



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Geographic Information Systems in Water Resources							
Course Code		ZTY531		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	200 (<i>Hours</i>)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		Teach use of geographic information systems in assessing and managing of water resources							
Course Content		Digital mapping in water resources, land information systems (LIS), and geographic information systems (GIS). Fundamentals of data capture and conversion: map projections, reference coordinate systems and transformations, 2D/3D digitizing systems, image rectification/registration, and error propagation. Review of data structures for GIS: vector/raster, topological, digital elevation models: matrix and triangular networks, database models, and relational algebra.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration, Discussion, Case Study, Project Based Study, Individual Study, Problem Solving					
Name of Lecturer(s)		Lec. Safiye Pinar TUNALI							

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Keith C. Clarke, Geographic Information Systems and Environmental Modeling
2	Yomralioğlu, T., 2002. Geographic Information Systems. Karadeniz Teknik Üniversitesi. Jeodezi ve Fotogrametri Mühendisliği Bölümü, Trabzon.
3	Worboys M.F., 1995. GIS : A Computing Perspective. Department of Computer Science, University of Keele, Keele, UK. Taylor and Francis Ltd.1 Gunpowder Square, London EC4A 3DE. UK

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction
2	Theoretical	Geographic Information Systems applications in water resources
3	Theoretical	Basic Cartography Information
4	Theoretical	Attribute Table Joins
5	Theoretical	Spatial Joins
6	Theoretical	Performing Spatial Queries
7	Theoretical	Nearest Neighbor Analysis
8	Theoretical	Sampling Raster Data using Points or Polygons
9	Intermediate Exam	MIDTERM EXAM
10	Theoretical	Area Calculation in Raster Data
11	Theoretical	Creating Heatmaps
12	Theoretical	Animating Time Series Data
13	Theoretical	Handling Invalid Geometries
14	Theoretical	General Review
15	Final Exam	FINAL EXAM

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	2	56
Lecture - Practice	14	2	2	56
Term Project	5	1	1	10
Laboratory	14	1	1	28
Reading	12	2	1	36
Midterm Examination	1	6	1	7



Final Examination	1	6	1	7
Total Workload (Hours)				200
[Total Workload (Hours) / 25*] = ECTS				8
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Learn the basic principles of Geographic Information System (GIS)
2	Learn the use of geographic information systems in water resources
3	To learn hydrologic modeling
4	To learn groundwater resources models
5	To learn surface water resources modeling

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

