


 Faculty of Applied Sciences

AMCO2179 Soil dynamics

[15h] 2 credits

This course is taught in the 1st semester

Teacher(s): Alain Holeyman
Language: French
Level: Second cycle

Aims

Give to the students the main aspects of the dynamic behaviour of soils

Main themes

Provide engineering students basic notions concerning seismic and vibration problems connected with soils.

Knowledge:

- Vibration phenomena due to earthquakes and man-made sources
- Soil behavior under cyclic and dynamic loading

Know-how:

- Integrate basic engineering disciplines (soil mechanics, constitutive modeling, dynamics) to analyze seismic impact on soil and structures
- Assess feasibility and select best available design to limit impact of earthquake on civil engineering structures and to remediate vibration issues

Content and teaching methods

- Natural and man-made sources of cyclic and dynamic loading: earthquakes, pile impact and vibratory driving, traffic, vibrating and impact machines
- Soil behavior under cyclic and dynamic loading: pore pressure generation, soil degradation, soil liquefaction, laboratory and in-situ testing
- Dynamic behavior of foundations: spread footings, piles, low-strain and high-strain dynamic tests
- Seismic stability of civil engineering structures: soil-structure interaction, response and design spectra, foundations, slope stability, retaining walls
- Vibration criteria and mitigation

Lectures are delivered in auditoria; specific topics can be developed by individual students

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Prerequisite :AUCE 1175, Dynamics

Other credits in programs

GC23 Troisième année du programme conduisant au grade (2 credits)
 d'ingénieur civil des constructions