UCLouvain

lbarc1361

2024

Structural Design 1

4.00 credits	40.0 h	Q2

Teacher(s)	Sgambi Luca ;
Language :	French
Place of the course	Bruxelles Saint-Gilles
Prerequisites	*The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Main themes	This teaching unit forms part of the continuous process of learning about structures and their behaviour. • Eurocodes • Loads, overloads and combinations of actions and stress • Ultimate and serviceability limit states • Structures in masonry • Structures in concrete and reinforced concrete
Learning outcomes	**At the end of this learning unit, the student is able to :** Specific learning outcomes: By the end of the course, students will be able to • understand and put forward a structural logic for a building. • understand and carry out lowering the loads in a building to the foundations. • understand the behaviour of a material according to its environment. • understand the approach to structures in reinforced concrete. • understand the technical documents linked to structures in reinforced concrete. **Contribution to the learning outcomes reference framework:** 1 With regard to the learning outcomes reference framework of the Bachelor's degree in Architecture, this teaching unit contributes to the development, the acquisition and the assessment of the following learning outcomes: **Make use of other subjects** • Make use of other subjects to ask questions about the design and implementation of an architectural project **Use the technical dimension** • Observe and assess the main construction principles of a building • Be able to apply the various basic technical principles in a producing a work of architecture
Evaluation methods	The evaluation of the learning outcomes is carried out on the one hand in a continuous way on the basis of group work, and on the other hand in an examination session by a written exam. The **group work** deals with the design, dimensioning and specifications for the execution of small structures. In this way, the teachers evaluate the students' ability to use and apply correctly the concepts presented in the course and the methods tested in the exercise sessions. The evaluation of this work is based on the work provided by the group during the semester and the documents submitted according to the terms and deadlines set by the teachers. The corresponding grade is worth **4/20** of the final grade. The **individual written test** during the examination session is based on the student's knowledge and understanding of the theoretical concepts presented in the course, as well as on his/her ability to apply these concepts in targeted exercises. The corresponding grade is worth **16/20** of the final grade.
Teaching methods	The course integrates lectures and practice sessions. In addition, group work on the design, dimensioning and specifications for the execution of small structures is supervised by the teachers. It leads to various productions allowing to understand and evaluate the design and the execution methods.
Content	This course is devoted to the structural design of buildings in strong interaction with the architectural design. Three aspects are developed:

	(1) Principles of **spatial arrangement** of the load-bearing elements. (2) Principles of **dimensionning** of these elements. (3) Specificities of implementation on site.
Faculty or entity in charge	LOCI

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Architecture (Bruxelles)	ARCB1BA	4	LBARC1261 AND LBARC1164	🔍