UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA
Academic Lesson Plan for Winter Semester- 2022

Name of the Teaching Faculty: Er. Sagar Kumar Jena **Department: Mechanical Engineering**
Semester: 5th   **Subject: DESIGN OF MACHINE ELEMENTS**
No. of Periods per Week: 4   **Total Periods: 60**
End Semester Exam: 80   **Class Test: 20**
Total Marks: 100   **Theory - 2**

Sl. No.	Week	Period	Topic to be covered
1.	1st	1st	Introduction to Machine Design and Classify it.
2.		2nd	Different mechanical engineering materials used in design.
3.		3rd	Their uses and their mechanical and physical properties.
4.		4th	Define working stress, yield stress, ultimate stress & factor of
5.	2nd	1st	safety and stress –strain curve for M.S & C.I.
6.		2nd	Modes of Failure
7.		3rd	Do
8.		4th	State the factors governing the design of machine elements.
9.	3rd	1st	Do
10.		2nd	Describe design procedure.
11.		3rd	Do
12.		4th	Do
13.	4th	1st	Joints and their classification.
14.		2nd	State types of welded joints .
15.		3rd	State advantages of welded joints over other joints.
16.		4th	Design of welded joints for eccentric loads.
17.	5th	1st	State types of riveted joints and types of rivets.
18.		2nd	Describe failure of riveted joints.
19.		3rd	Determine strength & efficiency of riveted joints.
20.		4th	Design riveted joints for pressure vessel.
21.	6th	1st	Solve numerical on Welded Joint and Riveted Joints
22.		2nd	Do
23.		3rd	Do
24.		4th	Do
25.	7th	1st	State function of shafts.
26.		2nd	State materials for shafts.
27.		3rd	Design solid & hollow shafts to transmit a given power at given rpm based on
28.		4th	Do
29.	8th	1st	State standard size of shaft as per I.S.
30.		2nd	State function of keys, types of keys & material of keys.
31.		3rd	Describe failure of key, effect of key way.
32.		4th	Design rectangular sunk key considering its failure against shear & Crushing

33.	9th	1st	Design rectangular sunk key by using empirical relation for given diameter of shaft.
34.		2nd	State specification of parallel key, gib-head key, taper key as per I.S
35.		3rd	Solve numerical on Design of Shaft and keys
36.		4th	Do
37.	10th	1st	Design of Shaft Coupling
38.		2nd	Requirements of a good shaft coupling
39.		3rd	Types of Coupling.
40.		4th	Design of Sleeve or Muff-Coupling.
41.	11th	1st	Do
42.		2nd	Design of Clamp or Compression Coupling.
43.		3rd	Do
44.		4th	Solve simple numerical on above.
45.	12th	1st	Do
46.		2nd	Do
47.		3rd	Do
48.		4th	Do
49.	13th	1st	Materials used for helical spring.
50.		2nd	Standard size spring wire. (SWG).
51.		3rd	Terms used in compression spring.
52.		4th	Stress in helical spring of a circular wire.
53.	14th	1st	Do
54.		2nd	Deflection of helical spring of circular wire.
55.		3rd	Surge in spring.
56.		4th	Solve numerical on design of closed coil helical compression spring
57.	15th	1st	Do
58.		2nd	Do
59.		3rd	Do
60.		**4th**	Do

The above lesson plan prepared by the concerned faculty.

Er. Sagar Kumar Jena

PTGF, **MECHANICAL DEPARTMENT**