THE DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS

AA 441 FLIGHT TEST ENGINEERING

SPRING QUARTER

CREDITS AND CONTACT HOURS: 3 credits, Three 50 minutes lectures and one 4 hour flight time per week.

COORDINATOR: Robert Breidenthal, Professor, 3/2006

TEXTBOOK: Introduction to Flight Test Engineering, Don Ward, Kendall/Hunt, 2008.

SUPPLEMENTAL MATERIALS: None

CATALOG DATA: FLIGHT TEST ENGINEERING, Selective Elective
Determination in flight of performance, stability, and control characteristics of aircraft; and comparison with predicted and wind tunnel results. Prerequisite: A A 311; A A 440. Offered: Sp

PREREQUISITES BY TOPIC: 1) Aerodynamics
2) Performance, stability and control analysis

OUTCOMES:
1. Student teams will be able to calibrate aircraft instruments using analog and digital data.
2. Student teams will be able to produce a flight test plan based upon FAR part 25 "Airworthiness Standards: Transport Category Airplanes" requirements or Part 23 "Airworthiness Standards: Normal, Utility, Acrobatic, and Commuter
3. Students will be able to read piston engine and propeller charts and apply them to flight data.
4. Students will be able determine power required, drag estimates and efficiency from flight test data and compare to theoretical values.
5. Students will be able locate aircraft neutral points from flight data.
6. Student teams will be able to solve a variety of real-life industry-provided problems.

RELATIONSHIP TO STUDENT OUTCOMES:
a) An ability to apply knowledge of mathematics, science, and engineering
b) An ability to design and conduct experiments, as well as to analyze and interpret data.
e) An ability to identify, formulate, and solve engineering problems.
g) An ability to communicate effectively.
k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

TOPICS:
1) Measurement of altitude and airspeed
2) Measurement of static source error
3) Data reduction to find C_{De} and e
4) Measurement of neutral points, stickfixed and stickfree