COURSE TITLE	**DESIGN ENGINEERING AND PROJECT MANAGEMENT**
COURSE CODE	**01ME0610**
COURSE CREDITS	**1**

Objective:

1 The main objective of this course is to put on the engineering problem solving procedure to solve basic engineering design and analysis problems. using various techniques. This course is also designed with aim to demonstrate planning, execution and testing of various Projects.

2 The main objective of this course is to put on the engineering problem solving procedure to solve basic engineering design and analysis problems using various techniques. This course is also designed with aim to demonstrate planning, execution and testing of various Projects.

3 The main objective of this course is to put on the engineering problem solving procedure to solve basic engineering design and analysis problems. using various techniques. This course is also designed with aim to demonstrate planning, execution and testing of various Projects.

Course Outcomes: After completion of this course, student will be able to:

1 Analyze the significance of design engineering in addressing engineering and societal challenges.

2 Examine and compare various design engineering approaches for innovative and sustainable product development.

3 Evaluate design methodologies for product development, testing, and performance improvement.

4 Assess project management processes for planning, monitoring, and execution of engineering projects.

5 Evaluate project execution and control techniques to ensure reliability, efficiency, and sustainability.

Pre-requisite of course: Not Required

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	2	0	0	0	25	25

Contents : Unit	Topics	Contact Hours
Total Hours		

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Design Engineering Introduction** Design and its objectives, Design Constraints, Design functions, Role of Science Engineering and Technology in design Engineering as Business Proposition: How to Initiate Creative design?, Initiating the thinking process for designing a product of daily use.Need Identification, problem Statement, Market survey-customer requirement, Design Attributes and objectives: Ideation: Brainstorming approach arriving at solution, closing on to Design Need	8
2	**Design Engineering Methodology** System level Design, Detailed Design, Design for performance, safety and reliability, (2) Design for Ergonomics and Aesthetics, (3) Design for Manufacturing & Assembly (DFMA), (4) Design for cost & Environment, (5) Modelling and Analysis of their design (6) Prototyping (7) Engineering Economics of Design, (8) Design for Use, Reuse and Sustainability and (9) Test the prototype. And additionally, students will also learn topic like (10) Ethics in Design.	6
3	**Project Management** PM Foundations, Project management processes, Project execution, Project closing, Global issues in PM, Product-based planning, PM documents	14
Total Hours		**28**

Textbook :

1 TEXTBOOK OF PROJECT MANAGEMENT, P Gopalakrishnan & V E Ramamoorthy, Laxmi Publications Pvt Ltd, 2022

2 Engineering Design, George Dieter , Linda Schmidt , McGraw-Hill Education, 2008

References:

1 Designing for Growth: a design thinking tool kit for managers,, Designing for Growth: a design thinking tool kit for managers,, Jeanne Liedtka and Tim Ogilvie, Columbia Business School Publishing , 2011

2 The Design thinking approach to projects, The Design thinking approach to projects, Eva Dijksterhuis, Gilbert Silvius, PM World Journal Vol. V, 2016

3 Guide to the Project Management Body of Knowledge (PMBOK® Guide), Guide to the Project Management Body of Knowledge (PMBOK® Guide), Project Management Institute, Inc, Project Management Institute, 2017

4 Design Thinking for School Leaders: Five Roles and Mindsets That Ignite Positive Change, Design Thinking for School Leaders: Five Roles and Mindsets That Ignite Positive Change, Alyssa Gallagher and Kami Thordarson, Association for Supervision & Curriculum Development, 2018

5 Design Thinking: Creating Learning Journeys That Get Results, Design Thinking: Creating Learning Journeys That Get Results, Sharon Boller and Laura Fletcher, ATD Press , 2020

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
10.00	10.00	20.00	20.00	20.00	20.00

Instructional Method:

1. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.
2. The internal evaluation will be done based on continuous evaluation of students in the laboratory and classroom.
3. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
4. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory

Supplementary Resources:

1. http://nptel.ac.in/syllabus/107106009/