1. ME 4054W, Design Projects

2. 4 credits, 4 contact hours


5. Specific course information:
   a. Catalog description: The product design process. Students work in teams and undertake substantial design projects. Design problems are open-ended. Teams give formal presentation of progress at mid-semester design review, exhibit prototypes at design show.
   b. Prerequisites: AEM 2021, AEM 3031, EE 3005, ME 2011, ME 3221, ME 3222, ME 3281, ME 3331, ME 3332, ME 3333, ME 4031W, ME 4053, ME upper division.
   c. Required course.

6. Course outcomes (related ABET student outcomes indicated in square brackets):
   a. An ability to apply a structured engineering design process. [1,2,7]
   b. An ability to apply fundamental skills from prerequisite engineering courses to guide their designs. [1,2,4]
   c. An ability to gather data through experimentation and simulation and analyze and interpret the data. [1,6]
   d. An ability to work in teams to complete a design that addresses the customer’s needs. [5]
   e. An ability to document their design activities in a design notebook. [3]
   f. An ability to describe their design in an oral presentation. [3]
   g. An ability to construct a physical or virtual prototype design. [2,3]
   h. Engineering writing proficiency. [3]
   i. An ability to make ethical design choices. [4]
   j. An ability to research the contemporary technical state of the art and apply it to a design. [7]
   k. An understanding of the impact of their designs in a global, economic, environmental and societal context. [2,4]

7. Course topics:
   a. Design process.
   b. Customer needs.
   c. Project management.
   d. Concept generation and selection.
   e. Prototyping.
   f. Design evaluation.
g. Cost and price of products.
h. Ethics.
i. Intellectual property.
j. Presentations and documentation.