CE550
GEOTECHNICAL EARTHQUAKE ENGINEERING
FALL 2024-2025

Instructor: Prof. Dr. Nurhan Ecemis, Department of Civil Engineering, Phone: 7506812, nurhanecemis@iyte.edu.tr

Lecture Hours: Monday 9:45 – 12:30

Lecture Room: CE-16

Course Website: https://cloud-lms.iyte.edu.tr "CE550_GEOTEKNİK DEPREM MÜHENDİSLİĞİ_SB:1_İNŞAAT MÜHENDİSLİĞİ(24-25FALL)"

All announcements and course materials (lecture notes, homework, etc.) will be uploaded on this site.

Aims and objectives of the course:
This lecture provides a unique opportunity for geotechnical and structural engineers and graduate students to learn fundamental principles and practical design methods of geotechnical earthquake engineering. The course begins with basic concepts of seismology, earthquakes, and strong ground motion and introduces procedures of seismic hazard analysis. Basic principles of wave propagation are used to develop ground response analysis procedures and provide insight into important problems such as local site effects and liquefaction.

Attendance Policy: Attending at least 70% of the active class hours is compulsory to have a letter grade.

Course Content:
The topics to be covered are listed below:

1. INTRODUCTION TO GEOTECHNICAL EARTHQUAKE ENGINEERING
2. SEISMOLOGY AND EARTHQUAKES
3. STRONG GROUND MOTION
4. SEISMIC HAZARD ANALYSIS
5. DYNAMIC SOIL PROPERTIES
6. GROUND RESPONSE ANALYSIS
7. LOCAL SITE EFFECTS
8. LIQUEFACTION

Grading Policy: Homework 30%, Midterm 35%, Final exam 35%

Textbook: Geotechnical Earthquake Engineering, S. Kramer, 1999

References:

1. Fundamentals of Soil Dynamics, Das, B. 1993
2. Vibrations of Soils and Foundations, Richard, Hall and Woods
3. Geotechnical Earthquake Engineering Handbook, Robert W. Day, 2002

Cheating or copying:
If a student is found guilty of copying homework or cheating in tests, he/she will receive "FF" grade for the course.