



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Micronutrients in Agriculture							
Course Code		ZTO614		Couse Level		Third Cycle (Doctorate Degree)			
ECTS Credit	7	Workload	172 (<i>Hours</i>)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		The objective of this course is to give basic informations on iron, manganase, zinc, copper, boron and molybdenum forms in soil and plant, availability of them in soil, interpretation of soil and plant tests, fertilizer applications.							
Course Content		Theoretical and practical course will be given on iron, manganase, zinc, copper, boron and molybdenum forms in soil and plant, availability of them in soil, interpretation of soil and plant tests, fertilizer applications.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Experiment, Discussion, 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	Micronutrient Deficiencies in Global Crop Production. 2008. B. J. Alloway. Springer
2	Plant Micronutrients. 2006. C. P. Sharma. Science Publishers, Enfield, USA.
3	Micronutrients. 1983. J. C. Katyal and N. S. Randhawa, FAO.
4	Nutritional Disorders of Plants. 1992. W. Bergman. Gustav Fischer, New York.

Week	Weekly Detailed Course Contents	
1	Theoretical	Iron in plant and soil
	Preparation Work	Literature research
2	Theoretical	Soil and plant test for iron and fertilization
	Preparation Work	Determination of homework
3	Theoretical	Effect of iron applications on yield and quality
	Preparation Work	Presentation and discussion
4	Theoretical	Manganese in plant and soil
	Preparation Work	Presentation and discussion
5	Theoretical	Soil and plant test for manganese and fertilization
	Preparation Work	Presentation and discussion
6	Theoretical	Effect of manganese applications on yield and quality
	Preparation Work	Presentation and discussion
7	Theoretical	Zinc in plant and soil
	Preparation Work	Presentation and discussion
8	Intermediate Exam	Midterm Exam
9	Theoretical	Soil and plant test for zinc and fertilization
	Preparation Work	Presentation and discussion
10	Theoretical	Effect of zinc applications on yield and quality
	Preparation Work	Presentation and discussion
11	Theoretical	Copper in plant and soil
	Preparation Work	Presentation and discussion
12	Theoretical	Soil and plant test for copper and fertilization
	Preparation Work	Presentation and discussion
13	Theoretical	Boron in plant and soil
	Preparation Work	Presentation and discussion



14	Theoretical	Soil and plant test for boron and fertilization
	Preparation Work	Presentation and discussion
15	Theoretical	Boron toxicity
	Preparation Work	Seasonal project
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	2	28
Lecture - Practice	14	0	2	28
Seminar	1	0	20	20
Term Project	1	0	16	16
Midterm Examination	1	0	30	30
Final Examination	1	0	50	50
Total Workload (Hours)				172
[Total Workload (Hours) / 25*] = ECTS				7

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	Micronutrient cycling in soil
2	Functions of micronutrient in plant
3	Evaluation of micronutrient fertilizer applications
4	Determination of micronutrients in soil
5	Determination of micronutrients in plant

Programme Outcomes (Soil Doctorate)

1	To be able to apply the theoretical information achieved during the graduate study
2	To be able to collect data by scientific means, to evaluate and interpret
3	To be able to update himself continuously
4	To be able to assess the convenient analytical methods during the process of the scientific study
5	To be able to put forth solutions to soil use and plant development

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	3	5	3	3
P2	5	4	5	1	1
P3	5	4	5	1	1
P4	5	4	5	1	1
P5	4	4	5	2	2

