AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Advanced Soil Mechanics II								
Course Code	MCE542		Couse Level		Second Cycle (Master's Degree)				
ECTS Credit	8	Workload	202 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The main objective of the course is to provide an in depth knowledge about the shear strength of cohesionless and cohesive soils under drained and undrained loading conditions. The level of the material requires an audience with fundamental knowledge in undergraduate soil mechanics classes, and builds new information referring to that stage. Special emphasis is given on deformation characteristics of different types of soils under various loading conditions and critical state soil mechanics concepts. Yielding criteria other than Mohr-Coulomb criterion are also introduced								
Course Content	1. Concept of failure, 2. Failure theories. 3. Mohr-Coulomb failure criterion. 4. Shear resistance between soil particles. 5. Shear testing methods. 6. Pore pressure parameters. 7. Shear strength of cohesionless soils. 8. Shear strength of cohesive soils. 9. Types of stability analysis.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Individual Study, Problem Solving								
Name of Lecturer(s)	Prof. Selman SAĞLAM								

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	2	50
Final Examination	1	30
Assignment	5	20

Recommended or Required Reading	
1	Holtz R. D. And Kovacs W. D. (1981), An introduction to Geotechnical Engineering, Prentice Hall, New Jersey, USA.
2	Lambe W., and Whitman R. V. (1979) Soil Mechanics. John Wiley & Sons
3	Parry, R. H. G. (1995). Mohr Circles, Stress Paths and Geotechnics. E&FN SPON
4	Atkinson (1993). An Introduction to Mechanics of Soils and Foundations. McGRAW HILL

Week	Weekly Detailed Course Contents	
1	Theoretical	Failure concept and failure in soils
2	Theoretical	Failure theories
3	Theoretical	Mohr-Coulomb Failure criteria
4	Theoretical	Shear resistance in soils
5	Theoretical	Shear resistance in soils
6	Theoretical	Shear strength tests
7	Theoretical	Shear strength tests
8	Theoretical	Pore pressure parameters
9	Theoretical	Shear strength in cohesionless soils
10	Theoretical	Shear strength in cohesionless soils
11	Theoretical	Shear strength in cohesive soils
12	Theoretical	Shear strength in cohesive soils
13	Theoretical	Types of stability analysis
14	Theoretical	Types of stability analysis

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	5	3	112

Assignment	5	0	15	75
Midterm Examination	2	3	2	10
Final Examination	1	3	2	5
			Total Workload (Hours)	202
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	The students will be able to have a detailed idea of how soils behave under various loading types
2	The students will be able to decide on the loading history of soil and the associated stress/strain paths based on supplied data
3	The student will comprehend the steps required to assess shear strength parameters and pore pressure parameters in triaxial testing, under Mohr-Coulomb failure criterion; and calculate the shear strength of soils using laboratory test results
4	The students will have introductory knowledge in ciritical state soil mechanics
5	The students will also have knowledge about failure criteria other than Mohr-Coulomb criterion

Programme Outcomes *(Civil Engineering Master)*	
1	To be able to develop expertise knowledge in a Civil engineering area founded on their graduate competence.
2	To be able to use the theoretical and practical expertise knowledge gained in their specialty area.
3	To be able to use the information, problem solving and / or practical skills from the field, in interdisciplinary studies.
4	To be able to create new knowledge by integrating their knowledge area with the knowledge coming from different disciplines; and solve problems that need expertise by using scientific research methods
5	To be able to solve the problems related to his/her area by using appropriate research methods
6	To be able to devise a problem in their specialty area, develop a solution methodology, solve the problem, and interpret the results and take action if necessary
7	To be able to criticize the knowledge in their specialty area, guide the learning process, and independently direct high level studies
8	To be able to systematically communicate the recent developments in their specialty area and their own studies to groups both inside and outside their specialty area, orally, in writing and visually
9	To be able to use computer software at a level required by their specialty area with drawing upon information and communication technology at a high level
10	To be able to introduce scientific, technological, social and cultural advancements in the field of civil engineering and to contribute to the process of being an information of the society and to sustain it.
11	To be conscious of professional and ethical responsibility and contribute to the establishment of this consciousness.
12	To be able to protect social, scientific, and ethical values during collection, interpretation, and dissemination stages of the data associated with their specialty area; instruct and supervise these values
13	To be able to use at least one foreign language in a level to follow current developments related to the field.

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	4	5
P2	5	5	4	5	4
P3	5	4	5	4	5
P4	4	5	4	5	4
P5	4	4	5	4	5
P6	5	5	4	5	4
P7	4	4	5	4	5
P8	5	5	4	5	4
P9	4	4	5	4	5
P10	5	5	4	5	4
P11	4	5	5	4	5
P12	5	4	5	5	5
P13	4	4	4	4	4