Students in the department of Mechanical and Aerospace Engineering are required to complete a senior design capstone in their final year of study as part of their graduation requirements. These courses provide an opportunity for students to apply their knowledge of the primary principles and concepts of engineering in an experiential learning-based environment. These courses are taken in a series during Winter and Spring quarter, with a culminating group project. Students are also encouraged to participate in the yearly Engineering Design Showcase, which is hosted by the College of Engineering.

**Mechanical Systems Design Project – EME 185A/B**  
(Open to Mechanical Engineering Majors ONLY)  
Pre-requisites: EME 050, EME 150A, EME 165  
**Description:**  
The mechanical engineering design process and its use in design of engineering systems. The sole objective of the design project course is to provide students with an opportunity to use their own skills and knowledge to solve an engineering design problem. This experience will help students make the transition from school to work and bridge the gap between theory and applications.

**Aircraft Performance and Design Project – EAE 130A/B**  
(Open to Mechanical Engineering Majors AND Aerospace Science and Engineering Majors)  
Pre-requisites: EAE 126 OR EAE 127, AND EAE 129 (can be concurrent)  
**Description:**  
The objective of this capstone design course in aerospace science and engineering is to develop the methods of describing aircraft performance and to allow the student to integrate this knowledge with previously learned disciplines in conducting an aircraft design study from an initial specification of requirements the design must meet (including relevant engineering standards) to an overall aircraft layout, its performance, cost, weight, structure & materials, propulsion system, aerodynamics, and handling qualities. The design studies are typically conducted in teams of 4-6 students and have addressed a wide range of requests for proposals from electric vertical takeoff and landing urban air mobility vehicles to advanced hydrogen-powered civil transport airplanes, efficient regional jets, and electric personal air vehicles.

**Space Vehicle and Mission Design Project – EAE 143A/B**  
(Open to Mechanical Engineering Majors and Aerospace Science and Engineering Majors)  
Pre-requisites: EAE 140 AND EAE 142  
**Description:**  
Governing equations and operational practices of robotic and human space travel. Principles of Systems Engineering are introduced and are used as a basis for a team project in spacecraft reverse-engineering and design. Intro to space systems design including space project organization, requirements definition & specification, concepts formulation, system tradeoffs, subsystem design. Prototype space mission concepts & multidisciplinary mission design.
Preparation for Senior Design Capstone Series

This document is not a substitute for academic advising and should be used as a reference only.

Mechanical Systems Design Project – EME 185A/B

- **EME 050**
  - This course should be completed by Winter quarter prior to SR Design.

- **EME 150A**
  - This course should be completed no later than the Fall quarter prior to SR Design.

- **EME 165**
  - This course must be completed by the Fall quarter prior to SR Design.

- **EME 185A**
  - This course must be completed in the Winter quarter of Senior Year.

- **EME 185B**
  - This course must be completed in the Spring quarter of Senior Year.

Aircraft Performance and Design Project – EAE 130A/B

- **ENG 102**
  - This course should be completed by Fall quarter prior to SR Design.

- **EAE 129**
  - This course should be completed by the Winter quarter prior to SR Design.

- **EAE 126/127**
  - One course must be completed by the end of Fall quarter prior to SR Design.

- **EAE 130A**
  - This course must be completed in Winter quarter of Senior Year.

- **EAE 130B**
  - This course must be completed in Spring quarter of Senior Year.

Space Vehicle and Mission Design Project – EAE 143A/B

- **ENG 102**
  - This course must be completed by Fall quarter prior to SR Design.

- **EAE 142**
  - This course must be completed in the Winter quarter prior to SR Design.

- **EAE 140**
  - This course must be completed in the Fall quarter prior to SR Design.

- **EAE 143A**
  - This course must be completed in Winter quarter of Senior Year.

- **EAE 143B**
  - This course must be completed in Spring quarter of Senior Year.

NOTE: This document does not list all pre-requisite information and is to be used as a reference for each senior design capstone.

Contact MAE Advising for additional information.