

CE 320
Fluid Mechanics for Civil Engineering Students

Department of Civil Engineering
King Saud University

Course Description: CE 320 Fluid Mechanics (Required for a BSCE degree)	Units and dimensions, fluid properties, fluid pressure at a point, pressure variation with depth, hydrostatic forces on plane surfaces, hydrostatic forces on curved surfaces, buoyancy forces, stability of floating bodies, flow types, continuity equation, energy equation, momentum equation. 2(2,1,0)
Prerequisite	GE 201 (Statics), 1. Understanding of centroid of surfaces and bodies.
Learning Outcomes	Students completing this course successfully will be able to: 1- Understand the different systems of units and dimensions, and describe basic fluid properties. 2- Determine the magnitude of hydrostatic pressure at points within a fluid, and identify hydrostatic pressure forces on different surfaces. 3- Explain and calculate the buoyancy forces on floating and submerged bodies and discuss their stability. 4- Apply the concepts of mass, energy and momentum conservation to calculate flow velocities, pressure and forces with applications.
Topics Covered	1. Dimensions, units and fluid properties. 2. Fluid pressure at points within a fluid. 3. Fluid pressure on surfaces. 4. Buoyancy principles and stability of floating bodies. 5. Continuity, energy, momentum equations.
Class/ tutorial Schedule	Class is held two times per week in 50-minute lecture sessions. There is also a 50-minute weekly tutorial associated with this course.
Computer Applications	Not applicable in this course.
Project	Not applicable in this course.
Contribution of Course to Meeting the Professional Component	1. Students learn the main fluid mechanics principles as related to civil engineering applications. 2. Students recognize the role of professional societies in developing codes and standards and updating current knowledge.
Relationship of Course to Program Outcomes	1. An ability to apply knowledge of mathematics, science, and engineering; [ABET a] (SO#1) 2. An ability to design and conduct experiments, as well as to analyze and interpret data; [ABET b] (SO#2) 3. An ability to identify, formulate, and solve engineering problems including the ability to evaluate and synthesize information and develop alternative solutions; [ABET e] (SO#5)
Textbook(s) and/or Other Required Material	Fundamentals of Fluid Mechanics (2013); 7th Edition (SI Version). Authors: Munson, Okiishi, Huebsch, Rothmayer
Instructors: Office Number:	Dr. Raied Alharbi & Dr. Osama Al-Dafer 2A49 & 2A61
Grading:	20%, 25% and 40% for 1 st Midterm, 2 nd Midterm and Final exams, respectively. (see next page for dates & times); 15% for Tutorials: assignments, quizzes and attendance.
Dates of Midterms	First Midterm: 22 – 10 – 2019 Second Midterm: 28 – 11 – 2019
Sickness Absence Policy	Absence > 25% including T.A Lectures Missing a lecture (Bring medical excuses in 2 weeks after day of absence) Do not Bring in the last week (excuses will not be taken)