

KIIT POLYTECHNIC
Department of Mechanical Engineering

LESSON PLAN

Session :: Winter – 2022
Course Type :: Theory
Semester/Branch :: 3rd Semester, Metallurgy Engineering
Subject (with code) :: **Elementary mechanical Engineering (Th.1)**
Contact hours/week :: 4
Name of Faculty :: Namita Behera

SL. No.	CLAS S ID	COURSE CONTENT	MODE OF DELIVERY	EXHIBIT/ REFERENCE
1	1	Explain types of beam. Define Shear force and Bending moment	Lecture (Explanation)	1.Study Material 2.Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
2	2	Relation between loading, shear force and bending moment. Sign Convention.	Lecture (Explanation)	https://www.youtube.com/watch?v=UahfUvcS24o&t=613s&ab_channel=Ekeeda 1.Study material 2. Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
3	3	Bending moment and shear force diagram for cantilever with point load, with U.D.L	Lecture (Explanation)	https://www.youtube.com/watch?v=UahfUvcS24o&t=613s&ab_channel=Ekeeda 1.Study material 2. Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
4	4	Bending moment and shear force diagram for cantilever with point load, with U.D.L	Lecture (Explanation)	1.Study Material 2.. Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
5	5	Determine stress and deflection of loaded beams.	Problem based learning	
6	6	Solve Problems	Problem based learning	

7	7	Review/ Summarize		
8	8	Define machine, mechanism, kinematic link, kinematic pair and kinematic chain	Lecture (Explanation)	1.Study Material 2. Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
9	9	Four – bar linkage mechanism. Crank – connecting rod mechanism. Quick return mechanism	Lecture (Explanation)	1.Study Material 2. Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
10	10	Cam and Cam follower	Lecture (Explanation)	1.Study Material 2. Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
11	11	Assignment Evaluation and Class test		
12	12	Open and crossed belt drive. Velocity ratio of belt drive	Lecture (Explanation)	1.Study Material 2. Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
13	13	Determine length of open belt drive	Lecture (Explanation)	1.Study Material 2. Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
14	14	Determine ratio of tension and power transmitted in belt drive	Lecture (Explanation)	1.Study Material 2. Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
15	15	Numerical	Problem based Learning	1.Study Material 2. Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
16	16	Advantage of rope and chain drive. and function of flywheel and governor	Lecture (Explanation)	1.Study Material 2. Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
17	17	Working principle of simple brake and dynamometer	Lecture (Explanation)	1.Study material 2.Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
18	18	Define and classify bearing (bush and anti-friction bearing)	Lecture (Explanation)	1.Study material 2.Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
19	19	Revision/ Summarize		
20	20	Assignment evaluation, class test		
21	21	Heat, work and their inter-relationship. Units. Determine work done by compression and expansion of gas	Lecture (Explanation)	Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
22	22	Explain properties of steam (sensible heat, latent heat and dryness fraction)	Problem based Learning	Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta

23	23	Define boiler. Classification of boiler. Define fire tube, water tube boiler	Lecture (Explanation)	
24	24	Explain mechanism of boiler (Cochran Boiler).	Lecture (Explanation) PPT Presentation	

25	25	Explain mechanism of Babcock Wilcox Boiler	Lecture (Explanation) PPT Presentation	Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
26	26	Define IHP, BHP and mechanical efficiency,	Lecture (Explanation)	Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
27	27	Solve Problems	Problem based Learning	
28	28	Define and classify steam turbines (impulse- reaction type)	Lecture (Explanation)	
29	29	Revision/ Summarize		
30	30	Define and classify IC Engine. I.C engine terminology.	Student Presentation	1.Study Material 2. Thermal Engg by R.S Khurmi
31	31	Explain the 2 and 4-Stroke petrol and diesel Engine.	Lecture (Explanation)	1.Study Material
32	32	Explain Otto cycle	Video Presentation	1. Study Material 2.Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
33	33	Explain Diesel cycle	Video Presentation	1. Study Material 2.Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
34	34	Compare 2-stroke and 4-stroke of IC engine. Compare Petrol Engine and Diesel Engine	Hybrid	1.Study Material 2. Thermal Engg by R.S Khurmi
35	35	Define IHP, BHP and mechanical efficiency of IC Engine	Lecture (Explanation)	1.Study Material 2. Thermal Engg by R.S Khurmi
36	36	Revision/ Summarize		
37	37	Define refrigeration and air-conditioning and state various application	Lecture (Explanation)	1.Study Material 2. Thermal Engg by R.S Khurmi
38	38	Explain simple vapour compression refrigeration system.	Lecture (Explanation) Video Presentation	https://themechanicalengineering.com/grinding-machine/

39	39	Explain function and working principle of a gas compressor	Lecture (Explanation) Video Presentation	1.Study Material 2. Thermal Engg by R.S Khurmi
40	40	State types of refrigerants and explain their properties and concept of Air conditioning.	Lecture (Explanation)	Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
41	41	Review class		
42	42	<i>Assignment Evaluation & Class Test</i>		
43	43	Define machine tools and explain different machine and application	Lecture (Explanation)	
44	44	Describe different machine tools and their functions- lathe, shaper, milling.	Video Presentation	1.Study material 2.Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
45	45	Describe different machine tools and their functions- grinding machine and drilling machining	Lecture (Explanation)	1.Study Material 2. Elementary mechanical Engg by Dipankar Chatterjee and Subhajit Datta
46	46	Describe types of maintenance	Lecture (Explanation)	
47	47	Review class		
48	48	<i>Assignment Evaluation & Class Test</i>		

Signature of Concerned Teacher