

AE 6385 – Applied Design Lab

Dr. J. R. Olds

Course Credit: 0-3-1

Catalog Data: Introduction to computing tools and processes used in subsequent applied design courses in graduate fixed wing, rotary wing, and space systems design tracks.

Textbook: None (notes and handouts will be provided)

Overview:

Students will become familiar with the computing tools and disciplinary skills needed to participate in the team-oriented graduate design courses (AE 6322, AE 6334, AE 6343). Weekly laboratory periods will be used for training, guest lectures, and computing exercises.

Students will conduct preliminary planning and team-building exercises associated with rotorcraft, fixed wing aircraft, missile, or space vehicle design.

Lab Topics

1. 2-D Drawing, Three-View diagrams
2. 3-D Drawing & CAD (CATIA, Solid Edge, Pro/E, etc.)
3. Vehicle External Configuration and Aerodynamics
4. Aerospace Vehicle Propulsion (Various Tools)
5. Vehicle Trajectory Optimization (3-DOF POST, OTIS, others)
6. Parametric Weights & Sizing
7. Non-Recurring Cost Estimation
8. Aerospace Vehicle Safety and Reliability