

FERTILIZERS AND FERTILIZATION

1	Course Title:	FERTILIZERS AND FERTILIZATION	
2	Course Code:	TPR3902-Z	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	3	
6	Semester:	6	
7	ECTS Credits Allocated:	5.00	
8	Theoretical (hour/week):	2.00	
9	Practice (hour/week):	2.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. A.VAHAP KATKAT	
15	Course Lecturers:	Doç. Dr. Murat Ali TURAN	
16	Contact information of the Course Coordinator:	e-posta: vahap@uludag.edu.tr tel: 02242941532 Adres: Uludağ Üniversitesi Ziraat Fakültesi Toprak Bilimi ve Bitki Besleme Bölümü Görükle Yerleşkesi, Nilüfer/BURSA	
17	Website:		
18	Objective of the Course:	Importance, historical development and classification of fertilizers and characteristics of organic and chemical fertilizers and their application methods are explaining. Course is aimed to develop an understanding of students on the determining fertilizer requirement how and in what way.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Knows importance of fertilization on agricultural activities.
		2	Able to compare types and properties of chemical fertilizers
		3	Able to compare fertilizer production and consumption of chemical fertilizers of Turkey with world.
		4	Able to explain the reactions of chemical fertilizers in soil.
		5	Able to explain application methods of organic and chemical fertilizers
		6	Able to determine fertilizer requirements of soils.
		7	Able to compare application methods of field crop fertilizers
		8	Able to compare application methods of horticulture fertilizers
		9	Able to create a fertilization program based on results of soil analysis
		10	
21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	

1	Importance of fertilization on agricultural activities, Classification of fertilizers.	Determining the amount of plant nutrient elements in the soil
2	Properties of organic fertilizers and effects on soil and environment. Fermentation of barnyard manure.	Determine the amount of uptake plant nutrients from the soil.
3	Application of farm yard manure and other organic structure fertilizers.	Determining the amount of plant nutrient elements to be applied in the field.
4	Nitrogen and phosphorus containing chemical fertilizer production, physical and chemical properties.	Determination of the amount of plant nutrients applied on horticulture
5	Potassium, Calcium and Magnesium containing fertilizers production, physical and chemical properties.	Determination of the amount of fertilizer applied to pot experiments.
6	Sulfur-containing chemical fertilizers and their properties. Micro-element fertilizers and application methods	Conducted of greenhouse pot experiment
7	General evaluation of the course and Midterm exam.	Fertilization of pot experiment
8	Reactions of Nitrogen and Phosphorus and Potassium fertilizers in the soil.	Sampling of chemical fertilizers and preparation for analysis
9	Reactions of Calcium, Magnesium, Sulfur and Micro-element fertilizers in soil.	Determination of particle size of chemical fertilizers
10	Application methods of chemical fertilizers in soil	Determination of acidity on chemical fertilizers.
11	Application methods of chemical fertilizers on plant and seed	Determination of nitrogen on chemical fertilizers.
12	Fertilizer application methods of field crops.	Determination of phosphorus in insoluble neutral ammonium on chemical fertilizers.
13	Fertilizer application methods of horticulture plants.	Determination of Potassium on soluble chemical fertilizers.
14	Overall evaluation of the course	Practicals Exam
22	Textbooks, References and/or Other Materials:	<p>Kacar B. ve Katkat A.V. 2011. Gübreler ve Gübreleme Tekniği, 4. Basım, ISBN: 978-605-5426-20-0, Nobel yayıncılık Kızılay, Ankara</p> <p>Follett, R.H., Murphy , L.S. and Donahue, R.L. 1981. Fertilizers and Soil Amendments. p. 1-557. Prenticc –Hall, Inc. Englewood Cliffs, New Jersey.</p> <p>Tisdale, S. L., Nelson, W. L. and Beaton, J. D. 1985. Soil Fertility and Fertilizers. Macmillan Publishing Comp., USA.</p>
23	Assesment	
TERM LEARNING ACTIVITIES		NUMBE R
Midterm Exam		1
Quiz		1
Home work-project		0
Final Exam		1
Total		3
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		
24	ECTS / WORK LOAD TABLE	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	14	2.00	28.00
Homeworks	0	0.00	0.00
Projects	1	23.00	23.00
Field Studies	0	0.00	0.00
Midterm exams	1	10.00	10.00
Others	1	18.00	18.00
Final Exams	1	15.00	15.00
Total Work Load			160.00
Total work load/ 30 hr			5.00
ECTS Credit of the Course			5.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	0	5	5	0	0	2	2	4	3	3	3	0	0	0	0
ÖK2	5	0	2	0	0	0	0	0	3	1	3	0	0	0	0	0
ÖK3	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0
ÖK4	5	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0
ÖK5	0	0	5	0	0	0	0	0	0	2	0	2	0	0	0	0
ÖK6	5	2	3	0	0	0	0	0	0	2	2	0	0	0	0	0
ÖK7	4	0	3	0	0	0	0	0	3	2	0	0	0	0	0	0
ÖK8	4	0	3	0	0	0	0	0	3	2	0	0	0	0	0	0
ÖK9	5	3	3	0	0	0	2	0	3	3	2	2	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			