



Mechanical Engineering Dept. Department

Syllabus

ME 470: Product Design and Development (3-0-3)

Course Catalog Description:

Opportunity identification; Creativity and Innovation; Concept Development Processes; Product concepts; Concept evaluation; Building and testing of models and prototypes; Product economics and Product management; Teamwork. Multidisciplinary project planning and execution.

Course Objectives:

1. Apply the different phases of the design process to design a product
2. Learn to think critically and creatively
3. Make use of engineering concepts, basic sciences and business to analyze designs and prepare products for the market
4. Perform product design idea pitch

Course Learning Outcomes:

CLO1. Apply the different phases of the design process to design a product

CLO2. Be able to think critically and creatively


CLO3. Make use of engineering concepts, basic sciences and business to analyze designs and prepare products for the market

CLO4. Work in multidisciplinary teams in an environment similar to that of real firms

CLO5. Manufacture prototypes and design experiments to test them

CLO6. Perform product design idea pitch

Learning Resources:

-  Product Design and Development, Karl T. Ulrich, Steven D. Eppinger, 7th Ed, McGraw Hill, 2020.

Lecture Assessment Plan:

Assessment Task	Week Due	Weight
Project	15	50.0%
Quiz	3,5,8,11,14	15.0%
HW	3,5,8,11,14	10.0%

Assessment Task	Week Due	Weight
Exam	7	25.0%

Lecture Weekly Schedule:

Week#	Topics
1	Introduction to Design, Innovation and Project Teamwork
2	Development Processes and Organizations
3	Opportunity identification evaluation and selection
4	Customer needs and Product Specifications
5	Innovation, Concept generation, Screening and Evaluation
6	Innovation, Concept generation, Screening and Evaluation (Continue)
7	Innovation, Concept generation, Screening and Evaluation (Continue)
8	Product Concept Development, Product Architecture (
9	Product Concept Development, Product Architecture ((Continue)
10	Prototyping and Testing
11	Prototyping and Testing (Continue)
12	Prototyping and Testing (Continue)
13	Product Development Economics and Project Management
14	Product Development Economics and Project Management (Continue)
15	Intellectual Property, Presentation Preparation and Prototype Launch