AGU Department of Civil Engineering

COURSE RECORD

Code	**CE 491**
Name	**Introduction to Seismic Base Isolation**
Hour per week	3 (3+ 0)
Credit	3
ECTS	4
Level/Year	Undergraduate/4
Semester	Fall
Type	Elective
Prerequisites	MATH 203 Linear Algebra
Description	This course provides an understanding to develop an introduction for modeling, analysis and design of structures with seismic isolation. It covers the following topics: essential mathematics, structural dynamics and earthquake engineering for seismic base isolation, definition of seismic hazard and risk, ground motion characteristics, isolator devices and systems; mechanical characteristics and modeling of isolators; structures with seismic isolation; code provisions for seismic isolation; isolation systems with dampers.
Objectives	- Developing basic knowledge of structural dynamics and earthquake engineering,
	- Providing the fundamental knowledge for earthquake hazard and risk analysis and also seismic design.
	-Providing basic concepts of mechanical characteristics of seismic isolation systems, and the response of seismically isolated structures subjected to earthquakes.
Learning Outcomes	*By the end of the course, the student will be able to*
	LO1. Apply fundamental knowledge of structural dynamics and earthquake engineering to the problems.
	LO2. Comprehend the fundamentals of earthquake hazard and risk analysis by designing the isolated systems.
	LO3. Design the different types of isolator devices and systems by utilizing mechanical characteristics.
	LO4. Analyze the structural behaviors of structures with seismic isolation by considering code provisions.

CONTRIBUTION TO PROGRAMME OUTCOMES*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
LO1	5	2	4	5	3	0	0	2	3	2
LO2	3	2	5	3	3	0	0	2	3	2
LO3	4	2	5	5	3	0	0	2	3	2
LO4	4	2	5	5	3	0	0	2	3	2

* Contribution Level: 0: None, 1: Very Low, 2: Low, 3: Medium, 4: High, 5: Very High

COURSE CONTENT DETAILS

Topics	Outcomes
Vibration Analysis	LO1
Seismic Hazard and Risk	LO2
Ground Motion Characteristics	LO1,LO2
Seismic Design	LO1,LO2
Isolator Devices and Systems	LO1,LO2,LO3
Mechanical Characteristics and Modeling of Isolators	LO1,LO2,LO3
Structures with Seismic Isolation	LO1,LO2,LO3,LO4

Provisions for Seismic Isolation	LO2,LO3,LO4
Isolation Systems with Dampers	LO1,LO2,LO3

DERS BİLGİLERİ

Kodu	**CE 492**
İsmi	**Sismik Taban İzolasyonuna Giriş**
Haftalık Saati	3 (3+0)
Kredi	3
AKTS	4
Seviye/Yıl	Lisans
Dönem	Güz
Dersin Dili	İngilizce
Tip	Seçmeli
Ön Şart	MATH 203 Lineer Cebir
İçerik	Bu ders, sismik izolasyonlu yapıların modellenmesi, analizi ve tasarımı için bir giriş geliştirmeyi sağlar. Dersin içeriğinde sismik temel izolasyonu için temel matematik, yapısal dinamik ve deprem mühendisliği, sismik tehlike ve riskin tanımı, yer hareketi özellikleri, izolatör cihaz ve sistemleri; izolatörlerin mekanik özellikleri ve modellenmesi; sismik izolasyonlu yapılar; sismik izolasyon için kod hükümleri; elastomerik izolatörlerin kararlılığı yer almaktadır.

Date and Prepared by
15/06/2022
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