



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		New Approaches in Soil Physics							
Course Code		ZTO609		Couese Level		Third Cycle (Doctorate Degree)			
ECTS Credit	8	Workload	199 (<i>Hours</i>)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		Giving information about new technologies and models about determination of soil physical properties.							
Course Content		The solid, liquid and gas phases and their mutual relations in the soils, the soil properties of the solid phase, the physical conditions of the solid system and the soil properties of the liquid phase, soil aeration, new technologies and models to determine the physical properties of soil.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Experiment, Discussion, 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	Principles of Soil Physics. R. LAL and M.J. SHUKLA. Marcel Dekker, Inc., New York. 2004. Hardbound, 716 pp.. ISBN 0-8247-5324-0.
2	Advances in measurement of soil physical properties: bringing theory in practice :Proceedins of a symposium sponsored by divisions 1 of the soil Science Society of America in San Antonio, Texas 21-26 October 1990. G. Clarke Topp, Ed. W. Daniel.
3	Application of soil physics/ Daniel Hillel San Diego Academic Press, 1980

Week	Weekly Detailed Course Contents	
1	Theoretical	The physical properties of the soil composition, the balance of the force fields.
	Preparation Work	Literature review
2	Theoretical	The theory of potentials, hydrostatic in soils and other balances in soils
3	Theoretical	Soil-water relationships, saturated hydraulic conductivity
	Preparation Work	Determination of homework theme
4	Theoretical	Unsaturated hydraulic conductivity
	Preparation Work	Presentation and discussion
5	Theoretical	Tensiometer, soil moisture characteristics
	Preparation Work	Presentation and discussion
6	Theoretical	Moisture characteristics, pF-curve, hysteresis effect
	Preparation Work	Sampling
7	Theoretical	Moisture characteristics, pF-curve, hysteresis effect
	Preparation Work	Sampling
8	Intermediate Exam	Midterm exam
9	Theoretical	Soil-air relationships
10	Theoretical	New techniques and models to determine the soil physical properties
11	Theoretical	New techniques and models to determine the soil physical properties
	Preparation Work	Sampling
12	Theoretical	Near-infrared reflectance-soil moisture relationships
	Preparation Work	Presentation and discussion
13	Theoretical	Near-infrared reflectance-soil moisture relationships
	Preparation Work	Presentation and discussion
14	Theoretical	Statistical evaluations of the soil moisture and near-infrared reflectance relationships
	Preparation Work	Determination of homework theme
15	Theoretical	Statistical evaluations of the soil moisture and near-infrared reflectance relationships
	Preparation Work	Semester project



16	Final Exam	Final exam
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Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	2	28
Lecture - Practice	14	0	2	28
Assignment	2	0	14	28
Laboratory	5	0	6	30
Midterm Examination	1	0	35	35
Final Examination	1	0	50	50
Total Workload (Hours)				199
[Total Workload (Hours) / 25*] = ECTS				8
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes	
1	The ability to evaluate the relationships between the soil solid, liquid and gas phases.
2	The ability to interpret the soil water movement and their related models.
3	The ability to follow new technologies according to measure the soil water content and the potential.
4	The ability of evaluating the advantages and disadvantages of new technologies.
5	To be ability to follow new researches of Soil Physic

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

