

Fluid Mechanics, MIE 340

Course Information

Lecture: Tues/Thur 9:30-10:45, Goessmann 64

Instructor: Prof. Perot

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Office Hours: By appointment.

Text: (optional)

FUNDAMENTALS OF FLUID MECHANICS, 5th Edition,
Munson, Young and Okiishi, Wiley, ISBN# 0-471-67582-2

Web Page:

<http://www.ecs.umass.edu/mie/faculty/perot/mie340>

Grading:

- Homework: 25%. **No** late assignments. Attempt every problem.
- Midterms: 20% each. (at night 6-7:30 pm, Oct Nov)
- Final Exam: 30%
- Participation: 5%

Academic Honesty Policy:

www.umass.edu/dean_students/codeofconduct/acadhonesty

Goals:

Understand fluid motion and behavior.
Obtain ability to solve basic fluid mechanics problems.
Improve problem-solving skills.
Use computers and advanced mathematics.
Learn tools to analyze and solve complex systems.

Syllabus

Date	Reading	Assignment	Content
Sep 8 (tu)	Chapter 1		Introduction
Sep 10 (th)	no class	On travel	
Sep 15 (tu)	Chapter 2	HW 1	Statics
Sep 17 (th)			Buoyancy
Sep 22 (tu)	Chapter 3	HW 2	Energy/Bernoulli
Sep 24 (th)			Examples
Sep 29 (tu)	Chapter 5	HW 3	Control Volume Equations - Mass
Oct 1 (th)			C.V. - Momentum
Oct 6 (tu)		HW 4	Examples
Oct 8 (th)			Review
Oct 13 (tu)	No class	Monday schedule	
Oct 13 (tu)		Midterm Exam	
Oct 15 (th)	Chapter 6		Div/Grad/Curl
Oct 20 (tu)		HW 5	Potential Flow
Oct 22 (th)			Navier-Stokes Equations
Oct 27 (tu)		HW 6	Examples
Oct 29 (th)	Chapter 7		Dimensional Analysis
Nov 3 (tu)		HW 7	Applications
Nov 5 (th)	Appendix A		Numerical Methods
Nov 10 (tu)		HW 8	Example
Nov 12 (th)			Review
Nov 13 (fr)		Midterm Exam	
Nov 17 (tu)	Chapter 8		Pipes – laminar/turbulent
Nov 19 (th)			Parallel Plates /Ducts, Other Losses
Nov 24 (tu)	Chapter 10	HW 9	Boundary Layers
Nov 26 (th)	no class	Thanksgiving	
Dec 1 (tu)			Flat Plates
Dec 3 (th)			Bluff Bodies – Drag/Lift
Dec 8 (tu)		HW10	Examples
Dec 10 (th)			Review
TBA		Final Exam	