Pimpri Chinchwad Education Trust's
Pimpri Chinchwad College of Engineering
Sector No. 26, Pradhikaran,
Nigdi, Pune – 411 044

ISO 9001 Certified

COURSE OUTLINE

Department: Mechanical Engineering A.Y.:2021-22 Sem-I Date:11 Oct 2021
Class: TE Mechanical

Name of the Course: **Design of Machine Elements**

Relevance of the course:
The course Design of Machine elements is the first course in the Machine Design. It provides the opportunity to the learner to take the decisions about the component using the data from the real life applications and encompasses the major design considerations such as strength, rigidity, manufacture, assembly, cost etc. It requires the prerequisite knowledge from courses given below

I. Engineering Materials and Metallurgy
II. Strength of Materials
III. Manufacturing Processes
IV. Geometric Dimensioning and tolerancing
V. Solid modeling and drafting
VI. Engineering Mechanics.

Course Outcomes

CO No	CO Statement	No. of Lectures Planned	No. of Practical planned	Content Delivery method	Assessment tools Planned
1.	Student will be able to **identify and understand failure modes** for mechanical elements and design of machine elements **based on strength**.	8	4	Presentation, Lecture with Interaction, Quiz	Unit Test 1, Design Project-I, Quizzes
2.	Student will be able to **design Shafts, Keys and Coupling** for industrial applications.	8	4	Presentation, Lecture with Interaction, Quiz	Unit Test 1, Design Project-I, Quizzes
3.	Student will be able to **design Power Screws** for various applications.	8		Presentation, Lecture with Interaction, Quiz	Unit Test 2, Design Project II, Quizzes
4.	Student will be able to **evaluate** machine components under fluctuating loads	6	4	Presentation, Lecture with Interaction, Quiz	Unit Test 2, Quizzes
5.	Student will be able to **Evaluate** & **interpret** the stress developed on the different type of welded and threaded joints. .	7		Presentation, Lecture with Interaction, Quiz	Theory Assignment 1, Quizzes
6.	Student will be able to **design various springs for strength and stiffness**.	6		Presentation, Lecture with Interaction, Quiz	Theory Assignment 2, Quizzes

Assignment:

Assignment Planned	CO Mapped	Tentative schedule
Assignment on Case Study on Unit 5	CO 5	October Last week
Assignment on Design of Springs	CO 6	November Second Week

Mini Project topics offered:
There are three Design Projects in the Term Work. Same will be treated as mini Projects.

Industry visit/ Case studies planned:
Case Study is covered in the Assignment 1 based on Unit 5.

Guest Lecture/ Co Teaching: A lecture on Design Thinking by Dr. N. Vivekanandan will be arranged in October last week.

		
Course Faculty TE A Mr. Atul S. Kashid	Course Faculty TE B Mr. L V Awadhani	Course Faculty TE C Mr. L V Awadhani
Course Coordinator	Module Coordinator Design	