ESOGU CIVIL ENGINEERING DEPARTMENT

COURSE INFORMATION FORM

Course Name	Course Code
HYDROLOGY	151415366

Semester	Number of Course Hours per Week		ECTS
	Theory	**Practice**	
5	2	0	3

Course Category (Credit)				
Basic Sciences	**Engineering Sciences**	**Design**	**General Education**	**Social**
1	2			

Course Language	Course Level	Course Type
Turkish	Undergraduate	Elective

Prerequisite(s) if any	
Objectives of the Course	Students will know the hydrological cycle, members of hydrological cycle such as precipitation, evaporation and infiltration and he will learn the methods of calculations. Student will know the unit hydrograph types and will be able to perform flow analysis using those types. Student will gain the fundamental knowledge that will be useful in practical applications in civil engineering.
Short Course Content	Definition of hydrology and hydrological cycle, rainfall measurements and analysis of these measurements, definition of evaporation, measurement and calculation of the amount of infiltration, groundwater flow analysis, different aquifer types, analyzing and presentation of the methods used in flow measurement, the flow hydrograph and unit hydrograph analysis, investigation of properties of unit hydrograph types and methods of statistical analysis of the data types are the objectives of this course.

	Learning Outcomes of the Course	Contributed PO(s)	Teaching Methods *	Measuring Methods **
1	Recognize the hydrological cycle, define the elements of the hydrological cycle such as precipitation, evaporation, transpiration, infiltration and surface flow.	1, 2, 5	1, 2	A
2	Can analyze groundwater flows.	1, 2, 5	1, 2, 10	A
3	Can nnalyze hydrological data using statistical methods.	1, 2, 5, 8	1, 2, 10	A
4				
5				
6				
7				
8				

*Teaching Methods 1:Expression, **2:**Discussion, **3:**Experiment, **4:**Simulation, **5:**Question-Answer, **6:**Tutorial, **7:**Observation, **8:**Case Study, **9:**Technical Visit, **10:**Trouble/Problem Solving, **11:**Induvidual Work, **12:**Team/Group Work, **13:**Brain Storm, **14:**Project Design / Management, **15:**Report Preparation and/or Presentation

Measuring Methods A:Exam, **B:Quiz, **C:**Oral Exam, **D:**Homework, **E:**Report, **F:**Article Examination, **G:**Presentation, **I:**Experimental Skill, **J:**Project Observation, **K:**Class Attendance; **L:**Jury Exam

Main Textbook	Bayazıt, M, Hidroloji, İTÜ İnşaat Fakültesi
Supporting References	Bayazıt,M, Avcı , İ., Şen , Z.,Hidroloji Uygulamaları, İTÜ İnşaat Fakültesi Bayazıt, M.; Hidrolojide İstatistik Yöntemler, İ.T.Ü.İnşaat Fakültesi , 223 ss, 1981 Raudkivi, A. J., Hydrology, Pergamon. 1979; Gray, D. M., Handbook on the Principles of Hydrology, Water Information Center, 1973 Clarke, R.T., Mathematical Models in Hydrology, FAD, 1973; Nemec, J., Engineering Hydrology , Mc Graw-Hill, 1972.
Necessary Course Material	

Course Schedule	
1	Description of hydrology
2	Hydrological cycle
3	Analysis of precipitations
4	Calculating of precipitation height
5	Calculating of evaporation and perspiration
6	Measurement of infiltration
7	Groundwater flow and description of aquifer
8	Mid-Term Exam
9	Properties of free surface aquifer
10	Properties of confined aquifer
11	Measurement of flow and calculation of surface flow
12	Flow hydrograph
13	Theory of unit hydrograph and calculation methods
14	Displacement of unit hydrograph
15	General statistical methods and analysis of hydrological data
16,17	Final Exam

Calculation of Course Workload			
Activities	**Number**	**Time (Hour)**	**Total Workload (Hour)**
Course Time (number of course hours per week)	14	2	28
Classroom Studying Time (review, reinforcing, prestudy,….)	14	2,5	35
Homework			
Quiz Exam			
Studying for Quiz Exam			
Oral exam			
Studying for Oral Exam			
Report (Preparation and presentation time included)			
Project (Preparation and presentation time included)			
Presentation (Preparation time included)			
	1	2	2
	1	10	10
Mid-Term Exam	1	2	2
Studying for Mid-Term Exam	1	10	10
Final Exam	14	2	28
Studying for Final Exam	14	2,5	35
	Total workload		87
	Total workload / 30		2,9
	Course ECTS Credit		3

Evaluation	
Activity Type	**%**
Mid-term	40
Quiz	
Homework	
Bir öğe seçin.	
Bir öğe seçin.	
Final Exam	60
Total	100

NO	PROGRAM OUTCOME	Contribution
RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO) (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low)		
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.	4
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	5
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	3
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	3
9	Understanding of professional and ethical issues and taking responsibility	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	

LECTUTER(S)				
Prepared by	Prof. Dr. Ender DEMİREL			
Signature(s)				

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