


5 credits

30.0 h + 30.0 h

Q1

Teacher(s)	Rattez Hadrien ;
Language :	English
Place of the course	Louvain-la-Neuve
Main themes	<p>The objectives of the course are:</p> <ul style="list-style-type: none"> • To strengthen the knowledge of geotechnical engineering through discussion of advanced concepts: lateral actions, soil-structure interaction, soil anisotropy and heterogeneity. • To explain the design principles of geotechnical elements of a construction project: walls, sheet pile walls, piles, soil improvement methods. • To familiarize the student with the significance of certain elements on the stability of constructions: groundwater, drainage, monitoring.
Aims	<p>Contribution of the course to the program objectives (N°) AA1.2, AA1.3, AA2.1, AA2.2, AA4.1, AA5.1, AA5.2, AA5.3, AA6.1</p> <p>Specific learning outcomes of the course At the end of the course, students will be capable of:</p> <p>1</p> <ul style="list-style-type: none"> • Describing the execution methods for the installation of walls. • Designing a retaining wall. • Describing soil improvement methods. • Modelling an element of a geotechnical project (numerical approach). • Calculating deformation and loading of structures interacting with soil. • Identifying potentially dangerous situations in presence of groundwater. • Describing the behaviour of soft soils, calcareous sands, unsaturated soils. <p>-----</p> <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Evaluation methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change. Continuous assessment and final oral exam</p>
Teaching methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change. Ex-cathedra teaching through the course resources for volume 1. Supervised exercise sessions in classroom for volume 2.</p>
Content	<ul style="list-style-type: none"> • Retaining walls. • Walls and sheet-pile walls. • Soil improvement. • Constitutive laws of soil behaviour. • Introduction to numerical methods (finite elements). • Foundation mats and slabs. • Horizontal loading on geotechnical elements. • Rock mechanics • Tunnels
Inline resources	Available on Moodle.
Bibliography	Supports du cours et documentation sur Moodle.
Faculty or entity in charge	GC

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Civil Engineering	GCE2M	5		
Master [120] in Architecture and Engineering	ARCH2M	5		