AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Melioration and Recreation Machines								
Course Code	ZTM607		Couse Level		Third Cycle (Doctorate Degree)				
ECTS Credit	7	Workload	178 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	This course has been prepared to meet a need for a fundamental knowledge on the subject of melioration and recreation methods and machines. After the giving of basic theoretical explanation, students will estimate the eartmoving production of machines and will make cost analysis and be able to use a recreation machines. Some practical excursions are carried out. Some problems and homeworks are assigned.								
Course Content	Agricultural substructure and soil and water potantial of Turkey; Land improvement, characters of melioration precaution. Technical specification of soil for leveling and cutting; Travel resistance, draft force and travel speed of melioration machines. Command systems for melioration machines. Slope control systems in agricultural land; Classification and selecting of melioration machines. Hard-pan problems, chiesel, subsoiler and ripper; Soil compaction machines. Dosers, Grading land for surface irrigation; Scraper; Laser controlled land leveller; Scraper-float, Graders, Excavators; Loaders, Land clearing and development and Stone picking machines. Terrace building technics and machines. Drainage technics and machines. Cost analysis of melioration machines. Recreation machines and practices.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Case Study, Project Based 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	Meliorasyon Makinalari (Ders Kitabı). Kadayıfçılar, S., Erdoğan, D., AÜZF Yay. No: 1046, 179 s., Ankara, 1988.
2	Meliorasyon Makinalari (Ders Kitabı). Önal,İ., E.Ü.Z.F. Yayınları No: 501, 297 s., Bornova-İzmir, 1999.

Week	Weekly Detailed Course Contents	
1	Theoretical	Agricultural substructure and soil and water potantial of Turkey; Land improvement, characters of melioration precaution Introduction
	Preparation Work	Reading and literature search
2	Theoretical	Technical specification of soil for leveling and cutting; Travel resistance, draft force and travel speed of melioration machines Ability to use the Caterpillar Handbook etc.
	Preparation Work	
3	Theoretical	Ability to analysis of technical specification of soil for grading and cutting; Understanding of travel resistance, draft force and travel speed of melioration machines
	Preparation Work	
4	Theoretical	Rippers: Selecting, application and estimating the hourly earthmoving production of rippers.
	Preparation Work	
5	Theoretical	Dozers: Selecting, application and estimating the hourly earthmoving production of dozers.
	Preparation Work	
6	Theoretical	Scrapers, tractor drawn and motor scrapers, mechanical properties
	Preparation Work	
7	Theoretical	Power consumption of Scrapers, application areas and characteristics, work efficiency, factors that affect yield
	Preparation Work	
8	Intermediate Exam	Midterm Exam
9	Theoretical	Graders: Selecting, application and estimating the hourly earthmoving production of grader.
	Preparation Work	
10	Theoretical	Excavators (Backhoes, clamshell, front shovel, cran, dragline); Loaders: Selecting, application and estimating the hourly earthmoving production of excavators

10	Preparation Work	
11	Theoretical	Trenchers, Trencher construction features, using places, characteristics and work productivity, loaders
	Preparation Work	
12	Theoretical	Grading land for surface irrigation; Scrapers; Laser controlled land leveller; Scraper-float. Selecting, application and estimating the hourly earthmoving production of scrapers
	Preparation Work	
13	Theoretical	Land clearing and development, Stone picking machines (Job surveys, equipment selection, production estimating)
	Preparation Work	
14	Theoretical	Cost analysis of melioration machines Cost analysis of different earthmoving machines
	Preparation Work	
15	Theoretical	Repetetion upon the selective problems technical excursions
	Preparation Work	
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	3	70
Assignment	14	0	3	42
Term Project	1	0	30	30
Laboratory	4	0	3	12
Midterm Examination	1	10	2	12
Final Examination	1	10	2	12
			Total Workload (Hours)	178
			[Total Workload (Hours) / 25*] = **ECTS**	7

**25 hour workload is accepted as 1 ECTS*

Learning Outcomes

1	To give an idea abouth an agricultural substructure and soil and water potantial of Turkey; Land improvement, characters of melioration precautions
2	Ability to analysis of technical specification of soil for grading and cutting; Understanding of travel resistance, draft force and travel speed of melioration machines
3	Command systems for melioration machines and applications. Selection of command systems for earthmoving machines
4	Slope control systems in agricultural land and beneficial effects, the use of laser control system in Turkey; Classification and selecting of melioration machines
5	Solving the genetic and artificial hard-pan problems, selecting and application of chiesels, subsoilers and rippers, vertical mulching, deep fertilizing, spreading of gypsiforous material and lime. Soil compaction problems and solving methods
6	Grading land for surface irrigation; Scrapers; Laser controlled land leveller; Scraper-float. Selecting, application and estimating the hourly earthmoving production of scrapers
7	Land clearing and development, Stone picking machines (Job surveys, equipment selection, production estimating)
8	Soil and wind erosion control; Terrace building and maintenance technics and machinery. (Job surveys, equipment selection, production estimating)
9	To be able to invent the cost analysis of melioration machines.
10	To be able to use of recreation machines.

Programme Outcomes *(Agricultural Machinery Doctorate)*

1	Identification, formulation and solving the problems in the field of Agricultural Machinery
2	The ability to use modern engineering tools and techniques
3	The ability to use the information, which is obtained by following the scientific and technological developments, in the academic life and practice.
4	The ability to evaluate multi-faced relationship between them by understanding interaction among agricultural technology, soil, plants and animals
5	Professionalism and ethical responsibility
6	The ability to work in disciplinary and multi-disciplinary teams
7	The ability to communicate effectively
8	The ability to do research for accessing information and to use data base and other resources
9	The ability to do analyze and interpret the experimental results and the design of experiment

10	The ability to identify and interpret knowledge of current professional issues and events
11	The ability to get aware the universal and social effects of engineering solutions and applications
12	Accordance with the requirements of science and technology, ability to use scientific knowledge creative

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

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
P1	5								4	4
P2						4	4	4	4	4
P3	4								4	
P4		4								
P5	5									
P8	4									
P10	5									
P11	5									
P12	4	4	4	4	4	4	4	4	4	4