

**GOPAL KRISHNA COLLEGE OF
ENGINEERING AND TECHNOLOGY
GOURAHARI VIHAR, PO: RANIPUT, JEYPORE – 764 005**

LESSON PLAN

Name of the Subject: DESIGN OF MACHINE ELEMENTS-II (DME-II)

Name of the Faculty: Er. RASHMI RANJAN MISHRA

Subject Code:MEPC3001

Course Structure:3-0-0

Semester: 5th Semester

Branch:Mechanical

Semester From: July to November

No. of Weeks: 16 Weeks

Week	Day	Theory / Practical Topics	Classes
1		Unit 1 – Failure Theories and Fatigue Design	12
	1	Review of axial, bending and torsional stresses	1
	2	Combined stresses in machine parts	1
	3	Theories of failure: maximum stress, strain, energy	1
2	4	Applications of failure theories	1
	5	Fatigue: variable stresses and endurance limit	1
	6	S-N curve and fatigue strength	1
3	7	Fatigue stress concentration factor	1
	8	Goodman and Soderberg criteria	1
	9	Gerber criterion and numerical problems	1
4	10	Design problems based on fatigue	1

Week	Day	Theory / Practical Topics	Classes
	11	Revision of Module-I	1
	12	Tutorial/problem-solving	1
		Unit 2 – Design of Engine Components	9
5	13	Design of cylinders	1
	14	Design of pistons	1
	15	Design of connecting rods	1
6	16	Design of flywheel	1
	17	Design of crankshaft	1
	18	Design of valves	1
7	19	Numerical problems on engine components	1
	20	Revision of Module-II	1
	21	Tutorial session	1
		Unit 3 – Clutches and Brakes	6
8	22	Design of friction clutches	1
	23	Centrifugal clutches	1
	24	Brakes: block and band brakes	1
9	25	Internal expanding brakes	1
	26	Numerical problems on clutches and brakes	1

Week	Day	Theory / Practical Topics	Classes
	27	Revision of Module-III	1
		Unit 4 – Belt, Rope and Chain Drives	6
10	28	Design of flat belts	1
	29	Design of V-belts	1
	30	Rope drives	1
11	31	Chain drives	1
	32	Numerical problems on belt and chain drives	1
	33	Revision of Module-IV	1
		Unit 5 – Gear Design and Applications	12
12	34	Introduction to gear design	1
	35	Spur gears: design considerations	1
	36	Helical gears	1
13	37	Bevel gears	1
	38	Worm gears	1
	39	Gear design problems	1
14	40	Advanced numerical problems on gears	1
	41	Case studies in machine design	1
	42	Revision of Module-V	1

Week	Day	Theory / Practical Topics	Classes
15	43	Comprehensive problem-solving session	1
	44	Design-based case discussions	1
	45	Mock test/revision	1
16	46	Final revision of all modules	1
	47	Doubt clearing session	1
	48	Exam preparation guidance	1

Books Recommended

1. *Machine Design* by R.S. Khurmi and J.K. Gupta
2. *Design of Machine Elements* by V.B. Bhandari
3. *Mechanical Engineering Design* by Shigley
4. *Machine Design: An Integrated Approach* by Robert L. Norton

NPTEL Lectures

1. <https://nptel.ac.in/courses/112105124>
2. <https://nptel.ac.in/courses/112103024/>