



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Applied Hydrology							
Course Code		MCE534		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	200 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		To teach scientific methods to obtain, analyze and interpret hydrological data and decision making based on hydrologic data, and application of these methods to real world engineering problems.							
Course Content		Statistical methods in hydrology, analyses of rainfall and streamflow records, multi-purpose reservoir planning							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration, Discussion, Case Study, Individual Study, Problem Solving					
Name of Lecturer(s)									

### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Final Examination	1	50
Project	1	50

### Recommended or Required Reading

1	Chow, V. T., Maidment, D. R., & Mays, L. W. (1988). Applied hydrology, 572 pp. Editions McGraw-Hill, New York.
2	Yevjevich, V. (2010). Probability and statistics in hydrology, 312 pp. Water resources publications.

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to Applied Hydrology, Statistical Methods in Hydrology
2	Theoretical	Frequency Analysis, Widely Used Probability Distributions in Hydrology
3	Theoretical	Normal Distribution, Lognormal Distribution
4	Theoretical	Gamma Distribution, Log Pearson III Distribution, Gumbel Distribution
5	Theoretical	Preparation and Analysis of Rainfall Records
6	Theoretical	Depth-Area-Duration Relationship Analysis
7	Theoretical	Analysis of Streamflow Records
8	Theoretical	Multi-purpose Reservoir Planning
9	Theoretical	Multi-purpose Reservoir Planning Application
10	Theoretical	Student Project Presentations
11	Theoretical	Planning of Water Storage Reservoirs
12	Theoretical	Hydrological Reservoir Routing
13	Theoretical	Flood Frequency Analysis
14	Theoretical	Stream Gaging Station Flood Frequency Analysis
15	Theoretical	Synthetic Unit Hydrographs
16	Final Exam	Final Exam

### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	3	70
Assignment	2	0	15	30
Project	1	0	30	30
Individual Work	6	0	8	48
Final Examination	1	20	2	22
Total Workload (Hours)				200
[Total Workload (Hours) / 25*] = ECTS				8

\*25 hour workload is accepted as 1 ECTS



**Learning Outcomes**

1	Students gain ability to apply hydrology to real world engineering problems
2	Students gain ability to analyse and interpret data, make conclusions and decisions using statistical methods
3	Students gain ability to understand the results of scientific studies in hydrological perspective
4	students learn the relationship between hydrology and other disciplines
5	students learn the application of hydrology to watershed studies

**Programme Outcomes (Civil Engineering Master)**

1	To be able to develop expertise knowledge in a Civil engineering area founded on their graduate competence.
2	To be able to use the theoretical and practical expertise knowledge gained in their specialty area.
3	To be able to use the information, problem solving and / or practical skills from the field, in interdisciplinary studies.
4	To be able to create new knowledge by integrating their knowledge area with the knowledge coming from different disciplines; and solve problems that need expertise by using scientific research methods
5	To be able to solve the problems related to his/her area by using appropriate research methods
6	To be able to devise a problem in their specialty area, develop a solution methodology, solve the problem, and interpret the results and take action if necessary
7	To be able to criticize the knowledge in their specialty area, guide the learning process, and independently direct high level studies
8	To be able to systematically communicate the recent developments in their specialty area and their own studies to groups both inside and outside their specialty area, orally, in writing and visually
9	To be able to use computer software at a level required by their specialty area with drawing upon information and communication technology at a high level
10	To be able to introduce scientific, technological, social and cultural advancements in the field of civil engineering and to contribute to the process of being an information of the society and to sustain it.
11	To be conscious of professional and ethical responsibility and contribute to the establishment of this consciousness.
12	To be able to protect social, scientific, and ethical values during collection, interpretation, and dissemination stages of the data associated with their specialty area; instruct and supervise these values
13	To be able to use at least one foreign language in a level to follow current developments related to the field.

**Contribution of Learning Outcomes to Programme Outcomes** 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	5	4	5	5	4
P2	4	5	4	4	5
P3	5	4	5	5	4
P4	4	5	4	4	5
P5	5	4	5	5	4
P6	4	5	4	4	5
P7	5	4	5	5	4
P8	4	5	4	4	5
P9	5	4	5	5	4
P10	4	5	4	5	5
P11	5	4	5	5	4
P12	4	5	4	4	5
P13	5	5	5	4	4

