

COURSE DESCRIPTION FORM	
Course Code and Title	CE372 HYDROLOGY
Semester	6
Catalog description	Hydrologic Cycle, Water Budget, Basin characteristics, Precipitation, Flow Measurements, Evaporation and Evapotranspiration, Infiltration, Hydrograph Analysis, Peak Discharge Estimation, Frequency Analysis, Flood Mitigation, Statistical Methods in Hydrology, Groundwater Flow Modelling
Required reading	Usul, N. (2012), Engineering Hydrology, METU Publishing, Ankara.
Recommended reading	<ol style="list-style-type: none"> 1. Viessman ve Lewis (2003). Introduction to Hydrology (5th edition) Pearson Education, New York, USA. 2. Brutsaert (2005), "Hydrology, an Introduction" Cambridge University Press, New York.
ECTS	3
Prerequisites and co-requisites	No prerequisite.
Compulsory/Elective	Compulsory
Language of instruction	English
Aim of course	Develop the necessary knowledge and abilities of Civil Engineers for the application of Water Resources Engineering in Water Supply Projects to perform all the operations necessary to mitigate the flood risk in a river basin
Learning outcomes of the course unit	<ol style="list-style-type: none"> 1. Ability to Apply Mathematics, Science and Engineering Knowledge 2. Ability to design, formulate and solve engineering problems 3. Understanding the effects of social and global engine engineering problems 4. Basic Statistics knowledge in Hydrology for practice
Mode of delivery	The mode of delivery of this course is face to face.
Course content	<ol style="list-style-type: none"> 1. Introduction, Hydrologic Cycle, Water Budget 2. Precipitation 3. Basin Characteristics 4. Flow Measurements 5. Evaporation, Evapotranspiration and water demand 6. Midterm 7. Infiltration 8. Hydrograph Analysis 9. Unit Hydrograph Analysis 10. Frequency Analysis, Peak Discharge Estimation 11. Drainage Systems Design 12. Midterm / Flood Mitigation 13. Flood Mitigation 14. Statistical Methods in Hydrology 15. Groundwater Flow Modelling
Planned learning activities and teaching methods	3 lecture hours per week (3+0) Report and presentation preparation Midterm exam and required works Final exam and required works

Assessment methods and criteria		Quantity	Percentage (%)	
	Mid-terms	2	40	
	Assignment	4	10	
	Exercises	-	-	
	Projects	-	-	
	Practice	-	-	
	Quiz	2	10	
	Contribution of In-term Studies to Overall Grade %	-	60	
	Contribution of Final Examination to Overall Grade (%)	-	40	
	Attendance	-	-	
Workload	Efficiency	Total Week Count	Weekly Duration (in hour)	Total Workload in Semester
	Theoretical Study Hours of Course Per Week	14	3	42
	Practicing Hours of Course Per Week	14	0	0
	Reading	14	0	0
	Searching in Internet and Library	0	0	0
	Designing and Applying Materials	2	0	0
	Preparing Reports	4	3	12
	Preparing Presentation	1	0	0
	Presentation	1	0	0
	Mid-Term and Studying for Mid-Term	2	8	16
	Final and Studying for Final	1	10	10
	Other	0	0	0
	Total Workload:			80
	Total Workload / 25:			3.20
	ECTS:			3

Course's contribution to program	No	Program Learning Outcomes	1	2	3	4	5
	1	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.				X	
	2	Ability to identify, formulate, and solve complex civil engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.					X
	3	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.					
	4	Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in civil engineering practice; ability to employ information technologies and to use at least one computer programming language effectively.					X
	5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex civil engineering problems or discipline specific research questions.					
	6	Ability to work efficiently in intra-disciplinary and multi-disciplinary teams.			X		
	7	Ability to work individually.		X			
	8	Ability to communicate effectively in Turkish, both orally and in writing; ability to write effective reports and comprehend written reports.		X			
	9	Knowledge of English of B1 level according to <u>Common European Framework of Reference</u> .					
	10	Prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.					
	11	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.					
	12	Consciousness to behave according to ethical principles and professional and ethical responsibility.					
	13	Knowledge on standards used in civil engineering practice.					X
	14	Knowledge about business life practices such as project management, risk management, and change management.					
	15	Awareness in entrepreneurship, innovation; knowledge about sustainable development.					
	16	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.				X	
17	Awareness of the legal consequences of engineering solutions.						
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