AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Design of Instruments and Machines in Soil Working								
Course Code	ZTM532		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	206 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The objective of this course is to teach the students the importance of “soil mechanics” in tillage and to give students theory and construction of tillage machines. With this course, students first learn design parameters of moldboard ploughs and disk ploughs, second, they learn the effects of these machines in the soil and the main factors which affect the design conditions. Besides, students will learn design parameters of secondary tillage tools , harrows and cultivators. Finally, students will comprehend the conservation tillage systems along with “no-till” system.								
Course Content	“Soil Mechanics” in Tillage , Tillage Systems, Theory and construction of Moldboard Plough, Theory and construction of Disk Plough, Theory and construction of Harrow and Cultivator, Theory and construction of Rotary Tiler, Design Parameters of “No-till” Planting								
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	Agricultural Machines, Theory and Construction. 1972. H. Bernacki, J. Haman, Cz. Kanafojski. Warsaw, Poland,
2	Toprak İşleme Sistemleri ve Doğrudan Ekim Makinası Konstrüksiyonu. 2005. Önal, İ., Ege Üniversitesi, Ziraat Fakültesi Yayın No. 564, İzmir.
3	Toprak İşleme Makinaları. 2002. Keçecioğlu, G., Gülsoylu, E., Ege Üniversitesi, Ziraat Fakültesi Yayı

Week	Weekly Detailed Course Contents	
1	Theoretical	“Soil Mechanics” in Tillage
2	Theoretical	Soil Tillage Systems
3	Theoretical	Theory and construction of Moldboard Plough
4	Theoretical	Theory and construction of Moldboard Plough
5	Theoretical	Theory and construction of Disk Plough
6	Theoretical	Theory and construction of Disk Plough
7	Intermediate Exam	Midterm Exam
8	Theoretical	Theory and construction of Disk Harrows
9	Theoretical	Theory and construction of Harrows
10	Theoretical	Theory and construction of Cultivators
11	Theoretical	Construction and Design Parameters of Rotary Tillers
12	Theoretical	Theory and construction of Rotavator
13	Theoretical	Theory and construction of Rotary Tiller
14	Theoretical	Conservation Tillage Systems
15	Theoretical	“No-till” Planting systems
16	Final Exam	Final Exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	2	70
Lecture - Practice	14	2	2	56
Assignment	14	0	2	28
Midterm Examination	1	25	1	26

Final Examination	1	25	1	26
			Total Workload (Hours)	206
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To learn the importance of “Soil Mechanics” in Tillage
2	To learn desing parameters of tillage machines
3	To learn the theory and constructions of tillage machines
4	To learn energy efficient sustainable tillage methods
5	To learn “No-till” systems

Programme Outcomes *(Agricultural Machinery Master)*	
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
P1	5	5	5	5	5
P2	2		4	4	4
P3	5	2	4	5	5
P4	4	3	3	5	5
P5	2	5	4	5	5
P6	5	2	2	5	5
P7				4	5
P8	2	3	3	3	3
P9	4	4	4	4	4
P10	4	2	4	5	5
P11	5	5	5	5	5
P12	4	4	4	4	4