Advanced Seismic Design of Structures (CEGE0061)

Description

Outline:
The course provides an insight to the latest methods and technologies used in Earthquake Engineering for designing structures;
This course is intended to cover the following topics:
1. Overview of Seismic Design of Structures to EuroCode 8;
2. Seismic Design of Steel Structures:
   Material Properties;
   Moment Resisting Frames (MRF);
   Concentrically Braced Frames (CBF);
   Eccentrically Braced Frames (EBF);
3. Elastic and Inelastic Response Spectra;
4. Modal and Response Spectrum Analysis;
5. Performance Based Earthquake Engineering (PBEE);
6. Performance Based Seismic Design &

Assessment of Structures:
Probabilistic Seismic Hazard Assessment (PSHA);
Nonlinear Structural Analysis Modelling;
Fragility &
Vulnerability Function Derivation;
Damage Assessment;
Loss Assessment;

Aims and Learning Outcomes:

By the end of the course you should be able to:
To understand the concepts behind seismic design;
To understand the behaviour of steel structural members and systems under seismic excitation;

Key information

Year: 2018/19
Credit value: 15 (150 study hours)
Delivery: PGT L7, Campus-based
Reading List: View on UCL website
Tutor: Dr Arash Nassirpour Oskouei
Term: Term 2
Timetable: View on UCL website

Assessment:

Coursework: 20%
Coursework: 20%
Coursework: 30%
Written examination (main exam period): 30%

Find out more

For more information about the department, programmes, relevant open days and to browse other modules, visit ucl.ac.uk

Disclaimer: All information correct as of December 2018. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.
Design steel structures for seismic resistance following Eurocode 8 provisions;
To interpret and critique different seismic codes of practice;
To understand new design theories in earthquake engineering, their advantages and limitations;
To understand the key principles of Performance Based Earthquake Engineering (PBEE);
To conduct nonlinear dynamic analysis on structural models;
To derive fragility and vulnerability function for different structures;
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