AE 542 - Aerospace Systems Engineering I

Tuesday – Thursday - 9:30-10:50

Aerospace systems engineering principles, processes and practices for the definition of spacecraft, aircraft, launch and associated systems are presented and the application of the systems approach across the development life cycle. The crucial systems engineering principles of considering the aircraft, spacecraft, or launch vehicle as a whole and not a collection of parts is being widely applied in the aerospace industry. Another central system engineering principle is that the requirements for a vehicle and its subsystems originate from a logical set of ordered functions, economic, operational and customer oriented requisites and regulatory constraints. The student will acquire an understanding of the required skills to translate objective needs into requirements and to formulate complex systems through the use of analysis integration, synthesis, optimization and design

Topics.

- Systems Engineering Introduction
- Systems Concepts
- Capability Concepts
- Technology Insertion
- Need / Objective Definition
- Functionality / Decomposition / Analysis
- Requirements Development
- Architectures
- Concept Generation

Grading

- Homework exercises
- Group project assignments & presentations
- Individual project assignments & presentations

Prerequisites

- Graduate level standing
- Degree in Engineering
- Capstone design course or
- Consent of Instructor