NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (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	Performanceofl.Cengine	8	8
2	AirCompressor	12	12
3	Propertiesofsteam	12	12
4	SteamGenerator	12	12
5	Vapor power cycle	8	8
6	HeatTransfer	8	8
	Total Period:	60	60

Sign of Faculty

Sign of H.O.D. 3/07/25

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
1st	1st	Performanceofi.Cengine
	2nd	Definemechanicalefficiency,Indicatedthermalefficiency, RelativeEfficiency
	3rd	Brakethermalefficiencyoverallefficiencymeaneffective pressure&specificfuelconsumption
	4th	Defineair-fuelratio&calorific valueoffuel
2nd	1st	Workoutproblemstodetermineefficiencies&specificfuel consumption.
	2nd	Workoutproblemstodetermineefficiencies&specificfuel consumption.
	3rd	Workoutproblemstodetermineefficiencies&specificfuel consumption.
	4th	CLASSTEST
3rd	1st	AirCompressor,Classifyaircompressor&principleof operation
	2nd	Explain functions of compressor & industrial use of compressorair
	3rd	Describe the parts and working principle of reciprocating Air compressor
	4th	Describe the parts and working principle of reciprocating Aircompressor
4th	1st	Explain the terminology of reciprocating compressor such as bore,stroke,pressure ratio free air delivered
	2nd	Volumetric efficiency of reciprocating compressor
	3rd	Derive the work done of single stage compressor with clearance
	4th	Derive the work done of single stage compressor without clearance
5th	1st	Derive the work done of two stage compressor with clearance
	2nd	Derive the work done of two stage compressor without clearance
	3rd	Solve simple problems
	4th	CLASS TEST
6th	1st	Properties of Steam, Difference between gas & vapours.

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

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

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