

CE 331 – Hydraulic Engineering

Spring 2009

Lecture: MWF 11:00 am – 11:50 am, WEL 109

Lab: T 4:00 pm – 6:50 pm, WEL 119

Instructor: Dr. Isaac W. Wait

Office: WEL 113

Phone: 304-696-5444

Email: wait@marshall.edu

Office Hours: Monday, Thursday, Friday 1:00 pm – 3:00 pm; other times available by appointment. Office hours should not be used by students to receive replacement lectures that were missed due to unexcused absences.

Course Description:

Hydraulic flow in pipe networks, water hammer, surge tanks, pumps and turbines. Basic open channel flow. Storm and sanitary sewer design. Dams and reservoirs. Laboratory experiments and report writing. 3 lec.-3 lab. (PR: ENGR 218)

Required Text: Elementary Hydraulics, James F. Cruise, Thomson, 2007. ISBN: 0-534-49483-8

Computer Requirements: Hydraulic design software will be provided on Marshall computer lab machines, and students will also install software on their personal computers (if desired).

Objective: To continue the student's education in the applied fluid flow area with particular emphasis being placed upon closed conduit flow and flow in open channels.

Outcomes: With the successful completion of the course, the student should be able to:

- a) Analyze flow in pipes and compute head losses in pipelines with various apparatuses.
- b) Analyze and design simple pipe networks.
- c) Analyze flow in open channels
- d) Design simple sanitary sewer systems
- e) Analyze and interpret hydraulic laboratory data

Course Requirements and Grading:

Weekly homework assignments will be announced in class, and reports will be required for all experiments conducted in the laboratory and for the course design project. Late work is not accepted.

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| Grading Basis: | Mid-term exams: | 36% | A: | 90-100% |
| | Homework: | 16% | B: | 80-90% |
| | Lab: | 16% | C: | 70-80% |
| | Project: | 10% | D: | 60-70% |
| | Final Exam: | 22% | F: | 0-60% |

Attendance Policy:

Although attendance will not be taken in class, students are expected to attend class lectures. Homework not submitted or exams missed due to unexcused absences cannot be made up.

Academic Dishonesty Policy:

Please review the Marshall University academic dishonesty policy, on pages 106-109 of the undergraduate catalog.

Copying homework is not allowed:

Acceptable Behavior

- ☺ Discuss homework problems with others.
- ☺ Check answers with other students.
- ☺ Help other students learn & find mistakes.

Unacceptable Behavior

- ☹ Show someone every step of a problem.
- ☹ Hand your assignment to someone else.
- ☹ Group working problems simultaneously*

* Since everyone works at a different speed, "group work" often degenerates into the slowest students copying the fastest ones, without really understanding what is going on. Quizzes and exams are taken individually, so it is important for students to learn how to solve problems on their own. **Incoming homework assignments will be screened for inappropriate collaboration.**

Policy for Students with Disabilities:

Academic accommodation will be provided to disabled students following receipt of official guidance from the Marshall University Office of Disabled Student Services (DSS). Disabled students should contact DSS at Prichard Hall 11 (304-696-2271) to arrange accommodation.

Affirmative Action Policy:

This course will follow Marshall University's policy on Affirmative Action, which can be found on page 93 of the 2008-2009 undergraduate catalog.

Inclement Weather Policy:

Students can find information concerning Marshall's policy regarding inclement weather on pages 95-96 of the 2008-2009 undergraduate catalog.

Date Prepared: 10 January 2009