Code : 0423211		**Course Name :** Hydraulics						
Year	Semester	Group(s)	Language	Theory	App	Lab.	Credit	ECTS
2019-2020	Fall	1, 3	English	2	1	1	3	5
Course Type		Basic Sciences ☐	Engineering ■	Technical Elective ☐		Non-Technical Elective ☐		
Prerequisitive		Fluid Mechanics 0422212						
Coordinator *		Prof. Dr. Yalçın Yüksel						
Instructor(s)		Prof. Dr. Esin Çevik, Doç. Dr. Mehmet Öztürk						
Course Goals		The purpose of hydraulics, one of the practicing brench, is to introduce basic principles of hydraulics, to teach students the solutions of hydraulic structures problems and to discuss the design problems of structures.						
Course Topics		Pipe Flow / General Characteristics of Open Channel Flow / Uniform and Non-Uniform Flow in Open Channels / Physical Modeling / Introduction to Transient Flow / Introduction to Computational Hydraulics						
Knowledge and Skills		• Basic knowledge for the design of many hydraulic structures problems for example dams, harbors, channels, breakwaters, etc. • How to reach and use knowledge						
References		1.”Hydraulics Lecture Notes”by Y. Yuksel and E. Cevik, 2019 2. ”Fundamentals of Fluid Mechanics” by Munson, Young, Okiishi, John Wiley&Sons 3. “Fluid Mechanics” by F. M. White, 8th ed., McGraw-Hill. 4. “Open-Channel Hydraulics” by R. H. French, Mc. Graw Hill 5. “Open-Channel Hydraulics” by Ven Te Chow, Mc Graw Hill 6. “Akışkanlar Mekaniği ve Hidrolik” by Y. Yüksel, Beta Yayınevi 7.” Hidrolik Laboratuvar Deneyleri” 5. Bası, YTÜ Yayınları,2013						
Assignments and Projects								
Laboratory Experiment topics		1) Minor head losses in pipe flow 2) Hydraulic jump and channel transitions						
Computer codes								
Other Activities		1) Video and slide shows						
Dersin Meslek Eğitimini Sağlamaya Yönelik Katkısı		Basic knowledge for the design of many hydraulic structures problems for example dams, harbors, channels, breakwaters, etc.						
Course Outcomes (Number needed)		1. Students will be able to solve hydraulic problems and learn the design of hydraulic structures. 2. Students will be able to do hydraulic engineering practices. Students will be able to experiment. 3. Students will learn the basics of design courses related to hydraulic engineering and gain the skills to understand these issues. 4. Students will gain the ability to solve basic equations of Hydraulic Engineering						

Course Outcomes / Learning Outcomes Matrix

	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi
1		√	√								
2			√		√						
3				√							
4	√	√									

SUCCESS EVALUATION					
Theoretical Courses			**Project Courses and Graduation project**		
	Number	Weight (%)		Number	Weight (%)
Midterms	**2**	60*(2*0.275)	Midterm(s)		
Quizzes		-	Controls		
Assignments			Mid-submission(s)		
Laboratory	**2**	60*(2*0.025)	Oral Exam		
Other			Other		
Final Exam	1	40	Final Exam		
Make Up Exam	1	40	Make Up Exam		

İşlenen Konular COURSE SCHEDULE	
1. Week 16-20/09/2019)	Review of Fluid Mechanics / Application Areas of Hydraulics/ Introduction to Pipe Flow
2. Week (23-27/9/2019)	Pipe Flow; Laminar Velocity Distribution, Turbulent Velocity Distribution
3. Week (30.09-4.10/2019)	Friction Head Loss / Minor Head Losses
4. Week (7-11/10/2019)	Various Pipe Problems
5. Week (14-18/10/2019)	Pipe Network
6. Week 21-25/10/2019)	Open Channel Hydraulics / Basic Concepts **Laboratory Experiment 1**
7. Week (28.10-1.11/2019)	Steady Open Channel Hydraulics / Velocity and Pressure Gradient
8. Week (4-8/11/2019)	Energy Losses and Hydraulic Calculations in Channels / Non-uniform Open Channel Flow
9. Week (11-15/11/2019)	**I. MIDTERM**
10. Week 18-22/11/2019)	Critical Flow **Laboratory Experiment 2**
11. Week 25-29/11/2019)	Rapidly Varied Flow / Hydraulic Jump
12. Week (2-6/12/2019)	Channel Transitions / Gradually Varied Flow **II. MIDTERM**
13. Week (9-13/12/2019)	Computation of Gradually Varied Flow
14. Week (16-20/12/2019)	Hydraulic Models, Introduction to Computational Hydraulics

FORM 2: COURSE COMMUNICATIONS

Course Code : :		**Course Name :**				
Groups	**Classes and hours of courses**	**Instructor**	**Room number of instructor**	**Office hours**	**E-mail**	**Web address**
1	Monday 13:00-14:50 Thursday 10:00-11:50	Prof. Dr. Esin Çevik	H Block -08	Thursday - $12^{\underline{00}}$-$14^{\underline{50}}$	cevik@yildiz.edu.tr	www.inm.yildiz.edu.tr
3	Monday 13:00-14:50 Thursday 10:00-11:50	Doç. Dr. Mehmet Öztürk	H Block - 01	Thursday - $12^{\underline{00}}$-$14^{\underline{50}}$	@yildiz.edu.tr	www.inm.yildiz.edu.tr

Date: 12/09/2018