AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Design and Analysis of Drainage Systems								
Course Code	ZTY523		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	200 *(Hours)*	Theory	2	Practice	2	Laboratory	0
Objectives of the Course	Design of drainage systems, data acquastion in drainage regions, drainage systems for humid areas, assessment of drainage systems, source of excess water in plant root zone; soil properties affecting on field draniage; draniage criteria for different flow rejimes; draniage theories steady-state draniage equations; unsteady-state draniage equations; evaluation of draniage systems; desing tecmiques of experimental plots in field draniage research								
Course Content	Introduction of drainage systems and drainage engineering, Data acquastion techniques in drainage projects, Assessments of drainage systems, Hydraulic Conductivity, Surface drainage models and design techniques, Integrated drainage modeling for a watershed								
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	Smedema, L.K. and Rycroft, D.W., 1988. “Land Drainage”, BT Batsford Ltd, London, ISBN. 0-7134-6045-8, UK
2	Güngör, Y., Erözel, Z., 1994. Drainage and Land Reclamation (Drenaj ve Arazi Islahı), Ankara Üniversitesi Ziraat Fakültesi Yayınları, Yayın No: 1341

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction of drainage systems and drainage engineering
2	Theoretical	Data acquastion techniques in drainage projects
3	Theoretical	Assessments of drainage systems
4	Theoretical	Source of excess water in plant root zone; soil properties
5	Theoretical	Hydraulic Conductivity
6	Theoretical	Drainage models and DRAINMOD-1
7	Theoretical	Drainage models and DRAINMOD-2
8	Theoretical	Integrating ArcHydro and Drainage models
9	Intermediate Exam	Mid Term Exam
10	Theoretical	Surface drainage models and design techniques
11	Theoretical	Water movement in the soil profiles
12	Theoretical	Drainage projects and MODFLOW integration-1
13	Theoretical	Drainage projects and MODFLOW integration-2
14	Theoretical	Integrated drainage modeling for a watershed
15	Theoretical	Geographic Information Systems for drainage models
16	Final Exam	Final Exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	5	2	98
Lecture - Practice	14	4	2	84
Midterm Examination	1	6	2	8

Final Examination	1	8	2	10
			Total Workload (Hours)	200
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	Identify and describe the aims of drainage systems
2	To be able to evaluate surface and subsurface drainage systems for operating and monitoring the system
3	Describe the process of drainage systems planning
4	Assessment of impact of drainage systems projects
5	To be able publish the results of these results

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