UCL Université catholique de Louvain

LAUCE2165

2014-2015

Soil Testing and Modelling

4.0 credits	20.0 h + 15.0 h	1q

Teacher(s) :	Verástegui Flores Ramiro Daniel ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Inline resources:	-
Prerequisites :	Géomatériaux (LAUCE1171) ; Mécanique des sols (LAUCE1172) ; Géotechnique (LAUCE2171) ; it is possible to follow LAUCE2171 and the present course simultaneously
Main themes :	Laboratory testing of soils is an essential part of geotechnical projects. A laboratory test program is required to assess, select, and test soil specimens collected during field investigation to provide soil index and performance properties for design and construction. This course covers basics and standards in soil laboratory testing. Moreover, a review of the most commonly used behaviour models and their input parameters is given.
Aims :	Having regard to the Learning Outcome of the program Master Civil Engineering, this course contributes to the development and acquisition of the following Learning Outcomes : LO1.1, LO3.1, LO5.3, LO5.4, LO6.1 At the end of the course students will be able to : Understand the principles and precautions in soil testing Describe in detail the procedures of the most common geotechnical laboratory test Evaluate the repeatability and accuracy of experimental results. Identify parameters that may affect the results of mechanical tests. Evaluate input parameters for common soil behaviour models in geotechnical software Interpret / prepare geotechnical reports of soil characterization. *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".*
Evaluation methods :	The evaluation will consists of 2 parts : Exercises (40%). Oral exam with written preparation (60%)
Teaching methods :	The teaching is organized in lecture sessions and exercise sessions. The lectures will be given by means of slides and demonstrations. The exercise sessions will make use of available facilities like laboratory installations and computer class rooms. Teaching material to support the learning process (e.g. a syllabus and additional documents) will be electronically available to all students.
Content :	The contents of the course include : Particle size distribution, determination and interpretation of results. Soil identification based on physical and chemical properties. Determination of hydraulic conductivity coefficient. Determination of compressibility and consolidation parameters. Determination of shear strength parameters, drained and undrained parameters. Soil behaviour models in geotechnical software. Features, differences and input parameter evaluation. Impact of soil behaviour models on the analysis of geotechnical problems.
Bibliography :	-- Slides of the course; -- Documentation on iCampus; -- ASTM Testing Standards for Soil Testing
Other infos :	Most of the exercise sessions will take place in the Geotechnical Laboratory of GCE and will include hands-on activities.
Cycle and year of study :	> Master [120] in Civil Engineering

Faculty or entity in charge:	GC