UCLouvain

ltarc2161

2022

Structural Design 2

4.00 credits	40.0 h	Q1

Teacher(s)	Sgambi Luca ;
Language :	French
Place of the course	Tournai
Main themes	This teaching unit forms part of continuous learning on structures and their behaviour. • Load, overload and stresses in buildings • Soil mechanics: definition, components and structure of the soil, law of fundamental behaviour, action of water, constraints and balances including earth pressures, unstable soils and landslides • Direct and deep foundations • Supports: slopes, retaining walls, shoring and anchors Advanced study: • Prefabricated structures in concrete : process of design and choice of construction system, general stability and bracing, pre-stressed flat and ribbed floor elements, joints and brackets • Complex and large scale/storeyed structures : design and conditions for implementation, including foundations These topics are studied with the aim of experiencing the professional practice of the engineering consultant in the field of building stability.
Learning outcomes	**At the end of this learning unit, the student is able to :** 1 **Specific learning outcomes:** By the end of this teaching unit, students are able to • describe and critically analyse the mechanical working of building structures as a driver of an efficient work of architecture. • assess the specific issues raised by the design of a structure so as to make sensible, coherent and rational choices. • assess the technical and construction principles to be developed for large scale structures; assess the methods and conditions of implementation. • analyse and make use of technical documents. • enter into a professional dialogue with an engineer using knowledge of structures rigorously : communicate an architectural project with the use of plans, presentations or other documents adapted with a view to posing questions about the project and developing it. **Contribution to the learning outcomes reference network:** **Use the technical dimension** • Be familiar with and interpret the main technical principles of construction • Be able to apply the various basic technical principles in producing a work of architecture **Make committed choices** • Understand the merits of an idea which can lead to the objectives to be achieved by the project; follow through with determination, even by means of a modest intervention, the implementation of this idea and the achievement of these objectives
Evaluation methods	Each student's final rating is the average of two ratings. The first evaluation concerns a structural design work on a design problem assigned by the teacher at the beginning of the course. This work can be done in groups. The second evaluation concerns a written examination on the topics carried out in the classroom. On both assessments, the teacher sets a minimum threshold of 6/20 below which the student cannot have a positive final assessment. Due to the current health crisis, the written exam could be conducted in the presence or online, or it could be replaced with an oral examination (online).
Teaching methods	The course includes a part of theoretical lessons ex-cathedra, a part of the course dedicated to exercises and the development of a structural design exercise. The preferred form of teaching is in presence. However, due to the current health crisis, the course may take place in co-modal mode or totally online.

Inline resources	To support the course, the teacher provides tutorials that can cover all the topics discussed. All tutorials are available by MOODLE.
Other infos	More detailed information about the course and evaluation procedures will be explained during the first lesson and will be contained in the "Plan du cours" (downloadable from MOODLE).
Faculty or entity in charge	LOCI

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Architecture (Tournai)	ARCT2M	4		