



Course Code & Name	CE 488 INTRODUCTION TO EARTHQUAKE ENGINEERING								
Course Schedule	Friday 11.00-13.50								
Room	B0425								
Instructor's Name Phone E-mail Office Hours	Asst. Prof. Dr. Özden Saygılı 0216-578 00 00 / 1537 ozden.saygili@yeditepe.edu.tr Monday 11:00-13:00 Thursday 10:00-12:00								
Assistant's Name Phone E-mail	Emin Gazi Kaşıkçı 0216-578 00 00 / 3227								
Midterm Dates	Midterm : to be announced								
Additional Information	<table><tr><td>MIDTERM</td><td>10%</td></tr><tr><td>TERM PROJECT</td><td>15%</td></tr><tr><td>ASSIGNMENT</td><td>5% (multi-disciplinary)</td></tr><tr><td>FINAL</td><td>70%</td></tr></table> <p><u>To successfully complete the course,</u> <u>it is imperative to obtain a minimum score of 50</u> <u>in the final examination.</u></p>	MIDTERM	10%	TERM PROJECT	15%	ASSIGNMENT	5% (multi-disciplinary)	FINAL	70%
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COURSE INFORMATION				
Course Code	CE 488	Course Title	INTRODUCTION TO EARTHQUAKE ENGINEERING	
<i>Semester</i>	<i>Credits</i>	<i>ECTS</i>	<i>C +P + L Hour</i>	<i>Prerequisites</i>
8	3	7	3+0+0	CE 381: Structural Analysis

Language of Instruction	Course Level	Course Type
English	Bachelor of Science (First Cycle Courses)	Core
Course Coordinator	Asst. Prof. Dr. Özden Saygılı	
Instructors	Asst. Prof. Dr. Özden Saygılı	
Assistants	Emin Gazi Kaşıkçı, Graduate Scholar	
Goals	The aim of this course is to teach the basic concepts and principles of earthquake engineering for design and seismic analysis of structures.	
Content	Definition of basic concepts of seismology and seismicity. Establishing response spectrum. Definition of basic concepts for the design and evaluation of seismic performance of buildings according to the 2018 Turkish Building Seismic Code. Solving the equation of motion for the damped and undamped single degree of freedom systems under free and forced vibration.	
Contribution of the Course to the Professional Education	In this course, the student learns the basic concepts, principles and applications of earthquake engineering.	

Course Learning Outcomes	Detailed Program Outcomes	Teaching Methods	Assessment Methods
Ability to define the basic concepts of seismology and seismicity.	1a	1, 2	A
Ability to define and establish response spectrum.	4b, 6c	1, 2, 3	A, C
Ability to define the basic concepts for the design and evaluation of seismic performance of buildings according to the 2018 Turkish Building Seismic Code.	6b, 9b	1, 2	A, B
Ability to solve the equation of motion for damped and undamped single degree of freedom systems under free and forced vibration.	1a, 1b, 2a, 6c	1, 2, 3	A



Teaching Methods:	1: Lecture, 2: Problem solving by instructor, 3: Problem solving assignment
Assessment Methods:	A: Written exam, B: Homework, C: Project

COURSE CONTENT		
Week	Topics	Study Materials
1	Basic concepts of seismology and seismicity	Lecture Notes and Textbook
2	Elements of seismology and seismicity	Lecture Notes and Textbook
3	Strong ground motion	Lecture Notes and Textbook
4	Dynamic characteristics of buildings	Lecture Notes and Textbook
5	Response spectrum	Lecture Notes and Textbook
6	Dynamic actions on buildings	Lecture Notes and Textbook
7	Definition of basic concepts for the design and evaluation of seismic performance of buildings according to the 2018 Turkish Building Seismic Code. (TERM PROJECT SUBMISSION)	Lecture Notes and Textbook
8	Definition of basic concepts for the design and evaluation of seismic performance of buildings according to the 2018 Turkish Building Seismic Code. (MIDTERM)	Lecture Notes and Textbook
9	Solution of equation of motion for undamped single degree of freedom systems under free vibration	Lecture Notes and Textbook
10	Solution of equation of motion for undamped single degree of freedom systems under free vibration	Lecture Notes and Textbook
11	Solution of equation of motion for damped single degree of freedom systems under free vibration	Lecture Notes and Textbook
12	Solution of equation of motion for damped single degree of freedom systems under free vibration	Lecture Notes and Textbook
13	Solution of equation of motion for undamped single degree of freedom systems under forced vibration	Lecture Notes and Textbook
14	Solution of equation of motion for damped single degree of freedom systems under forced vibration	Lecture Notes and Textbook



RECOMMENDED SOURCES	
Textbook	These are the notes that the students wrote during the lectures.
Additional Resources	<ul style="list-style-type: none"> ✓ Deprem Muhendisligine Giris ve Depreme Dayanikli Yapı Tasarımı, Zekai Celep 2018. ✓ Elements of Earthquake Engineering and Structural Dynamics, Second Edition, Polytechnic International Press, Filiatrault, André, 2002. ✓ Earthquake Engineering Handbook, edited by Chen and Schawtorn, CRC Press, 2003.

MATERIAL SHARING	
Documents	
Assignments	Assignments are returned to students after they are graded.
Exams	Exams questions are solved if demanded.

ASSESSMENT		
IN-TERM STUDIES	NUMBER	PERCENTAGE
Midterm (30%)	1	50
Quiz (5%)	1	8
Project (15%)	1	25
Assignments (15%)	1	25
Total		100
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		40
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE		60
Total		100

COURSE CATEGORY	Field Course
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COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES		
No	Program Learning Outcomes	check √
1a	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline,	√
1b	Ability to use theoretical and applied knowledge in these areas in complex engineering problems.	√
2a	Ability to identify, formulate, and solve complex engineering problems,	√
2b	Ability to select and apply proper analysis and modeling methods for this purpose.	
3a	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result,	
3b	Ability to apply modern design methods for this purpose.	
4a	Ability to devise, select and use modern techniques and tools needed for analyzing and solving complex problems encountered in engineering practice.	
4b	Ability to employ information technologies effectively.	√
5a	Ability to design experiments for investigating complex engineering problems or discipline specific research questions,	
5b	Ability to conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.	
6a	Ability to work efficiently in intra-disciplinary teams,	
6b	Ability to work efficiently in multi-disciplinary teams,	√
6c	Ability to work individually.	√
7a	Ability to communicate effectively in Turkish, both orally and in writing,	
7b	Knowledge of a minimum of one foreign language,	
7c	Ability to write effective reports and comprehend written reports, prepare design and production reports,	
7d	Ability to make effective presentations,	
7e	Ability to give and receive clear and intelligible instructions.	
8a	Recognition of the need for lifelong learning, ability to access information, ability to follow developments in science and technology,	
8b	Ability to continue to educate him/herself.	
9a	Consciousness to behave according to ethical principles and professional and ethical responsibility.	
9b	Knowledge on standards used in engineering practice.	√
10a	Knowledge about business life practices such as project management, risk management, change management.	
10b	Awareness in entrepreneurship and innovation.	
10c	Knowledge about sustainable development.	
11a	Knowledge about the global and social effects of engineering practices on health, environment, and safety,	
11b	Knowledge about contemporary issues of the century reflected into the field of engineering.	
11c	Awareness of the legal consequences of engineering solutions.	
12	Knowledge about project award mechanisms and tendering procedures.	
13	Knowledge about the interaction of designers and constructors.	



ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION			
Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration	14	3	42
Hours for off-the-classroom study (Pre-study, practice)	14	5	70
Midterm	1	2	2
Quiz	1	2	2
Project	1	22	22
Assignment	1	30	30
Final	1	2	2
Total Work Load			168
Total Work Load / 25 (h)			6.72
ECTS Credit of the Course			7

Prepared by: Asst. Prof. Dr. Özden Saygılı

Preparation date: 10/09/2022