

ENGINEERING FACULTY / CIVIL ENGINEERING DEPARTMENT

COURSE SYLLABUS

Course Code	CE371
Course Title	FLUID MECHANICS
Compulsory / Elective	COMPULSORY
Programme Name	CIVIL ENGINEERING
Programme Type	UNDERGRADUATE
Semester	21-22 FALL
Weekly Course Hours	3
Weekly Course Schedule	WEDNESDAY 13:30-16:30
	PROF.DR.LALE BALAS
Name- Surname of The Lecturer	PROFDR.ASU İNAN
	DOÇ.DR.KEREM TAŞTAN
	lalebal@gazi.edu.tr
Contact Information of The Lecturer	asuinan@gazi.edu.tr
	<u>ktastan@gazi.edu.tr</u>

Course Prerequisites

Prerequisite of this course is: CE223 MECHANICS I (STATICS)

Required attendance to lectures is at least 70% of total term hours.

Course Definition and Objectives

To introduce the fluid behaviour, to teach the basic concepts and principles of Fluid Mechanics for static and moving fluids.

Learning Outcomes and Competences

To understand of basic fluid properties

To solve engineering problems dealing with fluids

To understand mass, momentum, and energy transport processes in flow systems

Course Weel	kly Plan		
Week	Subjects	Reference	Learning Tasks
Week 1	Introduction-Dimensions and	Chapter 1.1-1.3	Fluid definition and
(06.10.2021)	Units	(Munson et al. 2013)	dimensions
Week 2	Properties of Fluids	Chapter 1.4-1.9	Analysis of fluid
(13.10.2021)		(Munson et al. 2013)	behaviour
Week 3	Pressure at a Point, Pressure	Chapter 2.1-2.6	
(20.10.2021)	Variation in a Fluid at	(Munson et al. 2013)	Pressure determination
	Rest, Measurement of Pressure,		HOMEWORK-1
	Manometers		Due on:27.10.2021
Week 4	Hydrostatic Pressure and Forces	Chapter 2.8-2.9	Calculation of
(27.10.2021)	on Plane Surface	(Munson et al. 2013)	hydrostatic pressure and
			forces
			HOME-EXERCISES-1





Week 5 (03.11.2021)	Hydrostatic Pressure and Forces on Curved Surface	Chapter 2.10 (Munson et al. 2013)	Calculation of hydrostatic pressure and forces HOMEWORK-2 Due on:10.11.2021
Week 6 (10.11.2021)	Buoyancy	Chapter 2.11 (Munson et al. 2013)	Calculate buoyancy force and discuss the stability of objetcs HOME-EXERCISES-2
Week 7 (17.11.2021)	Fluid Kinematics; Eulerian and Lagrangian Flow Descriptions	Chapter 4.1 (Munson et al. 2013)	Learn Eulerian and Lagrangian Descriptions HOMEWORK-3 Due on:24.11.2021
Week 8 (24.11.2021)	1.MIDTERM	Chapter 1.1-4.1	Solve problems on fluid properties, hydrostatic pressure,forces and buoyancy
Week 9 (01.12.2021)	Velocity, Acceleration, Streamlines, Streaklines and Pathlines	Chapter 4.2 (Munson et al. 2013)	Determine properties of velocity field HOME-EXERCISES-3
Week 10 (08.12.2021)	The Reynolds Transport Theorem, System and Control Volume Representations	Chapter 4.3-4.4 (Munson et al. 2013)	Learn Eulerian and Lagrangian Descriptions HOMEWORK-4 Due on:15.12.2021
Week 11 (15.12.2021)	Conservation of Mass, Continuity Equation	Chapter 5.1 (Munson et al. 2013)	Apply mass balance HOME-EXERCISES-4
Week 12 (22.12.2021)	Momentum and Energy Equations	Chapter 5.2-5.3 (Munson et al. 2013)	Learn force balance, momentum and energy transfer in fluid flow HOMEWORK-5 Due on:29.12.2021
Week 13 (29.12.2021)	Momentum and Energy Equations	Chapter 5.2-5.5 (Munson et al. 2013)	Solve problems on momentum and energy transfer fluid flow HOME-EXERCISES-5
Week 14 (05.01.2022)	2.MIDTERM	Chapter 1.1-5.2	Solve problems on fluid kinematics, mass, momentum and energy
Week 15 (12.01.2022)	Energy Lines	Chapter 5.2-5.5 (Munson et al. 2013)	Calculate flow properties using energy and hydraulic grade lines HOME-EXERCISES-6

Teaching Methods and Techniques

Lecture presentations, visualization, questions-answers, readings, assignments



Gazi Üniversitesi Rektörlüğü 06500 Teknikokullar / Ankara / TURKEY T +90312 2022000 • F +90312 2213202

gazi.edu.tr



Course Rules and Expectations

1)Participation in live classes is important.

2) You are expected to complete all homeworks on time. Homeworks are effective in the course evaluation.

3) Homeworks will not be accepted after the deadline. It is recommended that you complete your work before the due times.

4) All homeworks must be done by yourself and must be original. Avoid plagiarism.

5) In case of any plagiarism in any of homeworks or midterms, the grading is evaluated as "0" and it results in the initiation of disciplinary action.

Assessment Crite	ria	
	Quantity	Percentage (%)
Mid-terms	2	50
Assignment	5	5
Exercises	6	-
Projects	-	-
Practice	-	-
Quiz	5	5
Contribution of		60
In-term Studies		
to Overall Grade		
%		
Contribution of		40
Final		
Examination to		
Overall Grade		
(%)		
Attendance	-	-
TOTAL		100

Reference Book

1. Munson, B. R., Okiishi, T. H., Huebsch, W.W.,Rothmayer,A.P. 2013. 'Fundamentals of Fluid Mechanics', 7th Edition John Wiley&Sons, Inc.



gazi.edu.tr