



SYLLABUS: Fundamentals of Aerodynamics
AAE 3710
Spring 2006
Mondays & Wednesdays 2:00~3:50 pm
Location: CEAS D0206

CONTACT INFORMATION:

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Office hours: Tuesdays 2:00~3:00 pm C211
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COURSE MATERIALS:

Text book: B. R. Munson, D. F. Young and T H. Okiishi, Fundamentals of Fluid Mechanics, 4th edition, John Wiley & Sons, Inc., ISBN: 0-471-44250-X

References: J. D. Anderson, Fundamentals of Aerodynamics, 3rd edition, McGraw-Hill Companies, 2001

E. L. Houghton and P. W. Carpenterand, Aerodynamics for Engineering Students, 5th edition, Butterworth-Heinemann, 2003

COURSE DESCRIPTION:

Fundamentals of aerodynamics will be introduced. Dimensional analysis, fluid statics, ideal flows, and Bernoulli's equation will be described. Application of fluid dynamics principles to flows over airfoils and boundary layers will be introduced.

COURSE OBJECTIVES:

- To teach the students the fundamentals of fluid statics and fluid kinematics.
- To teach the student inviscid flow theories, including Bernoulli's equations and potential flows.
- To introduce the concept of boundary layer.
- To teach the students the fundamentals of compressible fluid flows and shock waves.
- To apply the knowledge to external aerodynamics problems.

GRADING/EVALUATION:

Homework assignments: 10%

Pop Quizzes: 10%

Tests (two)	40%
Final Exam	40%

TEST DATES:

Test #1: 02/20/06, Monday

Test #2: 04/03/06, Monday

Final Exam: 04/24/05, Monday

COURSE CONTENT AND OUTLINE:

1. Introduction
2. Fluid statics
3. The Bernoulli's equation
4. Fluid kinematics
5. Conservation principles
6. Potential flows
7. Dimensional analysis
8. Pipe flows
9. Boundary layers
10. Compressible flows

POLICES:

1. No make-up exams will be given for reasons other than documented medical emergencies. In any case, the students must inform the instructor prior to the test. The points for that test will be added to the final exam. If a student misses more than one test, the other tests will be graded as zero.
2. Solve homework problems on engineering paper. Solve one problem on each page. All the assignments will be collected and graded. Hand in your paper before the class.
3. Late homework penalty: 30% for one day late, 60% for two days and no credit for more than two days late.
4. You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate (pp. 271~272)[Graduate(pp. 24~26)] Catalog that pertain to Academic Integrity. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with me if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.
5. In class, beepers and cell phones alike should be turned off. Non-class-related uses of any PC platforms are discouraged.