CE EN 332 Hydraulics and Fluid Flow Theory Winter Semester 2012

240 CTB MWF 9 – 9:50 AM; Sec 001 Lab M 406 CB 3:00 – 3:50 PM; M 171 CB 4:00 – 5:50 PM; Sec 002 Lab T 393 CB 3:00 – 3:50 PM; T 171 CB 4:00 – 5:50 PM

Course Description: Fluid properties, fluid statics and dynamics, viscous flow, boundary layers, concepts of pipe and open-channel flow.

Prerequisites: CE EN 270, CE EN 204 (all may be taken concurrently)

Course Objectives: To gain a sound understanding of the properties of fluids and fluid forces in static and dynamic applications. To apply understanding to the solutions of a wide variety of engineering fluids problems. To internalize a systematic method for solving problems.

Professional Component Coverage: Engineering Topics

Program Objective Coverage:

1(p)	Be able to setup, perform, evaluate and report on several elementary hydraulic experiments, including: static pressure force, impulse forces from a fluid jet, energy losses in pipe flow, minor energy losses in pipe systems, and flow over weirs in open channels.
2(a)	Be able to perform basic calculations for static pressures and forces in fluids.
3(a)	Understand conservation of mass, energy, and momentum principles as applied to fluid flow situations, and be able to apply them to flow analysis problems.
4(e)	Understand the concepts of drag and lift and be able to apply both to solve introductory problems of forces and dynamics.
5(e)	Understand alternate standard approaches and formulas, and be able to analyze and design pressure pipe systems.
6(p)	Understand standard approach and formulas, and be able to analyze and design open-channel flow systems.
7(p)	Understand the basic elements of pump and turbine flow, and be able to analyze and select the pump needed for situations involving fluid pumping.

Revised!

Instructor: Woodruff Miller **Office**: 368L CB **Office Hours**: TTh 9-11 AM
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Office Hours: Please see the website at www.et.byu.edu/groups/ce332

Textbook: A Brief Introduction to Fluid Mechanics 5th edition by Young, Munson, and Okiishi

Assignment Rules: Homework is due at the beginning of class two class periods after the assignment unless otherwise stated. You may work together, but turn in separate assignments. Copying will not be tolerated and will result in a zero for all suspected parties for the assignment. Late homework is marked down 50% one time. Use engineering paper or computer printouts for your homework, follow format in class handout, and staple multiple sheets.

Laboratory exercises and reports: Instructions will be given for each laboratory exercise.

Exam Policy: Students will have a 1 to 3 day block to take the exams at the testing center.

Assessment of Student Performance

Grading:	Exams 1, 2, and 3	15% each for 45%
	Laboratory reports	15%
	Homework/quizzes	20%
	Final	20%

Workload: At least 2-3 hours outside of class for every hour of lecture

Final Exam: Wednesday, 18 April 7:00 – 10:00 AM