MAE 101B Syllabus
Spring 2008

Lectures: Tue & Thu 12:30-01:50pm YORK 2622
Problem Session: Wed 02:00-02:50pm PCYNH 106

Instructor: Professor Bar-Yoseph
Office Hours: Thu. 3pm-4pm, EBUI 2208

TA: Ben Regner
Office Hours: Mon. 10am-11am & Tue. 2pm-3pm, Rm TBA

Course Topics:

1. Laminar internal flow: Poiseuille and Couette flow
2. Turbulent internal flow
3. Internal flow with losses: major and minor losses, friction factor
4. Solution of pipe flow problems
5. Boundary layer thickness
6. Boundary layer for zero pressure gradient: Blasius solution and momentum integral
7. Drag and lift
8. Thermodynamics of compressible flow, stagnation enthalpy
9. Compressible flow with area changes
10. Compressible flow with heat loss: Rayleigh line
11. Compressible flow with friction: Fanno line
12. Shock waves

Course Objectives:

1: To teach students the basic principles underlying internal and external flow of viscous fluids and compressible flow.
2: To train students to identify, formulate and solve engineering problems concerning internal, external and compressible flows.
3: To encourage students to consider professional responsibility and engineering ethics.

Textbook: **Fluid Mechanics 6th Edition** by Frank M. White, McGraw-Hill, 2008.

Grades:

Homework (lowest dropped)	15%
Midterm 1	20%
Midterm 2	20%
Final	45%

Performance Criterion:

The performance criteria for the described objectives are evaluated with the grading breakdown listed above.

Homework:

- Homework will be assigned each week and collected on specified due date. Late homework will not be accepted under any circumstances.
- Homework re-grade requests must include a written statement detailing the justification for the re-grade (be sure to indicate on statement: name, date, e-mail address)

Midterms:

- Two midterms will be given in class on April 22nd and May 15th.
- There will be no make-up exams.
- All exams are closed book. Bring pencil and calculator to all exams.

Academic/Professional Integrity:

- All students are expected to know their responsibilities and uphold the standards of academic honesty and engineering professionalism. Students are encouraged to discuss course topics and homework with each other to assist in learning. However each student must do and submit their own work on all homework assignments, and exams. Submitted work that is copied or taken from an unauthorized source (e.g., another student's work) or performed using unauthorized resources is considered cheating. Academic misconduct will have serious penalties and be reported to university administration. Refer to UCSD website for details: UCSD Policy on Integrity of Scholarship.
- As Engineering students, it is expected that you operate in a professional manner; refer to: National Society of Professional Engineers (NSPE) Code of Ethics for Engineers.