UCLouvain

lepl1510

2024

Project 4 (in construction)

5.00 credits	30.0 h + 22.5 h	Q2

Teacher(s)	Latteur Pierre ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	This project supposes acquired the notions developed in the courses LGCIV1022 and LGCIV1031.
Main themes	• Lab tests on timber and steel ; • Structural design ; • Timber connections design and calculation; • Execution plans ; • Construction (by the students) of a real structure ; • Loading of the structure ; • Oral presentations and final report. Examples of past projects : • Design, calculation, execution and testing of a 3D structure able to suspend a load of 10 students (see: 6 minutes film on : http://podcast.uclouvain.be/ciQk8VjSmW); • Design, calculation, execution and testing of a 6 m span deployable footbridge able to stand the self-weight of 12 students
Learning outcomes	**At the end of this learning unit, the student is able to :** 1 Regarding the learning outcomes of the program of Bachelor in Engineering, this course contributes to the development and the acquisition of the following learning outcomes:LO1, LO2-3, LO4, LO5, LO6 The project also allows the acquisition of large competences in the field of civil engineering, through several interactions with the lab's technical staff *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	IMPORTANT NOTE: IN CASE OF FORCE MAJEURE (E.G. EPIDEMIC), THE CONTENT, ACTIVITIES AND EVALUATION METHODS MAY BE ADAPTED There is no second session for this project. Students absent from the first session of S1 without valid justification will be excluded from the project. Any other unjustified absence will be penalized by a two-point reduction in the final grade. Evaluation based on the following elements (non-exhaustive list): • Quality of intermediate and final presentations; • Quality of written reports (structure, clarity of explanations, spelling, grammar, justification of choices and design approach, synthesis of characterization tests carried out, analysis of results from software, calculation of assemblies); • Originality, creativity and aesthetics of the structure; • Respect of the specifications; • Demountability/deployability of the structure; • Successful completion of the loading test; • Individual examination (The weight of the individual evaluation in the final grade is 30% if you pass, but increases if you fail. More specifically, it will be 100% for a grade less than or equal to 6, and will evolve linearly with the grade between 6 and 10 according to the following formula: weight = 1 - 0.7 * (grade - 6)/4). • A bonus of 1 or 2 points out of 20 may be awarded (non-cumulative points) based on certain criteria such as originality and aesthetics, assembly time, lightness, etc. Different points may be awarded to students in the same group, based on factors such as attendance at sessions, interactivity during presentations, individual exams, etc. Note: due to the particular nature of the project, which is linked to a construction and a group work, there is no second session planned. In their written reports, students are required to systematically indicate all parts where AIs (such as ChatGPT) have been used, e.g. in footnotes, specifying whether the AI was used to search for information, to write the text or to correct it. Sources of information must be systematically cited in accordance with bibliographic referencing standards. Students remain responsible for the content of their work, regardless of the sources used.

Teaching methods	IMPORTANT NOTE: IN CASE OF FORCE MAJEURE (E.G. EPIDEMIC), THE CONTENT, ACTIVITIES AND TEACHING METHODS MAY BE ADAPTED The final goal of the project is to build a structure on a near-real scale. The project is divided into several phases: theoretical courses, laboratory tests on different materials, design of the structure in the classroom and in groups, calculation of the structure, construction of the structure in the laboratory, loading of the structure in the laboratory.
Content	• Presentation of the project - Formation of groups (3 to 5 students); • Lecture on the topic "Mechanical properties of materials • Presentation of the testing machines available in the lab; • Tests in the lab: wood and cables; • Statistical analysis of measurements obtained in the lab; • Presentation of the calculation softwares: ISSD and SCIA; • Exercises: use of SCIA; • Predimensioning of the structure; • Lecture on connection calculation; • Calculation of the structure by the students; • Presentations of the structures by each group; • Construction of the structure; • Assembly, testing and loading of the structure.
Inline resources	Please refer to the MOODLE page of the course.
Bibliography	Please refer to the MOODLE page of the course.
Other infos	This course is part of the "Project 4" set of courses in the Bachelor of Civil Engineering program. Projects 4 share common transversal objectives but are declined in various versions with distinct disciplinary objectives, corresponding to the program's tracks. Each student chooses the project proposed by one of his or her streams. Other academic institutions also have this project in their program. A joint event involving students from each partner academic institution may be scheduled at the end of the semester. Participation in the event is mandatory.
Faculty or entity in charge	GC

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Engineering	FSA1BA	5		🔍