



**HASAN KALYONCU UNIVERSITY**  
**Faculty of Engineering**  
**Course Description Form**

<b>COURSE:</b> Engineering Hydrology				
<b>CODE:</b> CE371	<b>SEMESTER:</b> FALL			
<b>LANGUAGE:</b> ENGLISH	<b>TYPE:</b> COMPULSORY			
<b>PRE-REQUISITES:</b> - <b>CO-REQUISITES:</b> -	<b>THEORY</b>	<b>PRACTICAL</b>	<b>CREDIT</b>	<b>ECTS</b>
<b>WEEKLY HOURS:</b> 3	3	0	3	5

**CONTENT OF THE COURSE:**

The course serves as an introduction to the field of engineering hydrology. It covers fundamentals such as the hydrological cycle, catchment, losses, hydrographs and hyetographs. Design topics covered will be selected from: flood frequency analysis, determination of design rainfall intensity and hyetographs, peak flow estimation, design hydrograph estimation, groundwater process and modelling, and drought risk analysis/ yield hydrology.

**OBJECTIVE OF THE COURSE:**

To provide an introduction to hydrology, including a study of the most important hydrological processes operating in the environment, and to hydrological ways of thinking.

**WEEKLY SCHEDULE AND PRE-STUDY PAGES**

<b>Week</b>	<b>Topics</b>
1	Definition of hydrology, importance, scope, hydrological cycle and basic equations
2	Analysis of precipitation records
3	Evaporation and perspiration, measurement of evaporation, factors causing evaporation
4	Definition of infiltration, factors affecting infiltration and measurement
5	Definition and calculation of infiltration indices
6	Groundwater formation, groundwater
7	Free and pressurized aquifer, groundwater flow
8	Midterm
9	Surface flow
10	Definition of hydrograph, direct flow, base flow and unit hydrograph
11	Extraction of unit hydrograph
12	Level and flow measurements in rivers
13	Watershed hydrology
14	Importance of hydrology in agricultural production

**TEXTBOOK:** Hydrology in practice (Shaw, M.E. 1993), Ç.Ü. Hidroloji Ders Kitabı 1996 (Prof.Dr. Kazım Tülücü), Hidroloji Ders Notları (Prof.Dr. Nizamettin Çiftçi)

<b>EVALUATION SYSTEM:</b>		
<b>IN-TERM STUDIES</b>	<b>QUANTITY</b>	<b>PERCENTAGE (%)</b>
Midterm Exam	1	40
Homework		
Laboratory works		
Quiz	1	60
Final Exam		
<b>TOTAL</b>		
CONTRIBUTION OF INTERM STUDIES TO OVERALL GRADE	1	40
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE	1	60
<b>TOTAL</b>	2	100

<b>COURSE CATEGORY:</b>	<b>PERCENTAGE (%)</b>
Mathematics and Basic Sciences	40
Engineering	60
Engineering Design	
Social Sciences	

<b>TABLE OF ECTS / WORKLOAD:</b>			
<b>Activities</b>	<b>QUANTITY</b>	<b>Duration (Hour)</b>	<b>Total Workload</b>
Course Duration	13	3	39
Hours for off-the-classroom study (Pre-study, practice)	14	7	98
Laboratory works			
Mid-term	1	2	2
Final examination	1	2	2
Homework			
Quiz			
<b>Total Work Load</b>			<b>141</b>
<b>Total Work Load / 30</b>			<b>4,7</b>
<b>ECTS Credit of the Course</b>			<b>5</b>

	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>LO1</b>	2	2	0	3	3	0	0	0	0	0	0
<b>LO2</b>	2	2	0	3	3	0	0	0	0	0	0
<b>LO3</b>	2	2	0	3	3	0	0	0	0	0	0
	PO: Program Outcomes   LO: Learning Outcomes Values: 0: None   1: Low   2: Medium   3: High										

<b>INSTRUCTOR(S):</b>	Asst.Prof.Dr. H.Çağan Kılınç
<b>FORM PREPARATION DATE:</b>	22.05.2019

<b>LEARNING OUTCOMES OF THE COURSE:</b>	<b>PROGRAM OUTCOMES:</b>
<p><b>LO1:</b> Analyze precipitation records</p> <p><b>LO2:</b> measure groundwater flows</p> <p><b>LO3:</b> Learns the importance of hydrological cycle and design of water structures.</p>	<p><b>PO1:</b> Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems.</p> <p><b>PO2:</b> Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.</p> <p><b>PO3:</b> Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.</p> <p><b>PO4:</b> Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in engineering practice; ability to employ information technologies effectively.</p> <p><b>PO5:</b> Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.</p> <p><b>PO6:</b> Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.</p> <p><b>PO7:</b> Ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language; ability to write effective reports and comprehend written reports, prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.</p> <p><b>PO8:</b> Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.</p> <p><b>PO9:</b> Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice.</p> <p><b>PO10:</b> Knowledge about business life practices such as project management, risk management, and change management; awareness in entrepreneurship, innovation; knowledge about sustainable development.</p> <p><b>PO11:</b> Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions.</p>