

ABET Course Syllabus**ENAE 362 Aerospace Instrumentation and Experimentation**

Credits & Contact Hours:	3 credits (2 hours of lecture and 2 hours of laboratory)
Course Status:	Required
Schedule:	Offered every Fall semester
Course Description:	Basic instrumentation electronics including DC electronics, AC electronics, semiconductors, electro-optics and digital electronics. Sensing devices used to carry out experiments in Aerospace Engineering includes metrology, machine tool measurements, bridge circuits, optical devices, and introduction to computer based data acquisition. Topics chosen to support measurements in aerodynamics, flight structures and flight control.
Pre-Requisites:	ENAE 283, MATH 246, PHYS 260/261
Co-Requisites:	ENAE 380
Textbooks:	None
Other Required Material:	Course notes and handouts
Course Oversight:	Design/Lab committee
Syllabus Prepared By/Date:	Dr. Winkelmann in August 2010

Course Objectives/Student Learning Outcomes:

1. Work with basic electronic circuits involving analog components
2. Make basic electronic measurements using multimeters, oscilloscopes, and electronic counters
3. Design basic electronic circuits for amplifying, detecting, timing, etc.
4. Work with basic digital electronic circuits
5. Design basic electro-optical circuits
6. Install and test strain gages
7. Make basic dimensional and angular measurements

Topics Covered:

- 1.) Basic DC Electronics
- 2.) Basic AC Electronics
- 3.) Semiconductor Devices
- 4.) Amplifiers
- 5.) Operational Amplifiers
- 6.) 555 IC
- 7.) Power Supplies
- 8.) Electro-Optical Devices
- 9.) Basic Digital Electronics

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- 10.) Aero Measurements
- 11.) Strain Gages
- 12.) Computer Data Acquisition and Control
- 13.) Signal Processing Techniques
- 14.) Basic Measuring Devices and Sensors

Relationship of Course Objectives to Program Outcomes

This course addresses program outcomes: 3, 6, 7, 10