MEC E 537 AERODYNAMICS, 2012 Edition

LECTURES: MWF 12:00-12:50 Mechanical Engineering Bldg., Room 2-1

INSTRUCTOR: Dr. L. Sigurdson
E-mail: lorenz.sigurdson@ualberta.ca
Address: Room 5-1B, Mechanical Engineering Building,
Telephone: 492-5425
Office Hours: Wednesday 3-5 pm (if you cannot make until 5-6, please let me know and we would try to arrange) or catching me immediately after class is usually fine.

TEACHING ASSISTANTS:
Mr. Alireza Setayeshgar, E-mail: setayesh@ualberta.ca, Office: Mec 5-27, Office Hours: Friday 1-3 pm, Ph: 492-6723
Mr. Mohammad Mahmoudi, E-mail: mo12@ualberta.ca, Office: Mec E 5-23, Office Hours: Thursday 1-3 pm, Ph: 492-3706

PRE-REQUISITE: MEC E 330 Fluid Mechanics or permission of the instructor

REQUIRED MATERIALS:
Dr. Ilan Kroo, Applied Aerodynamics - A Digital Textbook
Desktop Aerodynamics, Inc., available on the web, see eClass link. Also http://www.desktopaero.com

The CD edition is at the bookstore. Although available on the web, you may find this more convenient. (Note: this is not as good as a regular textbook, and should not be thought of as such. Although not required, you may consider purchasing Anderson’s book listed below in bold italics for a more complete discussion of concepts.)

GRADING: Assignments 60%, Final Exam 40% Wednesday April 25th at 2:00 PM
(nonprogrammable Faculty approved calculators only)

WEBSITE: eClass

COURSE OUTLINE: (approximate, slight changes are likely!)
Chapter 1: Introduction
Chapter 2: Fluid Fundamentals
Chapter 3: Solution Methods
Chapter 4: 2D Potential Flow
Chapter 5: Airfoils, Part I
Chapter 7: Boundary layers
Chapter 8: Airfoils, Part II: Design
Chapter 12: Wing Design
Automobile Aerodynamics
Hovering Flight - one person vehicles, (Personal Flying Vehicles PFD’s)
Possible Miscellaneous Aerodynamics Topics (if time permits): bluff body aerodynamics, stability, microflight, ....
REFERENCE TEXTS:

*Anderson, Fundamentals of Aerodynamics*
*3rd (or later) Edition* McGraw Hill
*Call Number: TL 570 A677 2001*

Smentana, Introductory Aerodynamics and Hydrodynamics of Wings and Bodies: A Software-Based Approach
1st Edition AIAA Educational Series

Eppler, Airfoil Design and Data
2th Edition Springer-Verlag
Houghton and Carpenter, Aerodynamics for Engineering Students
4th Edition Wiley
*Call Number: TL 570 H83 1993*

Kuethe and Chow, Foundations of Aerodynamics: Bases of Aerodynamic Design
*Call Number: TL 570 K95 1986*

McCormick, Aerodynamics, Aeronautics, and Flight Mechanics
4th Edition Wiley
*Call Number: TL 570 M13 1979*

Thwaites, Incompressible Aerodynamics
1st Edition Dover Publications
*Call Number: TL 570 T54*

Ashley and Landahl, Aerodynamics of Wings and Bodies
1st Edition Dover Publications
*Call Number: TL 570 A815 1985*

Abbot and von Doenhoff, Theory of Wing Sections
2nd Edition Dover Publications
*Call Number: TL 672 A12 1959*

Bertin and Smith, Aerodynamics for Engineers
2nd Edition Prentice-Hall
*Call Number: TL 570 B54 1989*
NOTES:

1. **DEADLINES:** Assignments are due by 4:00 p.m. on the specific due date announced in class. Hand them into the appropriate box on the 4th floor (near the Mec E Office) unless otherwise instructed in class. The assignment box will be emptied at 4:00 PM on the due dates. Any report handed in after that time is considered late.

2. **LATE ASSIGNMENT PENALTIES:** All late assignments must be turned in personally to the TA’s, or failing that, delivered personally to Dr. Sigurdson in Room 5-1B. Please **DO NOT** leave them in the assignment box, in which case there is no way it can be determined how late the assignment was. *This may cost you the maximum late penalty of the following:*
   - < 24 hrs late, -15%
   - < 48 hrs late, -30%
   - < 72 hrs late, -60%
   - >= 72 hrs late, penalty = -100%

   The percents are applicable to the mark you get, and weekend hours are counted. If you know that you are going to be late with your report, the professional behaviour is to notify the TA as soon as you know, and cc the instructor if it is an email. The late penalties will still apply unless special dispensation has been provided by the instructor for extenuating circumstances.

3. Assignments and exam are based on lecture and assignment material.

4. The use of Engineering judgment is essential when solving problems as a practicing engineer. Answers from work submitted by the student must follow from the solution development, have consistent units, and have correct magnitude and sign.

5. The official University grading system will be implemented using a combination of absolute measures and a distribution to determine grades.

6. Policy about course outlines can be found in section 23.4(2) of the University Calendar.

7. **PLAGIARISM AND CHEATING**

   Plagiarism, to steal or pass off the words or ideas of another as one's own, will not be tolerated.

   “The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold policies at the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online
at http://www.uofaweb.ualberta.ca/gfcpolicymanual/content.cfm?ID_page=37633) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offense. Academic dishonesty is a serious offense and can result in suspension or expulsion from the University.”

The "Don't Cheatsheet" is available on the University Governance website http://www.governance.ualberta.ca/en/StudentAppeals/DontCheatsheet.aspx.

8. **RECORDING OF LECTURES**
Recording of lectures is not permitted without the prior written permission of the instructor.