



# UE Engineering seismology

 ECTS  
6 credits

 Component  
UFR PhITEM  
(physique,  
ingénierie, terre,  
environnement,  
mécanique)

 Semester  
Automne

- > **Teaching language(s):** French
- > **Open to exchange students:** Yes
- > **Code d'export Apogée:** PAX9RIAA

## Presentation

### Description

The Engineering Seismology course aims to provide students with an overview of the latest issues and methods for quantitative estimation of seismic hazard and risk. A basic knowledge of seismology is required. The course develops these specific topics: seismic wave radiation at the earthquake source, wave propagation and attenuation in the Earth's crust, wave amplification in the subsurface soils (site effects), empirical (Green's functions, ground-motion models GMPE/GMM) and numerical methods for the prediction of strong motions (with a particular emphasis on uncertainties), probabilistic seismic hazard assessment (PSHA) that combines earthquake recurrence models and ground-motion models, vulnerability of buildings to seismic shaking and their dynamic response, and the specificities of the urban environment. The course addresses these topics with a physical approach (understanding, measurement and quantification of phenomena) but also with a regulatory approach (consideration of these phenomena in seismic standards, microzonation).

### Course parts

UE Engineering seismology - CMTD

Lectures (CM) & Teaching Unit (UE)

48h

### Recommended prerequisites

Basic knowledge of seismology, tectonics, statistics.

**Period** : Semester 9

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## Additional information

Responsable du module: Pierre-Yves Bard

## Useful info

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### Place

› Grenoble

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### Campus

› Grenoble - Saint-Martin d'Hères