

KIIT POLYTECHNIC
Department of Mechanical Engineering

LESSON PLAN

Session	::	Winter– 2022
Course Type	::	Theory
Semester/Branch	::	3 rd Semester, Electrical Engineering
Subject (with code)	::	Elements of Mechanical Engineering (Th.3.)
Contact hours/week	::	4 hours
Name of Faculty	::	Abhijit Samant

SL. NO.	CLASS ID	COURSE CONTENT	MODE OF DELIVERY	EXHIBIT/ REFERENCE
1	1	Define Thermodynamics. Define System, surroundings and boundary. Explain open closed and isolated system.	Lecture (Explanation)	1.Study Material 2.Thermal Engineering Book by R.S Khurmi
2	2	Define Intensive and extensive properties. Differentiate between homogeneous and heterogeneous system.	Lecture (Explanation)	Study Material
3	3	State Unit of Heat and work. 1st law of the thermodynamics.	Lecture (Explanation)	Study Material
4	4	State Laws of perfect gases.	Video Content	https://youtu.be/56kawZ0M_Pk
5	5	Determine relationship of specific heat of gases at constant volume and constant pressure.	Lecture (Explanation)	Study material
6	6	Explain the formation of steam and differentiate between gas and vapours.	Lecture (Explanation)	Study Material
7	7	Define pure substance and its phases and explain the phase change phenomena of a pure substance.	Lecture (Explanation)	Thermal Engineering Book by R.S Khurmi
8	8	Properties of steam. Wet, dry and superheated steam.	Lecture (Explanation)	Study Material
9	9	Explain total heat of wet, dry and superheated steam.	Lecture (Explanation)	Study Material
10	10	Use steam table for solution of simple problem.	Problem based learning	
11	11	Class Test/Assignment		
12	12	Define Boiler and classification of boiler.	Hybrid Class	Study Material https://youtu.be/fk3DjD9gSsk
13	13	Explain principal part and their function of a boiler.	Lecture (Explanation)	1.Study Material 2.Thermal Engineering Book

14	14	Define characteristic of a good boiler and factor affecting the selection of boiler.	Lecture (Explanation)	by R.S Khurmi
15	15	Explain the comparison between fire and water tube boiler, about Boiler Mountings and Accessories.	Lecture (Model)	Study Material
16	16	Description and working of Cochran and Babcock and Wilcox boiler.	Hybrid	Study Material https://youtu.be/hVcqqqEulVA https://youtu.be/ae_QmSRhD5w
17	17	Define Steam engine, Classify it, and explain different parts of a steam engine	Lecture (Explanation)	Study Material
18	18	Explain the working principle of a steam engine.	Lecture (Explanation)	Study Material
19	19	Explain hypothetical indicator diagram of steam engine with and without clearance	Lecture (Explanation)	Study Material
20	20	Define actual indicator diagram of a steam engine.	Lecture (Explanation)	Study Material
21	21	Explain the efficiency of a steam engine.	Lecture (Explanation)	Study Material
22	22	Solve Numerical on efficiency of steam engine	Problem based learning	
23	23	Class Test/Assignment		
24	24	Explain the working principle of Impulse and reaction turbine	Lecture (Model)	Study Material
25	25	Differentiate between Impulse and reaction turbine	Lecture (Model)	Study Material
26	26	Define Condenser and state its function and types.	Video Content	https://youtu.be/4otyH21mo4
27	27	Explain the elements of a condensing plant.	Video Content	https://youtu.be/4otyH21mo4
28	28	Explain the working principle of a low level condenser.	Lecture (Model)	Study Material
29	29	Explain the working principle of a high level and ejector jet condenser.	Lecture (Explanation)	Study Material
30	30	Explain the working principle of shell and tube type surface condenser.	Lecture (Explanation)	Study Material

31	31	Class Test/Assignment		
32	32	Define & classify I.C engine	Video Content	https://youtu.be/fw8JfoiflBM
33	33	Terminology of I.C Engine	Video Content	https://youtu.be/fw8JfoiflBM
34	34	Explain the working principle of 4-stroke S.I and C.I engine.	Lecture (Model)	1.Study Material 2.Thermal Engineering Book by R.S Khurmi
35	35	Explain the working principle of 2-stroke S.I and C.I engine.	Lecture (Model)	
36	36	Differentiate between 2-stroke & 4-stroke and S.I or C.I engine.	Lecture (Model)	
37	37	Describe properties of fluid.	Lecture (Explanation)	Study Material
38	38	Explain Pressure measurement and Classification of Pressure measuring devices.	Lecture (Explanation)	1.Study Material 2.Fluid Mechanics and Hydraulic Machine by (R.K Bansal)
39	39	Define Manometer and use of manometer for pressure measurement.	Lecture (Explanation)	
40	40	Determine pressure at a point by using pressure measuring Instruments.	Lecture (Explanation)	
41	41	Explain the energy of flowing liquid.	Lecture (Explanation)	Study Material
42	42	State and explain Bernoulli's theorem.	Lecture (Explanation)	1.Fluid Mechanics and Hydraulic Machine by (R.K Bansal)
43	43	Explain Accumulator, Hydraulic ram, Intensifier and Hydraulic lift.	Lecture (Model)	Study Material
45	45	Solve Numerical on Properties of Fluid	Problem based learning	
46	46	Solve Numerical on Manometer.	Problem based learning	
47	47	<i>Assignment Evaluation & Class Test</i>		
48	48	<i>Discussion on Previous year question paper</i>		

Signature of Concern Teacher