AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Geotechnical Earthquake Engineering								
Course Code	MCE540		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	202 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	to provide understanding the basic aspects of geotechnical earthquake engineering								
Course Content	1. The basic earthquake principles and common earthquake effects, 2. Site investigation for Geotechnical Earthquake Engineering, 3. Various laboratory and field test procedures to measure the soil properties subjected to dynamic loading, 4. Site response analysis 5. Liquefaction potential and understand the principles of mitigation measures, 6. Behaviour of soil slopes under seismic loading, 7. Analyses of the retaining structures under seismic loading,								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Individual Study, Problem Solving								
Name of Lecturer(s)									

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

Recommended or Required Reading	
1	Kramer S. L. (1996) Geotechnical Erathquake Engineering, Prentice Hall, New Jersey, USA.
2	Türkiye Bina Deprem Yönetmeliği 2019

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to Geotechnical Engineering
2	Theoretical	Site Investigation for Geotechnical Earthquake Engineering
3	Theoretical	Dynamic Soil Properties
4	Theoretical	Dynamic Soil Properties
5	Theoretical	Site Response Analysis
6	Theoretical	Liquefaction
7	Theoretical	Liquefaction
8	Theoretical	Compressibility of Soils Under Dynamic Loads
9	Theoretical	Earthquake-Induced Settlement
10	Theoretical	Bearing Capacity Analysis for Earthquakes
11	Theoretical	Slope Stability Analyses for Earthquakes
12	Theoretical	Retaining Wall Analyses for Earthquakes
13	Theoretical	Other Geotechnical Earthquake Engineering Analyses
14	Theoretical	Foundation Alternatives to Mitigate Earthquake Effects

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	Students will be able to evaluate earthquake effects on soils
2	The students will be able to have knowledge of methods used to determine dynamic soil parameters, and to know how to use those in the design
3	The students will be able to evaluate liquefaction potential of the soils
4	The students will be able to calculate earthquake induced settlements
5	The students will be able to conduct necessary dynamic analyses during design

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