

Code: INS2222		Course Name: Fluid Mechanics																																																						
Year	Semester	Group(s)	Language	Theory	App	Lab.	Credit	ECTS																																																
2023-2024	Spring	3, 4	English	2	1	1	3	5																																																
Course Type		Basic Sciences <input type="checkbox"/>	Engineering <input checked="" type="checkbox"/>	Technical Elective <input type="checkbox"/>			Non-Technical Elective <input type="checkbox"/>																																																	
Prerequisite		-																																																						
Coordinator		Prof. Dr. Esin Çevik																																																						
Instructor(s)		Doç. Dr. H.Anıl Güner, Prof. Dr. Esin Çevik																																																						
Course Goals		The purpose of fluid mechanics is to give basic principal and fluid properties and behavior of fluid																																																						
Course Topics		Fluid Properties / Fluid Statics /Fluid Kinematics / Fluid Dynamics; Behavior of Ideal and Real Fluids, Drag and Lift / Introduction to Potential Flow Theory / Dimensional Analysis																																																						
Knowledge and Skills		Basic knowledge of principal equations on fluid structure interaction, and how to reach and use knowledge																																																						
References		1) Fundamentals of Fluid Mechanics (Third Ed. John Wiley&Sons, 1998), Munson, Young, Okishi 2) Fluid Mechanics, Frank White (Mc Graw Hill) 3) Fluid Mechanics Lecture Notes, Y. Yüksel and E. Çevik 4) Akışkanlar Mekaniği ve Hidrolik (Beta Yayınevi, 6.Baskı, 2020), Y. Yüksel																																																						
Assignments and Projects																																																								
Laboratory Experiment topics		Lab 1: Venturimeter Experiment Lab 2: Drag Coefficient Experiment																																																						
Computer codes																																																								
Other Activities		1) Video and slide shows																																																						
Contribution Of The Course Towards Providing Professional Education		Basic knowledge of principal equations on fluid structure interaction, and how to reach and use knowledge																																																						
Course Learning Outcomes		1. Learns the properties and behavior of fluids. 2. Learns the basic behavior of fluid flow and their basic equations. 3. Solves fluid mechanics problems and understands its applications in engineering. 4. Learns to make experiments and to interpret the results of the behavior of fluids. 5. Solve complex problems.																																																						
Course Learning Outcomes/ Program Outcomes Matrix		<table border="1"> <tr> <td>PC DÖÇ</td> <td>1.2</td> <td>1.3</td> <td>2.1</td> <td>2.2</td> <td>5.2</td> <td>5.3</td> <td>5.4</td> </tr> <tr> <td>1</td> <td>x</td> <td>x</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>x</td> <td>x</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>x</td> <td></td> <td></td> <td></td> <td></td> <td>x</td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td>x</td> <td>x</td> <td>x</td> </tr> <tr> <td>5</td> <td></td> <td></td> <td>x</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>							PC DÖÇ	1.2	1.3	2.1	2.2	5.2	5.3	5.4	1	x	x						2			x	x				3	x					x		4					x	x	x	5			x				
PC DÖÇ	1.2	1.3	2.1	2.2	5.2	5.3	5.4																																																	
1	x	x																																																						
2			x	x																																																				
3	x					x																																																		
4					x	x	x																																																	
5			x																																																					

Date: 16.02.2024

Success Evaluation					
Theoretical Courses			Projects		
	Number	Weight (%)		Number	Weight (%)
Midterms	2	(2×25)=50	Midterm(s)		
Quizzes	-	-	Controls		
Assignments	-	-	Mid-submission(s)		
Laboratory	2	(2×5)=10	Oral Exam		
Other	-	-	Other		
Final Exam	1	40	Final Exam		
Make-up Exam	1	40	Make-up Exam		
Subjects					
Week 1 (19-23.02.24)	Fluid Properties / Introduction, Definition of continuity, density, specific weight, specific gravity				
Week (26.01-01.03.24)	Viscosity, surface tension, vapor pressure Fluid Statics / Pressure, basic principles				
Week 3 (04-08.03.24)	Plane surfaces				
Week 4 (11-15.03.24)	Curved surfaces, Euler equation				
Week 5 (18-22.03.24)	Relative equilibrium, stability of floating body				
Week 6 (25-29.03.24)	Fluid Kinematics / Analyzing of fluid mechanics, fundamental concepts				
Week 7 (01-05.04.24)	Motion of a fluid element, fluid acceleration LAB 1				
Week 8 (08-12. 04.24) Ramadan	Fluid Dynamics / Inviscid fluid dynamics, continuity equation				
Week 9 (15-19 04.24)	MIDTERM 1 (preliminary date)				
Week 10 (22-26 04.24) 23 Apri	Equation of motion, energy equation				
Week 11 (29.04-03 05.24)	Impuls-Momentum equation and angular momentum				
Week 12 (06-10.05.24)	Flow of viscous fluid, Navier-Stokes equations, Boundary layer MIDTERM 2 (preliminary date)				
Week 13 (13-17.05.23)	Hydrodynamics of submerged bodies, Introduction to Irrotational Flow LAB2				
Week 14 (20-24.05.23)	Dimensional Analysis				

FORM 2: LECTURER COMMUNICATION INFORMATION

Course Code: INS2222		Course Name: FLUID MECHANICS				
Groups	Course hours and locations	Course Lecturer	Lecturer office	Student meeting hours	email	Web address
3	TUESDAY 10 ⁰⁰ -11 ⁵⁰ THURSDAY 10 ⁰⁰ -11 ⁵⁰	Doç. Dr. H.A. Güner	H Blok Hidrolik ve Kıyı Liman Lab. Oda No: 4	WEDNESDAY 14 ⁰⁰ -16 ⁰⁰	aari@yildiz.edu.tr	www.inm.yildiz.edu.tr
4	TUESDAY 10 ⁰⁰ -11 ⁵⁰ THURSDAY 10 ⁰⁰ -11 ⁵⁰	Prof. Dr. Esin Çevik	H Blok Hidrolik ve Kıyı Liman Lab. Oda No: 8	WEDNESDAY 13 ⁰⁰ -14 ⁰⁰	cevik@yildiz.edu.tr	www.inm.yildiz.edu.tr

Date: 16.02.2024