UCLouvain

lgciv1072

2023

Soil mechanics

5.00 credits	30.0 h + 30.0 h	Q1

Teacher(s)	Rattez Hadrien ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	Geology, soil characterisation, soil and water interaction, and effective stress as taught in LGCIV1031.
Main themes	The objectives of the course are: • Learning the soil mechanics notions which are useful for the design of geotechnical elements in a construction project, • Mastering the design principles of the main geotechnical elements in a construction project: embankments, retaining structures, and foundations.
Learning outcomes	**At the end of this learning unit, the student is able to :** 1 The course contributes to the AA developments of the program: AA1.1, AA1.2, AA4.2. At the end of the course, the student will be able to: - Describe the deferred compression mechanisms of a soil, - Determine the soil's shear strength, - Describe the rupture mechanisms of embankments, - Calculate the safety factor for the stability of an embankment (against sliding), - Determine the bearing capacity of a shallow foundation (ULS), - Calculate the settlement of a shallow foundation (SLS), - Determine the bearing capacity of a deep foundation (ULS), - Describe and design a retaining structure.
Evaluation methods	Final written exam
Teaching methods	Ex-cathedra teaching based on the course resources for the volume 1. Accompanied exercise sessions for the volume 2.
Content	Part I: Soil mechanics • Groundwater hydrology, • Consolidation, • Volumetric behaviour, • Shear behaviour; Part II: Geotechnical engineering • Soil investigations, • Slope stability, • Retaining structures, • Shallow foundations, • Deep foundations.
Inline resources	Available on Moodle.
Bibliography	Supports du cours, documentation sur Moodle. Course resources on Moodle.
Faculty or entity in charge	GC

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Engineering : Architecture	ARCH1BA	5		
Specialization track in Construction	FILGCE	5		
Minor in Construction	LMINOGCE	5		
Master [120] in Agriculture and Bio-industries	SAIV2M	5		
Mineure Polytechnique	MINPOLY	5		