

DEPARTMENT OF CIVIL ENGINEERING
COURSE SYLLABUS

Course Details			
Code	BAU503		Academic Year
Title	Deep Foundations		Semester
	T	A	L
	3	-	-
			ECTS
			7
Language	English		
Level	Undergraduate	Graduate	Postgraduate
Department / Program	Civil Engineering		
Forms of Teaching and Learning	Formal		
Course Type	Compulsory	Elective	
Objectives	<p>Overview of pile types. Design issues. Bearing capacity under vertical load. Settlement. Soil-pile interaction. Pile testing. Pile behavior under horizontal load. Piled rafts. Energy piles.</p> <ol style="list-style-type: none"> 1. Soil Classification and Phase Relationships 2. Elastic-Plastic Equilibrium, Active-Passive Soil Pressures 3. Rankine, Coulomb and some other Soil Theories 4. Sheet Pile Walls, Theory and Design 5. Deep Foundations, Theory and Design 6. Capacity of a Single Pile 7. Pile Capacity using On-site Pile Test Results 8. Introduction to Modelling of Piles in Finite Element Programs 9. Capacity of Pile Groups, Pile Group Efficiency 10. Behavior of Piles under Horizontal Loads 11. Cassion Foundations 12. Anchored Pile Walls 		
Content			
Prerequisites	-		
Coordinator			
Lecturer(s)	Assoc. Prof. Murat HAMDARI		
Assistant(s)	Ozan Subaşı, Recep Özkan		
Work Placement			
Recommended or Required Reading			
Books / Lecture Notes	<p>[1] Hamderi, M., (2019). New Approach to Pile Load Estimation, Int. J. of Geomechanics, American Society of Civil Engineers, Vol.19(4), pp. 1-14, USA</p> <p>[2] Hamderi, M., (2019). Footing Settlement Formula based on Multi-Variable Regression Analyses, Geomechanics and Engineering, Vol.17(1), pp. 11-18, S. Korea.</p>		

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- [3] Hamderi M. (2018). "A Comprehensive Group Pile Settlement Formula based on 3D Finite Element Analyses." Soils and Foundations, Japanese Geotechnical Society, 58(1), pp.1-15
- [4] Braja M. Das, 2014. Principles of Geotechnical Engineering, 5th ed., PWS Publishing Company, Boston.
- [5] Budhu, M., 2010. Soil Mechanics and Foundations. 3rd ed. John Wiley & Sons Inc.
- [6] Bowles, J. E., (1997). Foundation Analysis and Design., McGraw-Hill Inc., 5th edition.
- [7] Reese, L.C., Van Impe W.F., Single Piles and Pile Groups under Lateral Loading 2nd Ed.

Other Sources

Additional Course Material

Documents	-
Assignments	-
Exams	-

Course Composition

Mathematics und Basic Sciences	40	%
Engineering	30	%
Engineering Design		%
Social Sciences		%
Educational Sciences		%
Natural Sciences	30	%
Health Sciences		%
Expert Knowledge		%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	30
Quiz		
Assignments	1	30
Attendance		
Recitations		
Projects		
Final Exam	1	40
Total		100

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	14	3	42
Self-Study	14	4	56

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Assignments	1	8	8
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations			
Laboratory			
Projects			
Final Exam	1	2	2
		Total Work Load	110
		ECTS Points (Total Work Load / Hour)	7

Learning Outcomes

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Weekly Content

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DEPARTMENT OF CIVIL ENGINEERING
COURSE SYLLABUS

12	
13	
14	
15	

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
1							
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12							

Contribution Level

1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

Compiled by:

Assoc. Prof. Murat Hamderi

Date of Compilation:

01.08.2021