IDEAL SCHOOL OF ENGG. BBSR, KHURDHA

LESSON PLAN

6th SEMESTER MECHANICAL ENGINEERING (2022-23)

SUBJECT- THERMAL ENGINEERING-II

TOTAL PERIOD-60

NAME OF FACULTY :Er.Asutosh Rana(Lect. In mech) **THEORY-4P/WEEK**

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

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

		4th day	Solve simple numerical on Carnot vapour Cycle & Rankine Cycle.
Sl No.	**week**	**Day**	**Topics to be covered**
14	14th	1st day	What is Heat Transfer? Modes of Heat Transfer(Conduction, Convection, Radiation).
		2nd day	Fourier law of heat conduction and thermal conductivity (k).
		3rd day	Newton's laws of cooling.
		4th 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	15th	1st day	What is Black body Radiation?
		2nd day	Definition of Emissivity
		3rd day	What is absorptivity?
		4th day	What is transmissibility?