	3 rd	1 st day	Air Compressor Explain functions and industrial use of air compressor
		2 nd day	Classify air compressor & principle of operation.
		3 rd day	Describe the parts and working principle of reciprocating Air compressor.
		4 th day	Its advantages , disadvantages & industrial use of compressor air
SI No.	week	Day	Topics to be covered
4	4 th	1 st day	Explain the terminology of reciprocating compressor such as bore, stroke,
		2 nd day	Pressure ratio free air delivered & Volumetric efficiency. etc
		3 rd day	Single stage and two stage compressor
		4 th day	Derive the work done of single stage with and without clearance.
SI No.	week	Day	Topics to be covered
5	5 th	1 st day	Derive the work done of two stage compressor with and without clearance.
		2 nd day	Solve simple problems (without clearance only)
		3 rd day	Solve simple problems (without clearance only)
		4 th day	Solve simple problems (without clearance only)
SI No.	week	Day	Topics to be covered
6	6 th	1 st day	Define steam? Difference between gas & vapours.
		2 nd day	Formation of steam.
		3 rd day	Representation on P-V, T-S, H-S, & T-H diagram.
		4 th day	Definition & Properties of Steam.
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		2 nd day	Formation of steam.
		3 rd day	Representation on P-V, T-S, H-S, & T-H diagram.
		4 th day	Definition & Properties of Steam.
SI No.	week	Day	Topics to be covered

7	7 th	1 st day	Critical point ,phase change etc
		2 nd day	Use of steam table & mollier chart for finding unknown properties.
		3 rd day	Non flow & flow process of vapour.
		4 th day	P-V, T-S & H-S, diagram.
Sl No.	week	Day	Topics to be covered
8	8 th	1 st day	Determine the changes in properties & solve simple numerical.
		2 nd day	Determine the changes in properties & solve simple numerical.
		3 rd day	solve simple numerical.
		4 th day	solve simple numerical.
Sl No.	week	Day	Topics to be covered
9	9 th	1 st day	Steam Generator And its function
		2 nd day	Its advantages ,disadvantages and application of steam generator
		3 rd day	Classification & types of Boiler.
		4 th day	Important terms for Boiler.
Sl No.	week	Day	Topics to be covered
10	10 th	1 st day	Define tube & Water tube Boiler.
		2 nd day	Comparison between fire tube & Water tube Boiler.
		3 rd day	Description & working of common boilers (Cochran Boiler)
		4 th day	Description & working of common boilers (Lancashire Boiler)
Sl No.	week	Day	Topics to be covered
11	11 th	1 st day	Description & working of common boilers (Babcock & Wilcox Boiler)
		2 nd day	Boiler Draught (Forced, induced & balanced)
		3 rd day	Boiler mountings & accessories
		4 th day	Boiler mountings & accessories
Sl No.	week	Day	Topics to be covered
12	12 th	1 st day	Steam Power Cycles And Carnot cycle with vapour.
		2 nd day	Derive work & efficiency of the cycle
		3 rd day	Rankine cycle
		4 th day	Representation in P-V, T-S & h-s diagram.
Sl No.	week	Day	Topics to be covered
13	13 th	1 st day	Derive Work & Efficiency.
		2 nd day	Effect of Various end conditions in Rankine cycle.
		3 rd day	Reheat cycle & regenerative Cycle.

		4 th day	Solve simple numerical on Carnot vapour Cycle & Rankine Cycle.
Sl No.	week	Day	Topics to be covered
14	14 th	1 st day	Define Heat Transfer , Modes of Heat Transfer(Conduction, Convection, Radiation).
		2 nd day	Fourier law of heat conduction and thermal conductivity (k).
		3 rd day	Newton's laws of cooling.
		4 th day	Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement, no derivation & no numerical problem.
Sl No	week	Day	Topics to be covered
15	15 th	1 st day	Black body Radiation
		2 nd day	Definition of Emissivity
		3 rd day	Define Absorptivity
		4 th day	Define transmissibility.

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