Discipline: Mechanical Engg.	Semester: 5th	Name of the Teaching Faculty: BANESWAR MUNDA Designation: Workshop Superintendent
Subject: DME (MEPC303)	No. of days/week class allotted:03	Semester From date: 01.07.2025 To date: 15.11.2025 No. of weeks: 15
Week	Class Day	Theory/Practical Topics
	CHAPTER: 01	**Introduction to Design:**
1ST	1ST	Machine Design philosophy and Procedures; General Considerations in Machine Design;
	2ND	Different types of stress and strains Types of loads, concepts of stress, Strain,
	3RD	Stress Strain Diagram for Ductile Materials, Stress Strain Diagram for Brittle Materials
2ND	1ST	Bearing pressure Intensity; Crushing; Bending and Torsion, Principal Stresses; Simple Numericals
	2ND	Principal Stresses; Simple, Numericals Creep strain and Creep Curve; Fatigue; S-N curve
	3RD	Endurance Limit; Factor of Safety Endurance Limit; Factor of Safety,Stress Concentration
3RD	1ST	Properties of Engineering materials; Designation of materials as per IS
	2ND	introduction to International standards & advantages of standardization
	3RD	Use of design data book
4TH	1ST	Use of standards in design and preferred numbers series
	2ND	Theories of Elastic Failures; Principal normal stress theory
	3RD	Maximum shear stress theory & Maximum distortion energy theory.
	CHAPTER: 02	**Design of simple machine parts:**
5TH	1ST	Cotter Joint; Knuckle Joint; Turnbuckle;
	2ND	Design of Levers: Hand/Foot Lever & BellCrank Lever;
	3RD	Design of C Clamp; Off-set links;
6TH	1ST	Overhang Crank; Arm of Pulley.
	2ND	Antifriction Bearings: Classification of Bearings;
	3RD	Sliding contact & Rolling contact;
	1ST	Terminology of Ball bearings: Life Load relationship
7TH	2ND	Basic static load rating and Basic catalogue.
	CHAPTER: 03	**Design of Shafts, Keys, Couplings and Spur Gears:**
	3RD	Types of Shafts; Shaft materials; Standard Sizes; Design of Shafts (Hollow and Solid) using strength and rigidity criteria;
8TH	1ST	
	2ND	ASME code of design for line shafts supported between bearings with one pulleys in between or one overhung pulley;
	3RD	ASME code of design for line shafts supported between bearings

		with two pulleys in between or one overhung pulley;
9TH	1ST	Design of Sunk Keys; Effect of Key-ways on strength of shaft
	2ND	Design of Couplings Muff Coupling, Protected type Flange Coupling, Bush-pin type flexible coupling;.
	3RD	Spur gear design considerations; Lewis equation for static beam
	1ST	strength of spur gear teeth; Power transmission capacity of spur gears in bending
10TH	**CHAPTER: 04**	**Design of Power Screws and springs:**
	2ND	Stresses in Screwed fasteners; Bolts of Uniform Strength;
	3RD	Design of Bolted Joints subjected to eccentric loading;
11TH	1ST	Design of Parallel and Transverse fillet welds
	2ND	Axially loaded symmetrical section
	3RD	Merits and demerits of screwed and welded joints.
12TH	1ST	Ergonomics of Design: Man Machine relationship;
	2ND	Design of Equipment for control, environment & safety;
	3RD	Design of Equipment for control, environment & safety;
	1ST	Aesthetic considerations regarding shape, size, color
13TH	2ND	Aesthetic considerations regarding surface finish.
	CHAPTER: 05	**Design of Fasteners, Ergonomics & Aesthetic consideration in design:**
	3RD	Stresses in Screwed fasteners; Bolts of Uniform Strength;
14TH	1ST	Design of Bolted Joints subjected to eccentric loading;
	2ND	Axially loaded symmetrical section; Design of Parallel and Transverse fillet welds;
	3RD	Merits and demerits of screwed and welded joints.
15TH	1ST	Ergonomics of Design: Man Machine relationship;
	2ND	Design of Equipment for control,environment & safety;
	3RD	Aesthetic considerations regarding shape, color & surface finish
		TOTAL CLASS=45

24/06/26
Prepared By,
Baneswar Munda

24/06/2026
Checked by
HOD (Mechanical)

25/06/26
Approved by
Academic Co-ordinator