NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)

LESSON PLAN

SUBJECT: Th-2 (DESIGN OF MACHINE ELEMENT)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per	No. of periods actually
1	INTRODUCTION	12	12
2	DESIGN OF FASTENING ELEMENTS	12	12
3	DESIGN OF SHAFT AND KEYS	12	12
4	DESIGN OF COUPLING	12	12
5	DESIGN OF CLOSED COIL HELICAL SPRING	12	12
	TOTAL	60	60

Discipline: Mechanical ENGINEERING	Semester: 5TH	**Name of the Teaching Faculty:** Er. Ranjit Giri
		SESSION : 2023-24 **EXAMINATION :** 2023 (w)
Week	**Class Day**	**Topics to be Covered**
1st	**1st**	1.1 Introduction to Machine Design and Classify it.
	2nd	1.1 Introduction to Machine Design and Classify it.
	3rd	1.2. Different mechanical engineering materials used in design with their uses and their mechanical and physical properties
	4th	1.2. Different mechanical engineering materials used in design with their uses and their mechanical and physical properties.
2nd	**1st**	1.3 Define working stress, yield stress, ultimate stress & factor of safety and stress –strain curve for M.S & C.I.
	2nd	1.3 Define working stress, yield stress, ultimate stress & factor of safety and stress –strain curve for M.S & C.I.
	3rd	1.4 Modes of Failure (By elastic deflection, general yielding & fracture)
	4th	1.4 Modes of Failure (By elastic deflection, general yielding & fracture)
3rd	**1st**	1.5 State the factors governing the design of machine elements.
	2nd	1.5 State the factors governing the design of machine elements.
	3rd	1.6 Describe design procedure.
	4th	1.6 Describe design procedure.
4th	**1st**	2.1 Joints and their classification.
	2nd	2.2 State types of welded joints
	3rd	2.3 State advantages of welded joints over other joints.
	4th	2.4 Design of welded joints for eccentric loads.
5th	**1st**	2.5 State types of riveted joints and types of rivets
	2nd	2.6 Describe failure of riveted joints.
	3rd	2.7 Determine strength & efficiency of riveted joints.
	4th	2.8 Design riveted joints for pressure vessel

Week	Class Day	Topics to be Covered
6th	1st	2.8 Design riveted joints for pressure vessel
	2nd	2.9 Solve numerical on Welded Joint and Riveted Joints.
	3rd	2.9 Solve numerical on Welded Joint and Riveted Joints.
	4th	2.9 Solve numerical on Welded Joint and Riveted Joints.
7th	1st	3.1 State function of shafts
	2nd	3.2 State materials for shafts
	3rd	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; b) Rigidity: (i) Angle of
	4th	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; b) Rigidity: (i) Angle of twist,
8th	1st	3.4 State standard size of shaft as per I.S.
	2nd	3.5 State function of keys, types of keys & material of keys.
	3rd	3.6 Describe failure of key, effect of key way.
	4th	3.7 Design rectangular sunk key considering its failure against shear
9th	1st	3.8 Design rectangular sunk key by using empirical relation for given diameter
	2nd	3.9 State specification of parallel key, gib-head key, taper key as per I.S.
	3rd	3.10 Solve numerical on Design of Shaft and keys.
	4th	INTERNAL ASSESMENT
10th	1st	INTERNAL ASSESMENT
	2nd	4.1 Design of Shaft Coupling
	3rd	4.2 Requirements of a good shaft coupling
	4th	4.3 Types of Coupling

Week	Class Day	Topics to be Covered
11th	1st	4.3 Types of Coupling
	2nd	4.4 Design of Sleeve or Muff-Coupling.
	3rd	4.4 Design of Sleeve or Muff-Coupling.
	4th	4.5 Design of Clamp or Compression Coupling
12th	1st	4.5 Design of Clamp or Compression Coupling
	2nd	4.6 Solve simple numerical on above.
	3rd	4.6 Solve simple numerical on above.
	4th	4.6 Solve simple numerical on above.
13th	1st	5.1 Materials used for helical spring
	2nd	5.2 Standard size spring wire. (SWG).
	3rd	5.3 Terms used in compression spring.
	4th	5.3 Terms used in compression spring.
14th	1st	5.4 Stress in helical spring of a circular wire.
	2nd	5.4 Stress in helical spring of a circular wire.
	3rd	5.5 Deflection of helical spring of circular wire.
	4th	5.5 Deflection of helical spring of circular wire.
15th	1st	5.6 Surge in spring
	2nd	5.7 Solve numerical on design of closed coil helical compression spring.
	3rd	5.7 Solve numerical on design of closed coil helical compression spring.
	4th	5.7 Solve numerical on design of closed coil helical compression spring.