

ENGINEERING HYDRAULICS (CEE 421)

Spring 2024

University of Hawaii at Manoa – Department of Civil, Environmental, and Construction Engineering

Instructor: Dr. Sayed Bateni

Phone: (808) 956-4249, **Email:** smbateni@hawaii.edu.

Office hours: Tuesdays and Thursdays 3:00-4:30 PM

Textbook: *Fundamentals of Hydraulic Engineering Systems* by Robert Houghtaien, Osman Akan, and Ned Hwang

Elementary Hydraulics by Cruise, J. F., Sherif, M. M. and Singh, V. P., Thomson-Nelson, 2007.

Assignments: Work should be presented in a neat organized manner, with heading including the course title, student's name, assignment number, and due date. A printed copy must be presented to the instructor. Electronic submittals are not accepted.

Additional Policies for Assignments: Homework that is one day late will lose 20% of the score. Homework that is two days late will not be accepted. (Late work due to illness, family, emergency, and other justifiable reasons will be accepted.).

Exams: Midterm and final are open book. Programmable calculators are allowed.

Grading Policy: Homework (25 points), Midterm (35 points), and Final Exam (40 points). Total: 100 points

Grade: A (Above 85), B (75-84), C (65-74), D (50-64), and F (below 50).

Week	Day	Topics
1	Jan. 9, 11	Review of fluid mechanics
2	Jan. 16, 18	Turbulent pipe flows
3	Jan. 23, 25, 30	Turbulent pipe flows
4	Jan. 30, Feb. 1	Pump hydraulics
5	Feb. 6, 8	Pump hydraulics
6	Feb. 13, 15	Steady uniform flow; Best hydraulic sections
7	Feb. 20, 22	Energy principle; Critical flow
8	Feb. 27, Feb. 29	Channel transition; Weir flow
9	Mar. 5, 7	Energy principle; Momentum principle
10	Mar. 12, 14	Midterm, Hydraulic jump
11	<i>Mar. 19, 21</i>	<i>Spring Break (No Class)</i>
12	Mar. 26, 28	Hydraulic jump, Apron design,
13	Apr. 2, 4	Bridge hydraulics; Gradually varied flow
14	Apr. 9, 11	Gradually varied flow
15	Apr. 16, 18	Peak flow prediction
16	Apr. 23, 25	Culvert design
17	Apr. 30	Sample examples/problems