



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Water Resources System Analysis							
Course Code		ZTY536		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	7	Workload	175 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		Teach systems engineering practices in water resources management							
Course Content		Systems analysis concepts, terminology, phases. System approach to solving water resource problems. Nature and objective of and mathematical models for water resource systems. Review of optimization techniques. Linear programming: Classical optimization methods, separable programming. Search techniques. Computer applications, case studies. Simulation methods for design of water resource systems introduced.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Project Based Study, Individual Study, Problem Solving					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Water Resources System Analysis Mohammad Karamouz, Ferenc Szidarovszky and Banafsheh Zahraie
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Week	Weekly Detailed Course Contents	
1	Theoretical	Optimization ve decision support systems in water resources
2	Theoretical	Linear programming
3	Theoretical	Single and multi-constraint optimization
4	Theoretical	Optimization and decision under uncertainty
5	Theoretical	Stochastic processes
6	Theoretical	Markov chains
7	Theoretical	Fuzzy logic theory and its application in water resources
8	Intermediate Exam	MIDTERM EXAM
9	Theoretical	Water distribution networks and management
10	Theoretical	Optimization in irrigation systems and water allocation
11	Theoretical	Optimization with Excel
12	Theoretical	Statistical models in water resources sistem analysis
13	Theoretical	Economic analysis in water resources systems
14	Theoretical	Evaluation in system analysis
15	Final Exam	FINAL EXAM

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	8	3	154
Midterm Examination	1	7	2	9
Final Examination	1	10	2	12
Total Workload (Hours)				175
[Total Workload (Hours) / 25*] = ECTS				7
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	The concept of systems engineering in water resources management
2	Operational research in water resources managment



3	Branches of operational research in water resources management according to the model and programming techniques
4	Linear and non-linear programming in water resources management
5	Model approach in water resources system analysis

Programme Outcomes (Agricultural Structures and Irrigation Master)

1	Ability to use, evaluate and improve the knowledge gained from field of study at an expert level
2	Ability to reach necessary the knowledge
3	To able to conduct scientific studies (research) related to the field
4	Ability to consider academical and ethical values the studies
5	Ability to improve editing method and evaluate the results of researches
6	The studies, the ability to reach result and application, develop new approaches
7	A topic in the field of written, verbally and visually as the ability to express
8	Effective use of Turkish language and ability to communicate in a foreign language both written and verbal

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	4	4	4	4	4
P2	4	4	4	4	4
P3	3	4	4	4	3
P4	2	4	4	4	3
P5	3	4	3	3	3
P6	5	4	3	3	3
P7	5	4	3	3	3
P8	1	4	3	3	3

