



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Precision Farming and Its Practises							
Course Code		ZTM539		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	7	Workload	179 ( <i>Hours</i> )	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 (Field Crops Master)

1	To be able to improve and deepen the level of expertise in field crops on the basis of the departments licenses qualifications.
2	To be able to recognize the subjects related to field crops, to be able to solve these and make interpretation.
3	To be able to have the skills of acting independently, to have power to decide and to create.
4	To be able to work in teams between departments
5	To be able to give briefing about latest information of Field Crops in written, oral and visual ways.
6	To be able to take responsibility for developing the new approaches and to formulate a solution facing unforeseen complex situations of applications,
7	To be able to defend the original opinions in both Turkish and in foreign languages by using these languages and communicating effectively.
8	To be able to contribute to science by producing knowledge for the aim of improving quality, efficiency and sustainability
9	To be able to apply breeding methods in order to improve new varieties for Field Crops.
10	To be able to maintain and select the appropriate statistical methods within the framework of the study, evaluation of scientific ethics; to convert the results into a report/dissertation and to offer them by producing scientific publications.

### 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	4	3	4	3	4	4
P2	5	3	4	3	4	4
P3	5	3	4	3	4	4
P4	4	3	4	3	4	4
P5	4	3	4	3	4	4
P6	4	3	4	3	4	4
P7	4	3	4	3	4	4
P8	4	3	4	3	4	4
P9	4	3	4	3	4	4
P10	4	3	4	3	4	4

