STRUCTURAL EARTHQUAKE ENGINEERING

1	Course Title:	STRUCTURAL EARTHQUAKE ENGINEERING	
2	Course Code:	INS5032	
3	Type of Course:	Optional	
4	Level of Course:	Second Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:		
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. Ramazan LİVAOĞLU	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	rliva@uludag.edu.tr	
17	Website:		
18	Objective of the Course:	To gain the concepts, theories and methods of structural evaluation of structural dynamics and the basic principles of earthquake resistant structural design and earthquake engineering and their use in structural engineering applications.	
19	Contribution of the Course to Professional Development:	To contribute to the understanding of dynamic behavior, which is an important element of structural engineering, advanced analysis approaches in earthquake resistant building design and their assimilation.	
20	Learning Outcomes:		
		1	To be able to interpret and analyze the occurrence and basic concepts of earthquake
		2	Yapısal deprem mühendisliği ve sayısal analiz temel ilkelerini kullanarak yapıların depreme karşı analizlerini yapabilme Ability to analyze structures against earthquake using the basic principles of structural earthquake engineering and numerical analysis
		3	To be able to interpret the earthquake behavior of structures
		4	Ability to use Spectrum Analysis Methods and Mod Superposition Methods
		5	To be able to understand the methods and restrictions used in practice and to be able to interpret them
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21	Course Content:		

	Course Content:	
Week	Theoretical	Practice
1	Earthquake formation and Introduction to Structural Earthquake Engineering	
2	Earthquake formation and Introduction to Structural Earthquake Engineering	
3	Use of Structural Dynamics and Structural Concepts in Earthquake Engineering	
4	Use of Structural Dynamics and Structural Concepts in Earthquake Engineering	
5	Response Spectrum	
6	Evaluation technique of Response Sectrum	
7	Using Modal Analysis methods in Structural Earthquake Engineering	
8	Using Response Spectra in Structural Earthquake Engineering	
9	Using mod superposition technique on spectral analysis	
10	Using mod superposition technique on spectral analysis	
11	Calculation with Modal Collection Approach	
12	Calculation with Modal Collection Approach	
13	Introduction to nonlinear structural dynamic analysis	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	0	0.00	0.00
Homeworks	3	45.00	135.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	0	0.00	0.00
Midterm Exam	1	3.00	3.00
Total Work Load			180.00
Total work load / 30 hr			6.00
ECTS Credit of the Course			6.00

22 Textbooks, References and/or Other Materials:

- Chopra, R.A., 2000. Dynamics of Structures: Theory and Applications to Earthquake Engineering, Prentice-Hall
- Celep, Z., Kumbasar, N., 2004. Deprem Mühendisliğine Giriş ve Depreme Dayanıklı Yapı Tasarımı,
- Chen, W.F.,Earthquake Engineering Handbook,

23 Assesment

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Midterm Exam	0	0.00
Final Exam	1	40.00
Homework/Project	3	60.00
Total	4	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		klasik

24 **ECTS / WORK LOAD TABLE**

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low		2 low		3 Medium		4 High		5 Very High							