

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF MECHANICAL ENGINEERING



LESSON PLAN

SUBJECT: DESIGN OF MACHINE ELEMENT (TH-2)

FACULTY: Prasanta Kumar Padhi

ACADEMIC SESSION: 2023-24

SEMESTER: 5TH

SECTION-B

[Signature]
Sa/- 07/07/23

H O D (Mechanical Engg.)

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF MECHANICAL ENGINEERING
LESSON PLAN

Discipline-Mechanical Engg.	Semester :- 5 th	Section-A	Name of the teaching faculty :- Prasanta Kumar Padhi
Subject-Design of Machine Elements	No. of Days/ per week class allotted: 04 periods per week (Mon-2 nd ,Tue-1 st ,Wed-1 st Fri-2 nd period.)		Semester from Date - 01/08/2023 To Date - 30/11/2023 No. of Weeks: 17 th weeks
Week	Class	No Of Periods available	Theory Topics
1 st	01/08/2023	1	1.1 Introduction to Machine Design and Classify it.
	02/08/2023	1	1.2 Different mechanical engineering materials used in design with their uses and their mechanical and physical properties.
	04/08/2023	1	1.3.1 Define working stress, yield stress, ultimate stress & factor of safety
2 nd	07/08/2023	1	1.3.2 stress –strain curve for M.S
	08/08/2023	1	1.3.3 stress –strain curve for C.I.
	09/08/2023	1	1.4 Modes of Failure (By elastic deflection, general yielding & fracture)
	11/08/2023	1	1.5 State the factors governing the design of machine elements.
3 rd	14/08/2023	1	1.6 Describe design procedure.
	16/08/2023	1	Design of fastening elements: 2.1 Joints and their classification..
	18/08/2023	1	2.2 State types of welded joints

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF MECHANICAL ENGINEERING
LESSON PLAN

4 th	21/08/2023	1	2.3 State advantages of welded joints over other joints.
	22/08/2023	1	2.4 Design of welded joints for eccentric loads.
	23/08/2023	1	SOLVE NUMERICALS ON CH-2.4
	25/08/2023	1	2.5 State types of riveted joints and types of rivets.
5 th	28/08/2023	1	2.6 Describe failure of riveted joints.
	29/08/2023	1	SOLVE NUMERICALS ON CH-2.6
	01/09/2023	1	2.7 Determine strength & efficiency of riveted joints
6 th	04/09/2023	1	SOLVE NUMERICALS ON CH-2.7
	05/09/2023	1	Design riveted joints for pressure vessel.
	06/09/2023	1	SOLVE NUMERICALS ON CH-2.8
	08/09/2023	1	CLASS TEST-1
7 th	11/09/2023	1	Design of shafts and Keys: 3.1 State functions of shafts. 3.2 State materials for shafts
	12/09/2023	1	3.3 Design solid & hollow shafts to transmit a given power at given rpm based on a) Strength: (i) Shear stress, (ii) Combined bending tension;
	13/09/2023	1	SOLVE NUMERICALS ON CH-3.3 a
	15/09/2023	1	b) Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF MECHANICAL ENGINEERING
LESSON PLAN

8th	18/09/2023	1	SOLVE NUMERICALS ON CH-3.3 b
	22/09/2023	1	3.4 State standard size of shaft as per I.S.
9th	25/09/2023	1	3.5 State function of keys, types of keys & material of keys.
	26/09/2023	1	3.6 Describe failure of key, effect of key way.
	27/09/2023	1	3.7 Design rectangular sunk key considering its failure against shear & crushing.
	29/09/2023	1	SOLVE NUMERICALS ON CH-3.7
10th	03/10/2023	1	3.8 Design rectangular sunk key by using empirical relation for given diameter of shaft.
	04/10/2023	1	SOLVE NUMERICALS ON CH-3.8
	06/10/2023	1	3.9 State specification of parallel key
11 TH	09/10/2023	1	State specification gib-head key, taper key as per I.S.
	10/10/2023	1	4.1 Design of Shaft coupling
	11/10/2023	1	4.2 Requirements of a good shaft coupling
	13/10/2023	1	4.3 Types of Coupling.
12 TH	16/10/2023	1	4.4 Design of Sleeve or Muff-Coupling.
	17/10/2023	1	4.4 Design of Sleeve or Muff-Coupling.
	18/10/2023	1	SOLVE NUMERICALS ON CH-4.4
	20/10/2023	1	SOLVE NUMERICALS ON CH-4.4

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF MECHANICAL ENGINEERING
LESSON PLAN

13 TH	30/10/2023	1	4.5 Design of Clamp or Compression Coupling.
	31/10/2023	1	SOLVE NUMERICALS ON CH-4.5
	01/11/2023	1	SOLVE NUMERICALS ON CH-4.5
	03/11/2023	1	5.1 Materials used for helical spring.
14 th	06/11/2023	1	5.2 Standard size spring wire. (SWG)
	07/11/2023	1	5.3 Terms used in compression spring.
	08/11/2023	1	5.4 Stress in helical spring of a circular wire.
	10/11/2023	1	5.5 Deflection of helical spring of circular wire
15 th	13/11/2023	1	5.5 Deflection of helical spring of circular wire
	14/11/2023	1	SOLVE NUMERICALS ON CH-5.5
	15/11/2023	1	SOLVE NUMERICALS ON CH-5.5
	17/11/2023	1	5.6 Surge in spring.
16 th	20/11/2023	1	CLASS TEST-2
	21/11/2023	1	5.7 Solve numerical on design of closed coil helical compression spring.
	22/11/2023	1	5.7 Solve numerical on design of closed coil helical compression spring.
	24/11/2023	1	REVISION
17 th	28/11/2023	1	REVISION
	29/11/2023	1	DOUBT CLEARING CLASS

	01/12/2023	1	Revision chapter-1
18 th	04/12/2023	1	Revision chapter-2
	05/12/2023	1	Revision chapter-3
	06/12/2023	1	Revision chapter-4
	08/12/2023	1	Revision chapter-5