

SEISMIC ISOLATED BUILDING DESIGN

1	Course Title:	SEISMIC ISOLATED BUILDING DESIGN	
2	Course Code:	INS5045	
3	Type of Course:	Optional	
4	Level of Course:	Third Cycle	
5	Year of Study:	1	
6	Semester:	1	
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:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Dr. Öğr. Üyesi SERKAN SAĞIROĞLU	
15	Course Lecturers:	Dr.Bahadır Şadan	
16	Contact information of the Course Coordinator:	Dr.Öğr.Üye. Serkan Sağıroğlu	
17	Website:		
18	Objective of the Course:	This course focuses on the low damage design concept, summarizing the principles of seismic isolation, introducing the seismic isolator types and teaching seismic isolated building design.	
19	Contribution of the Course to Professional Development:	This course provides students with an understanding of performance-based design and low damage design philosophies, understanding of the basic principles of earthquake insulation and insulation units, following and interpreting new techniques and current national / international earthquake insulation standards, understanding the types and causes of damage in buildings, insulation unit and earthquake. It will contribute to designing insulated buildings.	
20	Learning Outcomes:		
		1	Understanding the performance based and low dame design concepts
		2	Understanding principles of seismic isolation and learning the types of seismic isolators
		3	gain the ability to follow national and international seismic isolation codes
		4	to be able to understand the types of structural damages on buildings and the causes
		5	To be able to design seismic isolators and seismic isolated buildings
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21	Course Content:		
		Course Content:	

Week	Theoretical	Practice		
1	Introduction, seismicity of Turkey, tectonics, past earthquakes and structural damages			
2	Basics of seismic isolation, differences between seismic isolated and conventional systems, performance based and low damage design principles			
3	Seismic isolator types, behaviors, pros and cons			
4	Seismic isolation in Turkey and in the world			
5	Ground motion for seismic isolation design			
6	Mechanical properties and design of rubber isolators			
7	Mechanical properties and design of rubber isolators (continued)			
8	Mechanical properties and design of friction pendulum isolators			
9	Seismic isolation in Turkish Building Seismic Code 2017 and other international codes			
10	Seismic isolator tests and evaluation of test results			
11	Design of seismic isolated buildings: architectural design and detailing with examples			
12	Computer aided seismic isolated building			
Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical	Seismic isolation system technical specifications	14	3.00	42.00
Practicals/Labs		0	0.00	0.00
Self study and preparation	Textbooks, references and other materials: Structures, John Wiley & Sons Inc.	14	3.00	42.00
Homeworks		2	30.00	60.00
Projects	for Bridge Bearings and Seismic Isolators, 2010, Technical Guidelines, Holmes Consulting Group, 2007	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
Final Exams		1	30.00	30.00
Total Work Load				174.00
Total work load/ 30 hr				5.80
ECTS Credit of the Course				6.00
TERM LEARNING ACTIVITIES		NUMBER	WEIGHT	
Midterm Exam		0	0.00	
Quiz		0	0.00	
Home work-project		2	40.00	
Final Exam		1	60.00	
Total		3	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		

24	ECTS / WORK LOAD TABLE
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25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS
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	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	4	3	2	1	0	0	0	0	0	0	0	2	0	0	0	0
ÖK2	4	4	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	3	4	0	0	0	0
ÖK4	4	4	3	0	3	4	0	0	0	0	3	0	0	0	0	0
ÖK5	3	0	4	0	0	0	0	0	0	4	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
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