

Subject Code: 01ME0610

**Subject Name: Design Engineering and Project Management**
**B.Tech. Year - III**

**Objective:** 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.

**Credits Earned:** 1 Credit

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

1. Understand the importance of Design Engineering.
2. Identify various Design Engineering approaches.
3. Apply various methodologies to design the product and in testing the product.
4. Understand various Project Management Processes.
5. Demonstrate effective project execution and control techniques that result in successful projects.

**Pre-requisite of course:** Not Required.

**Teaching and Examination Scheme**

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	Mid Sem (M)	Internal (I)	Viva (V)	Term work (TW)	
0	0	2	1	0	0	0	25	25	50

**Contents:**

Units	Topics	Contact Hours
<b>Module-1</b> 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	6

	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.	
<b>Module-2</b> 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
<b>Module-3</b> Project Management	PM Foundations, Project management processes, Project execution, Project closing, Global issues in PM, Product-based planning, PM documents	14
<b>Total Hours</b>		<b>28</b>

**Note:** Mentors are advised to take suitable project/activity to explore the above topics and make students understand the various concepts.

**References:**

1. Designing for Growth: a design thinking tool kit for managers, Jeanne Liedtka and Tim Ogilvie, Columbia Business School Publishing
2. Eva Dijksterhuis, Gilbert Silviu, "The Design thinking approach to projects", PM World Journal Vol. V, Issue VI, June 2016, pp. 1-15
3. Guide to the Project Management Body of Knowledge (PMBOK® Guide), Fifth Edition, Project Management Institute, Inc.

4. Wysocki, Robert K. (2014a). Effective Project Management: Traditional, Agile, Extreme, 7th Edition, John Wiley & Sons, Inc.
5. Wysocki, Robert K. (2014b). Effective Complex Project Management: An Adaptive Agile Framework for Delivering Business Value, J. Ross Publishing.

**Instructional Method:**

- a. 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.
- b. The internal evaluation will be done based on continuous evaluation of students in the laboratory and classroom.
- c. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
- d. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory

**Supplementary Resources**

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