

<b>Faculty</b>	<b>Faculty of Engineering</b>		
<b>Program</b>	<b>B.Sc. in Civil Engineering</b>	<b>Elective</b>	
	<b>B.Sc. in Computer Engineering</b>	<b>Elective</b>	
	<b>B.Sc. in Electrical-Electronics Engineering</b>	<b>Elective</b>	
	<b>B.Sc. in Industrial Engineering</b>	<b>Elective</b>	
	<b>B.Sc. in Mechanical Engineering</b>	<b>Elective</b>	

<b>Course Code</b>	CE 446			
<b>Course Title in English</b>	Water Supply and Disposal Systems			
<b>Course Title in Turkish</b>	Su Temini ve Kanalizasyon Sistemleri			
<b>Language of Instruction</b>	English			
<b>Type of Course</b>	Flipped Classroom/Lecture/Project			
<b>Level of Course</b>	Only Undergraduate Students			
<b>Course Category (by % of Content)</b>	Basic Science	Basic Engineering	Engineering Design	General Education
	-	100	-	-
<b>Semester Offered</b>				
<b>Contact Hours per Week</b>	Lecture: 3 hours	Recitation: -	Lab: -	Other: -
<b>Estimated Student Workload</b>	130 hours per semester			
<b>Number of Credits</b>	5 ECTS			
<b>Grading Mode</b>	Standard Letter Grade			
<b>Pre-requisites</b>	None			
<b>Expected Prior Knowledge</b>	Prior knowledge of fundamental concepts of fluid mechanics and hydraulics is suggested.			
<b>Co-requisites</b>	None			
<b>Registration Restrictions</b>	Only Undergraduate Students			
<b>Overall Educational Objective</b>	To understand water resources development and the required methodologies, and to gain skills for applying mathematics, science and engineering knowledge on the solution of water resources problems.			
<b>Course Description</b>	This course covers water supply and waste water disposal including precipitation in civil engineering applications. The following major topics are covered in detail: population estimation methods, water quality and flow characteristics, water transmission lines, water reservoirs, water distribution networks, collection of waste water, waste water conduits, drainage of rainwater, ecology.			
<b>Course Description in Turkish</b>	Bu ders inşaat mühendisliği uygulamaları açısından su temini ve kirli suların uzaklaştırılması konularını ele almaktadır. Ayrıntılı olarak incelenen konular şöyledir: nüfus tahmin yöntemleri, su kalitesi ve akım karakteristikleri, isale hatları, su hazneleri, su dağıtım şebekeleri, atık suların toplanması, atık su mecraları, yağmur suyunun uzaklaştırılması, ekoloji.			
<b>Course Learning Outcomes and Competencies</b>	Upon successful completion of the course, the learner is expected to: <ol style="list-style-type: none"> <li>1. solve problems related to population estimation;</li> <li>2. solve problems related to flow characteristics;</li> <li>3. solve problems related to water transmission lines and water distribution networks;</li> <li>4. solve problems related to waste water collection and waste water disposal;</li> <li>5. solve problems related to drainage of rainwater;</li> <li>6. deliver effective oral presentations.</li> </ol>			

Relationship of the Course with the Student Outcomes	Level	Learning Outcome(s)	Assessed by
<b>Student Outcomes</b>	N=None S=Supportive H=High		Exam, Project, HW, Experiment, Presentation, etc.
(1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	H	1, 2, 3, 4, 5	Quiz (FC Exercises), Midterm
(2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors			
(3) an ability to communicate effectively with a range of audiences	S	6	Presentation
(4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts			
(5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives			
(6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions			
(7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies			
<b>Prepared by and Date</b>	Prof. Dr. Emine Beyhan Yeğen, August 2020		
<b>Semester</b>	Fall 2020-2021		
<b>Name of Instructor</b>	Prof. Dr. Emine Beyhan Yeğen		
<b>Course Contents</b>	Week	Topic	
	1.	Introduction and Population Estimation Methods	
	2.	Water Quality and Flow Characteristics	
	3.	Water Transmission Lines	
	4.	Water Transmission Lines continued	
	5.	Water Reservoirs	
	6.	Water Distribution Networks	
	7.	Collection of Waste Water	
	8.	Waste Water Conduits	
	9.	Waste Water Conduits continued	
	10.	Drainage of Rainwater	
	11.	Drainage of Rainwater continued	
	12.	Ecology	
	13.	Recapitulation	
	14.	Recapitulation continued	
	15.	Final Exam/Project/Presentation Period - Presentations	
	16.	Final Examination Period Final Exam/Project/Presentation Period - Presentations	
<b>Required/Recommended Readings</b>	Required Textbook: McGhee, T. Water Supply & Sewerage, McGraw Hill Pub., 6 <sup>th</sup> edition, 1991.  Recommended Textbooks: Fair, G.M. and Geyer, J.C., Elements of Water Supply and Waste Water Disposal, John Wiley & Sons, 1958.		

<b>Teaching Methods</b>	Lectures/contact hours using "flipped classroom" as an active learning technique															
<b>Homework and Projects</b>	-															
<b>Laboratory Work</b>	-															
<b>Computer Use</b>	-															
<b>Other Activities</b>	-															
<b>Assessment Methods</b>	<table border="1"> <thead> <tr> <th>Types of assessment</th> <th>Number</th> <th>Ratio (%)</th> </tr> </thead> <tbody> <tr> <td>Midterm Exam</td> <td>1</td> <td>45</td> </tr> <tr> <td>Quiz (FC activity)</td> <td>10-12</td> <td>40</td> </tr> <tr> <td>Oral Presentation</td> <td>1</td> <td>15</td> </tr> <tr> <td>Total</td> <td></td> <td>100</td> </tr> </tbody> </table>	Types of assessment	Number	Ratio (%)	Midterm Exam	1	45	Quiz (FC activity)	10-12	40	Oral Presentation	1	15	Total		100
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Total		100														
<b>Course Administration</b>	<p><b>Instructor's office and phone number:</b>  <b>office hours:</b>  <b>e-mail address: yegen.eb@gmail.com</b></p> <p><b>Rules for attendance:</b> Minimum of 70% attendance required. Classroom Practice contributes to 15% of the final grade.  <b>Missing the midterm:</b> Provided that proper documents of excuse are presented, make-up will be given.  <b>Missing the final presentation:</b> Faculty regulations.  <b>A reminder of proper classroom behavior, code of student conduct:</b> YÖK Regulations  <b>Statement on plagiarism:</b> YÖK Regulations  <a href="http://3fcampus.mef.edu.tr/uploads/cms/webadmin.mef.edu.tr/4833_2.pdf">http://3fcampus.mef.edu.tr/uploads/cms/webadmin.mef.edu.tr/4833_2.pdf</a></p>															

ECTS Student Workload Estimation	Activity	No/Weeks	Hours			Calculation	Explanation
		No/Weeks per Semester (A)	Preparing for the Activity (B)	Spent in the Activity Itself (C)	Completing the Activity Requirements (D)		
	Lecture	14		3		42	A*(B+C+D)
	Quizzes	10	4	1		50	A*(B+C+D)
	Homework					0	A*(B+C+D)
	Midterm(s)	1	15	2		17	A*(B+C+D)
	Final Presentation	1	20	1		21	A*(B+C+D)
	Essay					0	
	Final Exam					0	
	Total Workload					130	
	Total Workload/25					5.2	
	ECTS					5	