



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Plant Nutrition and Analysis							
Course Code		LBT202		Couse Level		Short Cycle (Associate's Degree)			
ECTS Credit	4	Workload	104 ( <i>Hours</i> )	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		The aim of this course is to teach students the basic principles of plant nutrition, detailed information about each of the nutrients, to use the soil and plant analysis, to take examples, to prepare for analysis, to learn the basic principles of the analysis, to determine the fertility of the soil, its functions in the plant, the interaction between them, the application techniques and to determine the fertility of the soil. to provide the ability to interpret the analysis results.							
Course Content		The form of taking each macro and micronutrients essential for the plant; metabolism; explanation of symptoms related to deficiency and excess; Giving solutions to nutritional disorders. Comparison of the methods used in determining the fertility of the soils, the points to be considered in the analysis, the sources of error and minimization of errors, the benefits of plant analysis, taking the plant samples and preparing them for analysis, dry matter, ash, total N, wet burning in plant samples, P, K, Ca Mg, Fe, Zn; Mn, Cu and B analysis, evaluation and interpretation by comparison with leaf boundary values. Taking soil samples, preparing them for analysis and making related productivity analysis							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration					
Name of Lecturer(s)									

### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

### Recommended or Required Reading

1	Kacar, B., Katkat, V. 2010 Bitki Besleme. Nobel Yayınları. Ankara.
2	Kacar, B., İnal, A., 2009.Bitki Analizleri. Nobel Yayınları,Ankara.
3	Kacar, B., 2009.Toprak Analizleri.' 2. Baskı Nobel Yayınları, Ankara.

Week	Weekly Detailed Course Contents	
1	Theoretical	Essential plant nutrients Basic principles on plant nutrient uptakes.
2	Theoretical	Nitrogen uptake on plant nutrition Its metabolism Its interactions with the other plant nutrients , deficiency, toxicity and their eliminations
3	Theoretical	Phosphorus uptake on plant nutrition Its metabolism Its interactions with the other plant nutrients , deficiency, toxicity and their eliminations
4	Theoretical	Potash uptake on plant nutrition Its metabolism Its interactions with the other plant nutrients , deficiency, toxicity and their eliminations
5	Theoretical	Sulphur uptake on plant nutrition Its metabolism Its interactions with the other plant nutrients , deficiency, toxicity and their eliminations
6	Theoretical	Calcium uptake on plant nutrition Its metabolism Its interactions with the other plant nutrients , deficiency, toxicity and their eliminations
7	Theoretical	Magnesium uptake on plant nutrition Its metabolism Its interactions with the other plant nutrients , deficiency, toxicity and their eliminations
8	Intermediate Exam	Mid-term exam
9	Theoretical	Iron uptake on plant nutrition Its metabolism Its interactions with the other plant nutrients , deficiency, toxicity and their eliminations
10	Theoretical	Zinc uptake on plant nutrition Its metabolism Its interactions with the other plant nutrients , deficiency, toxicity and their eliminations.
11	Theoretical	Manganese uptake on plant nutrition Its metabolism Its interactions with the other plant nutrients , deficiency, toxicity and their eliminations .
12	Theoretical	Boron uptake on plant nutrition Its metabolism Its interactions with the other plant nutrients , deficiency, toxicity and their eliminations.
13	Theoretical	Copper and Molibdenium uptake on plant nutrition Their metabolisms Their interactions with the other plant nutrients , deficiency, toxicity and their eliminations
14	Theoretical	Sodium and Chlore uptake on plant nutrition Its metabolism Its interactions with the other plant nutrients , deficiency, toxicity and their eliminations .



15	Final Exam	Sodium and Chlore uptake on plant nutrition Its metabolism Its interactions with the other plant nutrients , deficiency, toxicity and their eliminations .
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
Individual Work	14	2	0	28
Midterm Examination	1	10	0	10
Final Examination	1	10	0	10
Total Workload (Hours)				104
[Total Workload (Hours) / 25*] = <b>ECTS</b>				4
*25 hour workload is accepted as 1 ECTS				

**Learning Outcomes**

1	To have knowledge about plant nutrition
2	Being able to learn optimum comparing the methods which are commonly used to determination of soil fertility status.
3	Being able to learn basic principles of soil and plant sampling
4	Being able to learn preparation of samples for analysis
5	Being able to have an ability of selection of best methods for soil and plant analysis and interpretation of results
6	Being able to have skill about properties and uses of laboratory chemicals and equipments crops
7	Being able to have ability on general principles of laboratory works
8	Being able to have an ability of identification and minimizing of errors in analyses
9	Being able to have skill for the interpretation of analysis results in view of soil fertility

**Programme Outcomes (Laboratory Technology)**

1	To be able to comprehend social, cultural and social responsibilities, to be able to follow national and international contemporary problems and developments
2	Atatürk is bound to Atatürk nationalism in the direction of principles and reforms; Adopting the national, moral, spiritual and cultural values of the Turkish people, open to universal and contemporary developments, the Turkish language is a rich, rooted and productive language; Have a love of language and a consciousness; To have the ability to use as much of a foreign language as he would need to read, taste and habit and professionally.
3	To be able to recognize the basic hardware units and operating systems of a computer, having information about internet usage and preparing documents, spreadsheets and presentations on computer by using office programs.
4	Acquires theoretical and practical knowledge at the basic level in mathematics, science and vocational field.
5	With the knowledge of laboratory technology in the field, he knows and analyzes problems, brings interpretation of data and suggests solutions.
6	In laboratories, according to the prepared business plan and program, necessary work can be done to obtain the desired quality products.
7	To have professional and ethical responsibility in business life.
8	Development and change are open, follow scientific social and cultural innovations, and develop themselves constantly.

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

	L5	L6
P1	5	5
P2	5	5
P3	5	5
P4	5	5
P5	5	5
P6	5	5
P7	5	5
P8	5	5

