- **Course Number and Title:** A E 424. Aerospace Systems Engineering
- **Catalog Description:** Basic principles of top-down systems engineering and current practice; preliminary and detailed design of aircraft and space vehicles, including requirement, subsystem interaction, and integration, tradeoffs, constraints and non-technical aspects.
- **Credit Hours:** 3 Credits (3)
- **Prerequisite(s) / Corequisite(s)**
  Prerequisite(s): A E 362
  Corequisite(s): None
- **Required:** Required for BSAE Degree
- **Course Availability:** Spring Semester Only
- **Instructor (Usual):** N/A
- **Textbook:**
  - Textbook: Not required
  - References:
    1. *NASA Systems Engineering Handbook*, Rev. 2.
    2. Curtis, H., *Orbital Mechanics for Engineering Students*, 4th Ed., Butterworth-Heinemann, 2019 (ISBN-10: 008102133X or ISBE-13: 978-0081021330)
- **Course Learning Objectives:**
  After completing this course, a student should be able to:
  1) Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
  2) Communicate effectively with a range of audiences.
  3) An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
  4) Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- **Topics Covered:**
  - Preliminary and detailed design of aircraft and spacecraft
  - Design requirements
  - Subsystem interaction, and integration
  - Tradeoffs, constraints, and non-technical aspects
  - Practice of system engineering