



NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, DALASORE (ODISHA)
(Approved by AICTE & affiliated to SCTE & VT, Odisha)



LESSON PLAN

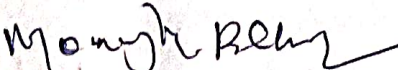
SUBJECT: Th-4 (THERMAL ENGG-II)


Name Of The Faculty :- Er. Manoranjan Behera
Branch :- Mechanical Engineering
Examination :- 2025 (S)

Session :- 2024-25
Semester :- 4th

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	Performance of I.C. engine	8	8
2	Air Compressor	12	12
3	Properties of steam	12	12
4	Steam Generator	12	12
5	Vapor power cycle	8	8
6	Heat Transfer	8	8
	Total Period:	60	60

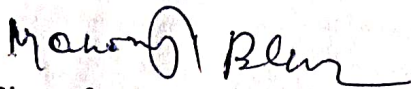

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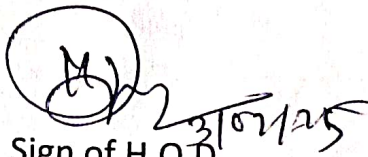

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Discipline: MECHANICAL ENGG	Semester: 4th	Name of the Teaching Faculty: Er. Manoranjan Behera	
		SESSION : 2024-25	EXAMINATION : 2025 (S)
Week	Class Day	Topics to be Covered	
1 st	1 st	Performance of I.C. engine	
	2 nd	Define mechanical efficiency, indicated thermal efficiency, Relative Efficiency	
	3 rd	Brake thermal efficiency, overall efficiency, mean effective pressure & specific fuel consumption	
	4 th	Define air-fuel ratio & calorific value of fuel	
2 nd	1 st	Work out problems to determine efficiencies & specific fuel consumption.	
	2 nd	Work out problems to determine efficiencies & specific fuel consumption.	
	3 rd	Work out problems to determine efficiencies & specific fuel consumption.	
	4 th	CLASS TEST	
3 rd	1 st	Air Compressor, Classify air compressor & principle of operation	
	2 nd	Explain functions of compressor & industrial use of compressor air	
	3 rd	Describe the parts and working principle of reciprocating Air compressor	
	4 th	Describe the parts and working principle of reciprocating Air compressor	
4 th	1 st	Explain the terminology of reciprocating compressor such as bore, stroke, pressure ratio, free air delivered	
	2 nd	Volumetric efficiency of reciprocating compressor	
	3 rd	Derive the work done of single stage compressor with clearance	
	4 th	Derive the work done of single stage compressor without clearance	
5 th	1 st	Derive the work done of two stage compressor with clearance	
	2 nd	Derive the work done of two stage compressor without clearance	
	3 rd	Solve simple problems	
	4 th	CLASS TEST	
6 th	1 st	Properties of Steam, Difference between gas & vapours.	

Week	Class Day	Topics to be Covered
6 th	2 nd	Formation of steam.
	3 rd	Representation on P-V, T-S, H-S, & T-H diagram.
	4 th	Representation on P-V, T-S, H-S, & T-H diagram.
7 th	1 st	Definition & Properties of Steam.
	2 nd	Use of steam table & mollier chart for finding unknown properties.
	3 rd	Non flow & flow process of vapour
	4 th	P-V, T-S & H-S, diagram
8 th	1 st	P-V, T-S & H-S, diagram
	2 nd	Determine the changes in properties & solve simple numerical
	3 rd	Determine the changes in properties & solve simple numerical
	4 th	CLASS TEST
9 th	1 st	Steam Generator, Classification & types of Boiler, Important terms for Boiler
	2 nd	Comparison between fire tube & Water tube Boiler
	3 rd	Description & working of common boilers (Cochran)
	4 th	Description & working of common boilers (Lancashire)
10 th	1 st	Description & working of common boilers (Babcock & Wilcox Boiler)
	2 nd	Boiler Draught (Forced, Induced & balanced)
	3 rd	Boiler mountings
	4 th	Boiler mountings
11 th	1 st	Boiler mountings
	2 nd	Boiler accessories

Week	Class Day	Topics to be Covered
11 th	3 rd	Boiler accessories
	4 th	CLASS TEST
12 th	1 st	Steam Generator, Carnot cycle with vapour.
	2 nd	Derive work & efficiency of the cycle
	3 rd	Rankine cycle. Representation in P-V, T-S & h-s diagram
	4 th	Derive Work & Efficiency.
13 th	1 st	Effect of Various end conditions in Rankine cycle
	2 nd	Reheat cycle & regenerative Cycle.
	3 rd	Reheat cycle & regenerative Cycle.
	4 th	Solve simple numerical on Carnot vapour Cycle & Rankine Cycle.
14 th	1 st	Heat Transfer, Modes of Heat Transfer (Conduction, Convection, Radiation).
	2 nd	Fourier law of heat conduction and thermal conductivity (k). Newton's laws of cooling.
	3 rd	Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement, no derivation & no numerical problem
	4 th	Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement, no derivation & no numerical problem
15 th	1 st	Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility.
	2 nd	Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility.
	3 rd	Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility.
	4 th	CLASS TEST


Sign of Faculty


Sign of H.O.D.