

COURSE CATALOG

Course Code: CE 323				Course Name: Hydrology and Water Resources			
Semester	T + P + L	Credits	ECTS	Language of Instruction	Course Type	Instruction Methods	Prerequisite(s)
6	3 + 0 + 0	3	6	English	Required (D1)	Lecture	None
Course Objectives			To introduce students a fundamental knowledge of hydrological processes as well as the data analysis and measurement methods in hydrology				
Topics Covered			Introduction. Hydrology and water resources in civil engineering. Hydrological processes. Atmospheric water: rain, evaporation, precipitation, infiltration. Groundwater flow. Surface flows. Flow measurement and data analysis. Hydrograph analysis. Unit hydrograph. Statistical methods in hydrology.				
Learning Outcomes of the Course			<p>The students who pass this course should:</p> <p>1- gain basic knowledge of hydrology and develop analytical and mathematical skills to identify the hydrology and water resources problems [1, 2, 3, 4]</p> <p>2- be able to analyze, assess and manipulate hydrograph data for use in hydrological studies [4]</p> <p>3- develop skills for computer usage of packages such as word, excel, matlab [14]</p> <p>4- understand the practical applications of hydrology and water resources concepts used in designs of engineering structures [12, 13, 14]</p> <p>5- gain a basic knowledge about various case studies of hydrological systems [8, 12, 13,14, 16]</p> <p>6- develop skills of conveying technical material through oral presentations and written papers/reports [6, 14]</p> <p><i>[Note that the numbers in brackets refer to the bullet numbers in the program outcomes list.]</i></p>				
ISCED Category of the Course			52 Engineering				
Textbook			Chow, V., Maidment D. and Mays, L. <i>Applied Hydrology</i> . 2nd Edition. McGraw-Hill, 2013.				
Recommended Sources			Bayazit, M. <i>Hidroloji</i> . Birsen Yayınevi, 2003.				

WEEKLY SCHEDULE

Week	Theoretical Topic	Applied / Laboratory Topics
1	Introduction. Hydrology and water resources in civil engineering.	
2	Hydrological processes.	
3	Atmospheric water: Rain.	
4	Atmospheric water: Evaporation/ precipitation.	
5	Atmospheric water: Infiltration.	
6	Groundwater flow.	
7	Groundwater flow.	
8	Surface flows.	
9	Surface flows.	
10	Flow measurement and data analysis.	
11	Hydrograph analysis.	
12	Hydrograph analysis. Unit hydrograph.	
13	Statistical methods in hydrology.	
14	Statistical methods in hydrology.	

COURSE ASSESSMENT POLICY

	Activities	Number	Contribution (%)
Studies throughout the term	Quizzes	-	-
	Term Homework/ Project	-	-
	Reports	-	-
	Graduation Thesis/ Project	-	-
	Seminar	-	-
	Homeworks	5	30
	Presentations	-	-

	Midterm Exams	2	35
	Project	-	-
	Laboratory	-	-
	Other (field work)	-	-
FINAL EXAM		1	35
Total			100

CONTRIBUTION OF THE COURSE TO CIVIL ENGINEERING PROGRAM OUTCOMES

	Program Outcomes	1	2	3
1	The ability to apply knowledge of mathematics, science, and engineering			X
2	The ability to identify, formulate, and solve engineering problems			X
3	The ability to design a system or component to meet desired needs with realistic constraints such as economic, environmental, social, ethical, health and safety, manufacturability and sustainability		X	
4	The ability to analyze and interpret data		X	
5	The ability to design and conduct experiments and apply experimental results to improve processes	X		
6	The ability to convey technical material through oral presentations and written papers/reports		X	
7	The ability to function within multidisciplinary teams	X		
8	The understanding of professional and ethical responsibilities		X	
9	The understanding of the impact of engineering on society	X		
10	The understanding of the necessity to engage in life-long learning	X		
11	The understanding of management and leadership principles and techniques	X		
12	The appreciation of the role of research in civil engineering problems		X	
13	A knowledge of contemporary issues in civil engineering		X	
14	The ability to use modern engineering techniques, skills, and tools		X	
15	The ability to understand and explain basic concepts in management, business, and leadership	X		
16	A commitment to quality, punctuality and continuous improvement		X	

Contribution Level: 1 low, 2 medium, 3 high

ECTS-WORKLOAD TABLE

ACTIVITIES	Number	Duration (Hour)	Workload(Hour)
Lecture Time	14	3	42
Final Exam (Including Preparation Time)	1	25	25
Quizes	-	-	-
Term Homework / Project	-	-	-
Reports	-	-	-
Graduation Thesis/Project	-	-	-
Seminar	-	-	-
Study Time Outside the Class	14	2	28
Homeworks	5	5	25
Presentations	-	-	-
Midterm Exams (Including Preparation Time)	2	15	30
Project	-	-	-
Laboratory	-	-	-
Total Workload			150
ECTS Credits of the Course (Total Workload / 25)			6

Last update on 22.11.2013	Coordinator / PREPARED BY Cihan BAYINDIR	APPROVED BY Esin İnan
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