

DEPARTMENT OF CIVIL ENGINEERING
COURSE SYLLABUS

Course Details					
Code				Academic Year	Semester
BAU525				1	1
Title	T	A	L	ECTS	
Earthquake Engineering	3	-	-	6	
Language	Turkish				
Level	Undergraduate		Graduate	✓	Postgraduate
Department / Program	Civil Engineering				
Forms of Teaching and Learning	Formal				
Course Type	Compulsory		Elective	✓	
Objectives	This course covers the basic theory of structural dynamics, the design and evaluation of structural models under seismic excitation according to the 2018 Turkish Building Earthquake Code. After completing the course, the students will gain knowledge about undamped and damped Single-Degree-of-Freedom System (SDOF), Response of one- Degree-of-Freedom-System to harmonic Loading, Response spectra, free vibration of shear building and dynamic analysis of Plane and three- dimensional Frames. In addition, they will learn the basic concepts for the 2018 Turkish Building Earthquake Code.				
Content	<ol style="list-style-type: none"> 1. Free vibration of undamped Single-Degree-of-Freedom System 2. Free vibration of damped Single-Degree-of-Freedom System 3. Response of one- Degree-of-Freedom-System to harmonic Loading 4. Response Spectra 5. Free Vibration of Shear Building 6. Dynamic Analysis of Plane Frames 7. Dynamic Analysis of three- dimensional Frames 8. The Basic Concepts for the 2018 Turkish Building Earthquake Code. 				
Prerequisites	-				
Coordinator					
Lecturer(s)	Assistant. Prof. Dr. Serdar ULUSOY				
Assistant(s)					
Work Placement					
Recommended or Required Reading					
Books / Lecture Notes	<p>[1] Chopra, A. K. (2017). Dynamics of structures. theory and applications to. Earthquake Engineering.</p> <p>[2] Paz, M. (2012). Structural dynamics: theory and computation. Springer Science & Business Media.</p>				
Other Sources	[3] 2018 Turkish Building Earthquake Code.				
Additional Course Material					
Documents	-				
Assignments	-				
Exams	-				

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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	40	
Quiz			
Assignments	5	10	
Attendance			
Recitations			
Projects			
Final Exam	1	50	
		Total	100
ECTS Points and Work Load			
Activity	Count	Duration	Work Load (Hours)
Lectures	14	3	42
Self-Study	14	3	42
Assignments	5	6	30
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations			
Laboratory			
Projects			
Final Exam	1	2	2
		Total Work Load	118
		ECTS Points (Total Work Load / Hour)	6
Learning Outcomes			
1			
2			

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Weekly Content

1	Free vibration of undamped Single-Degree-of-Freedom System
2	Free vibration of damped Single-Degree-of-Freedom System
3	Response of one- Degree-of-Freedom-System to harmonic Loading
4	Response Spectra
5	Free Vibration of Shear Building
6	Dynamic Analysis of Plane Frames
7	Dynamic Analysis of three- dimensional Frames
8	The Basic Concepts for the 2018 Turkish Building Earthquake Code.
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Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
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Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High						
Compiled by:							
Date of Compilation:							