AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Precision Farming and Its Practises								
Course Code	ZTM539		Couse Level		Second Cycle (Master's Degree)				
ECTS Credit	7	Workload	179 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The objectives of this course are to gain fundamental understanding of precision agriculture; know and use appropriate hardware and software tools; experience in creating and using prescription maps; effectively use data in management decisions; and have a vision of precision agriculture applications in other countries.								
Course Content	Global positioning systems, Geographical positioning systems , Yield monitoring and mapping systems, the meaning of variability in agriculture, sampling methods and tools concerning heterogeneity, soil electrical conductivity, remote sensing, variable rate application technology, prescription maps and related software, auto steering systems, agro robots.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Demonstration, Case 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	Uzaktan Algılamada Temel Kavramlar, Atilla Sesören, Mart Matbaacılık S.Ltd.Şti
2	Hassas Uygulamalı Tarım Teknolojisi, Vahit Kirişçi, M.Keskin, S.M.Say,S.G.Keskin, ISBN:975-591-066-2
3	Precision Farming- factors influencing profitability. 1999. Batte,M.T., Northern Ohio Crops Day meeting, Wood County,January 21,Ohio-USA
4	Precision Farming Adoption and Use in Ohio: 2003. Batte,M.T, and Arnholt,M.W., a case studies of six leading-edge adopters, Computers and Electronics in Agriculture 38 (2003) 125-139

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to precision agriculture and fundamentals of PA
2	Theoretical	Global positioning systems (GPS, DGPS, RTK GPS)
3	Theoretical	Geographical information systems
4	Theoretical	Yield monitoring and mapping
5	Theoretical	Spatial variability, sampling methods and tools (soil, crop etc.)
6	Theoretical	Soil electrical conductivity
7	Intermediate Exam	Midterm exam
8	Theoretical	Remote sensing (electromagnetic spectrum, spectral reflectance
9	Theoretical	Variable rate application technology
10	Theoretical	Variable rate application maps and software
11	Theoretical	GPS guided application (Auto steering and etc.)
12	Theoretical	Economical and environmental aspects of PA
13	Theoretical	Field robots
14	Theoretical	Indoor robots
15	Theoretical	The future
16	Final Exam	Final exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	3	84
Assignment	14	0	2	28
Term Project	1	0	25	25

Midterm Examination	1	20	1	21
Final Examination	1	20	1	21
			Total Workload (Hours)	179
			[Total Workload (Hours) / 25*] = **ECTS**	7
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To develop an understanding of using global positioning systems and their use in precision agriculture
2	To develop an understanding of measuring and mapping soil/crop properties and getting experience on using hardware and software
3	To develop an understanding of geographical information systems
4	To gain experience on creating “Prescription Map” for variable rate application
5	To identify agro-robots and their potential
6	To have information on precision agriculture technologies and their application in the world and their future

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	L6
P1	5	5	5	5	5	5
P2	5	5	5	5	5	5
P3	5	5	5	5	5	5
P4	5	5	5	5	5	5
P5	5	5	5	5	5	5
P6	5	5	5	5	5	5
P7	4	5	3	3	2	4
P8	5	5	5	5	5	5
P9	5	5	5	5	5	5
P10	5	5	5	5	5	5
P11	5	5	5	5	5	5
P12	4	5	5	5	5	5