



UNIVERSITY OF MICHIGAN
Department of Civil & Environmental Engineering
Fluid Mechanics
CEE 325 - WINTER 2008

Instructor: Nikolaos D. Katopodes
Lecture: TuTh 9:30 - 11:00, 2305 GG Brown Building
Office Hours: TuTh 1:30-3:00; 121 EWRE Building
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Graduate Student Instructor:

Sukhwan Yoon
Lab Section 1: Monday 2:30-5:30; 136 EWRE
Lab Section 2: Wednesday 2:30-5:30; 104 EWRE
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Text: *Engineering Fluid Mechanics*, by Crowe, Roberson and Elger,
8th edition, Wiley, 2005

Grading: Homework 10%; Lab Reports 25%; Mid-term 25%; Final Exam 40%

Rules and Regulations:

The honor code will be strictly observed in both homework and examinations. The honor Code is based on integrity, a characteristic that is built into the profession. It is reflected in the original and reliable work of all good engineers. When students accept the Honor Code, they acknowledge that it is dishonorable to receive credit for work that is not the result of their own efforts.

Lab reports and homework sets are due **at the beginning** of the lab or lecture period, on the announced due day. Late projects and homework will be penalized 20% for each day they are overdue.

There will be an email group for all class participants, so check your messages frequently. You will be responsible for monitoring announcements, assignments and reading material posted on the class web page. Bookmark the page, and set up a reminder of your choice to check for new postings.

COURSE OUTLINE AND ASSIGNMENTS

DATE		TOPIC	READING	LABORATORY
January	3	Introduction; Fluid properties	9-24	
	8	Hydrostatics; Pressure measurement	31-47	Intro/Uncertainty
	10	Forces on Plane Areas	47-52	
	15	Forces on Curved Surfaces	52-56	
	17	Buoyancy	56-59	
	22	Fluid Flow Concepts; Acceleration	81-96	Pressure/Buoyancy
	24	Euler and Bernoulli equations	96-178	
	29	Pressure variation in flowing fluid	113-106	
	31	Vorticity, Separation and Cavitation	107-124, 164-167	Velocity Profile
February	5	Basic Control Volume Approach	142-154	
	7	Conservation of Mass	154-164	Orifice
	12	Conservation of Momentum	184-190	
	14	Basic Control Volume Approach	142-154	Flow Table
	19	Applications	190-213	
	21	Mid-term Exam		
	26	Spring Break		
	28	Spring Break		
March	4	Conservation of Energy	248-260	Momentum/Energy
	6	Applications	260-268	
	11	Dimensional Analysis	282-292	
	13	Similitude	292-303	Dimensional Analysis
	18	Surface resistance	322-332	Laminar Flow
	20	Boundary Layer Flow	334-355	
	25	Flow in Pipes	368-388	Boundary Layer
	27	Turbulent Flow		
April	1	Minor Losses	388-395	Pipe Friction
	3	Pipe systems	395-403	
	8	Lift and Drag	436-444	Lift/Drag
	10	Flow in Channels	405-417	
	15	Applications		
	24	Final Exam 10:30-12:30		