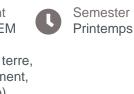


## UE Soil dynamics and nonlinear site response analysis





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



> Teaching language(s): English

> Open to exchange students: Yes

> Code d'export Apogée: PAX9CEAP

#### Presentation

#### Description

Fundamentals: Soil behaviour under earthquake loading: Fundamentals of soil behaviour under cyclic and dynamic loading. Basic mechanical models. Non-linear stiffness, damping, cyclic strength, liquefaction.

Geotechnical characterisatio: Techniques and examples of characterization of layered soils by in situ tests: borehole and surface methods. Techniques and examples of results of laboratory tests: cyclic triaxial, simple shear, torsional shear, resonant column. Factors influencing stiffness and damping. Linear equivalent models for dynamic analyses.

Liquefaction: Case histories of liquefaction worldwide; Evaluation of liquefaction potential by empirical to analytical methods. Zonation for liquefaction.

Slope stability: Case histories of slope failures worldwide; Analysis: pseudo-static methods, displacement analysis, advanced analyses. Examples of seismic analysis of natural slopes, earth dams and embankments. Zonation of slope stability.

Tutorials (with laptop): 1D site response analysis and assessment of liquefaction potential. Slope displacements by simplified dynamic analysis





### Course parts

CM Lectures (CM) 21h

Period: Semester 9

# Useful info

#### Campus

> Grenoble - University campus

