



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Advanced Flight Vehicle Design

AEROENG 5616

Credit Hours:

3.00

Course Levels:

Undergraduate (1000-5000 level)

Graduate (5000-8000 level)

Course Components:

Lecture

Course Description:

The course introduces advanced flight vehicle design techniques applied during the conceptual design phase. The optimum design process and problem formulation is introduced, with an in-depth focus on multivariate graphical optimization techniques for aircraft. We will conduct optimal design based on first principles, and apply best practices to multidisciplinary flight vehicle design.

Prerequisites and Co-requisites:

Prereq or concur: 4550, and 4515 or 4517; or Grad standing in AeroEng; or permission of instructor.

Course Goals / Objectives:

- Quantify flight vehicle systems by selecting appropriate design parameters
 - Develop a beginning understanding of optimum design concepts and problem formulation
 - Understand and apply graphical optimization techniques used in flight vehicle design
 - Perform multivariate analysis and perform design evaluations to graphical optimization results
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Course Topics:

- Recent advances in flight vehicle design
 - Design analysis: pros and cons to innovative aircraft configurations
 - Selection process of design parameters
 - Introduction to the optimum design process and problem formulation
 - Introduction to optimum design concepts
 - Graphical optimization
 - Introduction to optimum design with MATLAB
 - Applications of multivariate design analysis utilizing graphical optimization techniques
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Designation:

Elective