Discipline: **MECHANICAL ENGG**	Semester: **5TH**	Name of the Teaching Faculty: SHARMILA SAHAR
Subject: DESIGN OF MACHINE ELEMENTS	No. of days/per week class allotted: **04**	Semester From date: 15/07/2022 To Date: 31/01/2023 No. of Weeks: 15
Week	**Class Day**	**Theory/Practical Topics**
1ST	1ST	Introduction to machine design
	2ND	Classification of machine design
	3RD	Different types of mechanical engineering material used in design
	4TH	Uses of mechanical engineering material
2ND	1ST	Mechanical and physical properties of material
	2ND	Definition of working stress, Ultimate stress
	3RD	Factor of safety
	4TH	Stress strain curve of MS and CI
3RD	1ST	Modes of failure(elastic deflection, general yielding, fracture)
	2ND	Factors governing the design of machine elements
	3RD	Factors governing the design of machine elements
	4TH	Description of Design procedure
4TH	1ST	Design of fastening elements: Joints and their classification
	2ND	Types of welding
	3RD	Adv of welded joints over other joints
	4TH	Design of welded joints for eccentric load
5TH	1ST	Numerical
	2ND	Types of riveted joints and types of rivet
	3RD	Failure of rivet joint
	4TH	Strength of rivet joints
6TH	1ST	efficiency of riveted joint
	2ND	Design of riveted joints for pressure vessel
	3RD	Numerical
	4TH	Numerical
7TH	1ST	Design of Shaft and Keys: Function of shaft and Material for shaft
	2ND	Design of solid shaft to transmit given power at given rpm based on a) strength: (i)shear stress (ii) combined bending tension
	3RD	Design of hollow shaft to transmit given power at given rpm based b)rigidity: (i)angle of twist (ii)deflection, (iii) modulus of rigidity
	4TH	Design of hollow shaft to transmit given power at given rpm based on a) strength: (i)shear stress (ii) combined bending tension
8TH	1ST	Design of hollow shaft to transmit given power at given rpm based b)rigidity: (i)angle of twist (ii)deflection, (iii) modulus of rigidity
	2ND	Standard size of shaft as per IS
	3RD	Function of keys, types and material for keys
	4TH	Failure of key, effect of keyway
9TH	1ST	Design of rectangular sunk key considering its failure against shear and crushing
	2ND	Design of sunk key by using empirical relation for given diameter of shaft
	3RD	Specification of parallel key, gib head key , tapper key
	4TH	Numerical
10TH	1ST	Design of coupling: Design of shaft coupling

	2ND	Design of shaft coupling
	3RD	Requirements of a good shaft coupling
	4TH	Requirements of a good shaft coupling
11TH	1ST	Types of coupling
	2ND	Types of coupling
	3RD	Design of sleeve or Muff coupling
	4TH	Design of sleeve or Muff coupling
12TH	1ST	Design of clamp or compression coupling
	2ND	Design of clamp or compression coupling
	3RD	Numerical
	4TH	Numerical
13TH	1ST	Design of closed coil helical spring: Material used for helical spring
	2ND	Standard size spring wire(SWG)
	3RD	Standard size spring wire(SWG)
	4TH	Terms used in compression spring
14TH	1ST	Terms used in compression spring
	2ND	Stress in helical spring of a circular wire
	3RD	Stress in helical spring of a circular wire
	4TH	Deflection of helical spring of a circular wire
15TH	1ST	Deflection of helical spring of a circular wire
	2ND	Surge in spring
	3RD	Numerical
	4TH	Numerical

15/09/22
S Barman Sabar