

At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In EnglishDissertation/Graduation Project : **YES** - Internship : **YES**Activities in English: **YES** - Activities in other languages : **YES**Activities on other sites : **NO**Main study domain : **Sciences de l'ingénieur et technologie**Organized by: **Louvain School of Engineering (EPL)**Programme acronym: **GCE2M** - Francophone Certification Framework: 7**Table of contents**

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GCE2M - Introduction

Introduction

Introduction

Upon completion of this Master's degree programme, students will have mastered the principles and mathematical methods central to civil and environmental engineering: construction, hydraulics, geotechnology, structures and materials. Moreover, this Master's degree programme provides a wide range of specialisations through elective courses in its main fields.

Your profile

You

- Want to understand, model and master natural and built-up spaces while respecting sustainable development as well as design and create structures for a natural environment;
- Are looking for a degree programme that will prepare you to meet future technological challenges facing civil and environmental engineering in an ever changing European and global context;
- Want to develop your innovative spirit and self-initiative as well as develop the necessary tools to complete your projects.

Your programme

This Master's degree offers:

- advanced training in geotechnology, hydraulics, structures and materials;
- knowledge about project procedures;
- experience in a company via a 2 month long internship;
- immersion in high-tech research laboratories;
- a large choice of elective courses;
- the possibility of completing part of your coursework or internship abroad (in Europe or elsewhere).

GCE2M - Teaching profile

Learning outcomes

Civil engineers are expected to design and construct basic infrastructure for our everyday lives while at the same time respecting and improving the environment.

This Master's degree programme aims to train experts in the field of civil and environmental engineering who will be able to take into account sustainable development, as well as the unique prototype scale of the projects and the complex natural world in which these projects take place.

The future civil engineer will acquire the necessary skills and knowledge to become:

- a professional engineer capable of integrating multiple fields of civil and environmental engineering
- a practical engineer who can use his/her knowledge for solving real-world problems and use appropriate civil engineering tools and techniques, either on construction sites or in design offices
- a specialist in cutting edge methods used in civil and environmental engineering: construction, hydraulics, geotechnology, structures, materials and environment
- a manager capable of supervising projects alone or contributing as part of a team

The multidisciplinary training offered by the Louvain School of Engineering (EPL) emphasises a combination of theory and practice as well as analysis, design, manufacturing, production, research and development and innovation while never losing sight of issues related to ethics and sustainable development.

On successful completion of this programme, each student is able to :

1. Demonstrate mastery of a solid body of knowledge and skills in basic and engineering science that allows them to solve relevant problems

1.1 Identify and use biomedical engineering concepts, laws and reasoning to solve problems related to civil and environmental engineering:

- Structures: design and calculation (cement, metal, wood, composite materials)
- Geotechnology: soil mechanics, foundations, subterranean drainage
- Hydraulic loads and open channel flow
- Infrastructure projects (bridges, dams, roads, tunnels)

1.2 Identify and use the modelling and calculation tools necessary to solve problems in the fields mentioned above

1.3 Validate problem solving results

2. Organise and carry out an engineering procedure in order to meet a specific need or solve a particular problem

2.1 Analyse all aspects of a problem, sort through available information, identify limits (rules, technical, security, budgetary, human, environmental, etc.) linked to the completion of a civil engineering project in order to write a specifications note

2.2 Model a problem and design one or more original technical solutions with the specifications note in mind.

2.3 Evaluate and classify solutions with regard to the criteria in the specifications note (efficiency, feasibility, quality, ergonomics, security) as well as the limits (workforce, materials, construction site security and accessibility, budget, etc.)

2.4 Test a solution as a blueprint, prototype and/or model scaled down for laboratory testing or numerical modelling.

2.5 Come up with recommendations to improve the operational nature of the solution under study.

3. Organise and carry out a research project to understand a physical phenomenon or new problem pertaining to civil engineering

3.1 Document and summarize the existing body of knowledge.

3.2 Suggest a model and/or an experimental device allowing for the simulation and testing of hypotheses related to the phenomenon being studied.

3.3 Write a summary report in such a way as the results are usable later on by other people; explain any potential theoretical and/or technical innovations resulting from the research

4. Participate in a group project

4.1 Frame and explain the project's objectives while taking into account its issues and constraints (deadlines, quality, resources, budget)

4.2 Collaborate on a work schedule, deadlines and roles to be played

4.3 Work in a multidisciplinary environment with peers holding different points of view; manage any resulting disagreement or conflicts.

4.4 Make team decisions and assume the consequences of these decisions (whether they are about technical solutions or the division of labour to complete a project).

4.5 Communicate effectively through reports, blueprints, presentations or other documents tailored to your interlocutor/contact person

5. Communicate effectively through reports, blueprints, presentations or other documents tailored to your interlocutor/contact person

5.1 Identify the needs of the clients or users (who often come from public or private entities): question, listen and understand all aspects of their request and not just the technical aspects.

5.2 Present your arguments convincingly to your interlocutors (technicians, colleagues, clients, superiors).

5.3 Communicate through graphics and diagrams: interpret a diagram, present results, structure information.

5.4 Read and analyse different technical documents (rules, blueprints, specification notes).

5.5 Draft documents that take into account contextual requirements and social conventions.

5.6 Make a convincing oral presentation (in French or English) using modern communication techniques.

6. Behave with professionalism and rigor as well as with a sense of ethics when doing your job

6.1 Rigorously apply the standards of your field (terms, units of measure, quality standards and security).

6.2 Find solutions that go beyond strictly technical issues by considering sustainable development and the ethical aspects of a project.

6.3 Demonstrate critical awareness of a technical solution in order to verify its robustness and minimize the risks that may occur during implementation.

6.4 Evaluate oneself and independently develop necessary skills to stay up-to-date in one's field.

Programme structure

The Master's degree programme includes:

- Core curriculum (56 credits)
- Final specialisation courses (30 credits), including a 9 week long company internship
- Elective courses from one or more major fields of study (minimum 18 credits from structural, hydraulic or geotechnical engineering) or elective courses (see below)

The company internship lasts 9 weeks and is to be completed during the second semester of the first year of the Master's degree programme during May and June. Consequently, all coursework during this semester is completed by the end of March with the evaluation period taking place in April. Thus, students are free of all academic obligations in May and June during their internship.

The graduation project is normally completed during the 2nd year. Regarding required and elective courses, students may take these courses in the 1st or 2nd year as long as they have completed the course prerequisites. This is particularly the case for students who have completed part of their education abroad.

If during the student's previous studies, he or she has already taken a course that is part of the programme (either required or elective) or if they have participated in an academic activity that is approved as equivalent by the programme commission, the student may count this activity toward their graduation requirements (but only if they respect programme rules). The student will also verify that he/she has obtained the minimum number of credits required for the approval of their diploma as well as for the approval of their major (in order to include their academic distinctions in the diploma supplement).

The student course programme will be submitted for approval by the programme commission in charge of the Master in civil engineering.

For a programme-type, and regardless of the focus, options/or elective courses selected, this master will carry a minimum of 120 credits divided over two annual units, corresponding to 60 credits each.

> Core courses for the Master in Civil Engineering [en-prog-2020-gce2m-tronc_commun]

Liste au choix de finalités GCE2M

> Professional Focus [en-prog-2020-gce2m-lgce220s]

> List of electives [en-prog-2020-gce2m-options]

Majors for master in civil engineering

> Major in Geotechnical engineering [en-prog-2020-gce2m-lgce223o]

> Major in Structural engineering [en-prog-2020-gce2m-lgce226o]

> Major in Hydraulic engineering [en-prog-2020-gce2m-lgce225o]

> Major in construction and architecture [en-prog-2020-gce2m-lgce227o]

Major in business creation and management

> Major in small and medium sized business creation [en-prog-2020-gce2m-lfsa221o]

> Major in Business risks and opportunities [en-prog-2020-gce2m-lgce228o]

Elective courses

> Elective courses available for Master students in Civil Engineering [en-prog-2020-gce2m-lgce229o]

> Elective courses: transversal skills and contacts with industry [en-prog-2020-gce2m-lgce956o]

Preparatory Module (only for students who qualify for the course via complementary coursework)

> Master [120] in Civil Engineering [en-prog-2020-gce2m-module_complementaire]

GCE2M Detailed programme

Programme by subject

CORE COURSES [56.0]

○ Mandatory

△ Courses not taught during 2020-2021

⊕ Periodic courses taught during 2020-2021

⊗ Optional

⊖ Periodic courses not taught during 2020-2021

■ Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Year

1 2

○ LGCE2990	Graduation project/End of studies project			28 Credits	q1+q2	x	
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○ Civil and environmental engineering (19 credits)

○ LGCIV2071	Geotechnics	Hadrien Rattez	30h+30h	5 Credits	q1	x	
○ LGCIV2033	Steel and composite steel-concrete structures	Catherine Doneux Olivier Vassart	30h+30h	5 Credits	q1	x	
○ LGCIV2051	Applied hydraulics : open-channel flows	Sandra Soares Frazao	30h+30h	5 Credits	q1	x	
○ LGCIV2041	Numerical analysis of civil engineering structures	Luca Sgambi	20h+15h	4 Credits	q2	x	

○ Civil engineering project (7 credits)

○ LGCIV2012	Project 2: Civil engineering works ■	Didier Bousmar Bernard Cols Pierre Latteur Laurent Ney	37.5h +40h	7 Credits	q1		x
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○ Religion courses for students in exact sciences (2 credits)

The students select one course between:

⊗ LTECO2100	Sociétés, cultures, religions : Biblical readings	Hans Ausloos	15h	2 Credits	q1	x	x
⊗ LTECO2300	Societies, cultures, religions : Ethical questions	Marcela Lobo Bustamante	15h	2 Credits	q1	x	x
⊗ LTECO2200	Societies-cultures-religions : Human Questions	Régis Burnet Dominique Martens	15h	2 Credits	q1 or q2	x	x

PROFESSIONAL FOCUS [30.0]

● Mandatory

△ Courses not taught during 2020-2021

⊕ Periodic courses taught during 2020-2021

⊗ Optional

⊖ Periodic courses not taught during 2020-2021

■ Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Year

1 2

o Content:**o Compulsory courses (20 credits)**

● LGCIV2011	Project 1	Pierre Latteur Thomas Vandenberg Denis Zastavni	37.5h +40h	7 Credits	q1	x	
● LGCIV2014	Building technology	Sergio Altomonte Pierre Latteur Yvette Pelsser	30h	3 Credits	q1	x	
● LGCIV2072	Geotechnical Design	Alain Holeyman	30h+15h	5 Credits	q2	x	
● LGCIV2013	Hydraulic structures, bridges and roads	Didier Bousmar Pierre Gilles Colette Grégoire Sébastien Houdart	60h	5 Credits	q2	x	

o Company internships (10 credits)

● LFSA2995	Company Internship	Jean-Pierre Raskin	30h	10 Credits	q1+q2	x	x
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OPTIONS

Majors for master in civil engineering

- > Major in Geotechnical engineering [en-prog-2020-gce2m-lgce223o]
- > Major in Structural engineering [en-prog-2020-gce2m-lgce226o]
- > Major in Hydraulic engineering [en-prog-2020-gce2m-lgce225o]
- > Major in construction and architecture [en-prog-2020-gce2m-lgce227o]

Major in business creation and management

- > Major in small and medium sized business creation [en-prog-2020-gce2m-lfsa221o]
- > Major in Business risks and opportunities [en-prog-2020-gce2m-lgce228o]

Elective courses

- > Elective courses available for Master students in Civil Engineering [en-prog-2020-gce2m-lgce229o]
- > Elective courses: transversal skills and contacts with industry [en-prog-2020-gce2m-lgce956o]

MAJORS FOR MASTER IN CIVIL ENGINEERING**MAJOR IN GEOTECHNICAL ENGINEERING**

● Mandatory

△ Courses not taught during 2020-2021

⊕ Periodic courses taught during 2020-2021

⊗ Optional

⊖ Periodic courses not taught during 2020-2021

■ Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

From 15 to 30 credits

Year

1 2

Content:

⊗ LGCIV2076	Geotechnical risks	Jean-François Vanden Berghe	20h+15h	4 Credits	q1	x	x
⊗ LGCIV2073	Hydrogeology and Geoenviroment	Pierre-Yves Bolly	30h	3 Credits	q1	x	x
⊗ LGCIV2075	Geosynthetics	Marc Demanet	20h	3 Credits	q2 ⊕	x	x
⊗ LGCIV2074	Offshore Geotechnics	Benoît Spinewine	20h+15h	4 Credits	q2	x	x
⊗ LBIR1336	Sciences du sol et excursions intégrées	Yannick Agnan (coord.) Richard Lambert Caroline Vincke	30h +37.5h	5 Credits	q2	x	x

MAJOR IN STRUCTURAL ENGINEERING

● Mandatory

△ Courses not taught during 2020-2021

⊕ Periodic courses taught during 2020-2021

⊗ Optional

⊖ Periodic courses not taught during 2020-2021

■ Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

From 15 to 30 credits

Year

1 2

o Content:

⌘ LGCIV2032	Prestressed concrete structures	Jean-François Cap	20h+15h	4 Credits	q1	x	x
⌘ LGCIV2042	Dynamics of structures	João Saraiva Esteves Pacheco De Almeida	20h+15h	4 Credits	q1	x	x
⌘ LGCIV2043	Timber Structures	Pierre Latteur	20h+15h	4 Credits	q2	x	x
⌘ LGCIV2045	Structures under fire conditions	Olivier Vassart	20h	3 Credits	q2	x	x
⌘ LGCIV2046	Earthquake engineering	João Saraiva Esteves Pacheco De Almeida	20h+15h	4 Credits	q2	x	x
⌘ LMECA2520	Calculation of planar structures	Issam Doghri	30h+30h	5 Credits	q2	x	x
⌘ LMECA2640	Mechanics of composite materials	Issam Doghri	30h+30h	5 Credits	q2	x	x
⌘ LMAPR2483	Durability of materials	Laurent Delannay Thomas Pardoën	30h +22.5h	5 Credits	q2	x	x
⌘ LICAR2841	Conception de l'architecture avec le bois	Frank Norrenberg	22.5h	3 Credits	q1	⌚	x

MAJOR IN HYDRAULIC ENGINEERING

● Mandatory

△ Courses not taught during 2020-2021

⊕ Periodic courses taught during 2020-2021

⊗ Optional

⊖ Periodic courses not taught during 2020-2021

■ Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

From 15 to 21 credits

Year

1 2

o Content:

⊗ LGCIV2055	Analysis and mitigation of floods	Sandra Soares Frazao	20h+15h	4 Credits	q1	x	x
⊗ LGCIV2053	Fluvial hydraulics	Sandra Soares Frazao	20h+15h	4 Credits	q2	x	x
⊗ LGCIV2054	Numerical simulation of transient flows	Sandra Soares Frazao	20h+15h	4 Credits	q2	x	x
⊗ LGCIV2056	Marine Hydrodynamics	Eric Deleersnijder	30h+15h	5 Credits	q1	x	x
⊗ LGCIV2052	Hydropower plants	Sandra Soares Frazao	20h	3 Credits	q2	x	x
⊗ LBRES2204	Integrated water management of water resources	François Jonard Marnik Vanclooster (coord.)	30h +22.5h	4 Credits	q1	x	x
⊗ LMECA2853	Turbulence.	Eric Deleersnijder Grégoire Winckelmans	30h+30h	5 Credits	q1	x	x

MAJOR IN CONSTRUCTION AND ARCHITECTURE

● Mandatory

△ Courses not taught during 2020-2021

⊕ Periodic courses taught during 2020-2021

⊗ Optional

⊖ Periodic courses not taught during 2020-2021

■ Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

From 15 to 30 credits

Year

1 2

o Content:

⊗ LICAR2801	Théorie et recherche en sciences physiques :édification soutenable	Sergio Altomonte André Stephan Geoffrey Van Moeseke	80h	9 Credits	q1	x	x
⊗ LICAR2902	Gestion de projet et monde de l'édification	Nicolas Van Oost	20h+20h	4 Credits	q1	x	x
⊗ LICAR2901	Droit de l'espace bâti et non bâti	Christophe Thiebaut Christophe Thiebaut (compensates Charles-Hubert Born)	30h	3 Credits	q1	x	x
⊗ LICAR2823	Edification soutenable 3 : architecture climatique	Sergio Altomonte Sophie Trachte	22.5h	3 Credits	q2 ⊕	x	x
⊗ LICAR2841	Conception de l'architecture avec le bois	Frank Norrenberg	22.5h	3 Credits	q1 ⊖	x	x
⊗ LICAR2831	Architecture : rénovation, restauration		22.5h	3 Credits	q2 ⊖	x	x

MAJOR IN BUSINESS CREATION AND MANAGEMENT**MAJOR IN SMALL AND MEDIUM SIZED BUSINESS CREATION**

In keeping with most of the EPL Masters' degrees, the goal of this major is to familiarize the student with the specifics of entrepreneurship and business development in order to develop the necessary abilities, knowledge and tools to create a business. It is a truly interdisciplinary initiative where students from different faculties are brought together in cross-disciplinary teams to create an entrepreneurial project.

The Interdisciplinary program in entrepreneurship (CPME) is spread over two years and is integrated into more than 30 Masters (9 faculties). The program includes a collective and interdisciplinary master thesis focused on an entrepreneurial project (start-up or spin-off) and realized in teams of 3 to 4 students from 3 to 4 different faculties. The access is reserved for a small number of students by a selection procedure. Additional information may be found at www.uclouvain.be/cpme.

This major is not available in English and may not be taken at the same time as the major "Business risks and opportunities".

● Mandatory

△ Courses not taught during 2020-2021

⊕ Periodic courses taught during 2020-2021

⊗ Optional

⊖ Periodic courses not taught during 2020-2021

■ Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

From 20 to 25 credits

Year

1 2

o Content:**o Required courses for the major in small and medium sized businesses**

● LCPME2001	Entrepreneurship Theory (in French)	Frank Janssen	30h+20h	5 Credits	q1	x	
● LCPME2002	Managerial, legal and economic aspects of the creation of a company (in French)	Yves De Cordt Marine Falize	30h+15h	5 Credits	q1	x	x
● LCPME2003	Business plan of the creation of a company (in French) <i>Les séances du cours LCPME2003 sont réparties sur les deux blocs annuels du master. L'étudiant doit les suivre dès le bloc annuel 1, mais ne pourra inscrire le cours que dans son programme de bloc annuel 2.</i>	Frank Janssen	30h+15h	5 Credits	q2		x

							Year	
							1	2
● LCPME2004	Advanced seminar on Entrepreneurship (in French)	Frank Janssen	30h+15h	5 Credits	q2	x	x	

⌘ Prerequisite CPME courses

Student who have not taken management courses during their previous studies must enroll in LCPME2000.

● LCPME2000	Venture creation financement and management I	Yves De Rongé Olivier Giacomini	30h+15h	5 Credits	q1	x	
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MAJOR IN BUSINESS RISKS AND OPPORTUNITIES

● Mandatory

△ Courses not taught during 2020-2021

⊕ Periodic courses taught during 2020-2021

⌘ Optional

⌚ Periodic courses not taught during 2020-2021

■ Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

From 17 to 20 credits

Year

1 2

o Content:

● LFSA1290	Introduction to financial and accounting management	Philippe Grégoire	30h+15h	4 Credits	q2	x	x
● LFSA2140	Elements of law for industry and research	Vincent Cassiers Werner Derijcke Bénédicte Inghels	30h	3 Credits	q1	x	x
● LFSA2210	Organisation and human resources	John Cultiaux Eline Jammaers	30h	3 Credits	q2	x	x
● LFSA2230	Introduction to management and to business economics	Benoît Gailly	30h+15h	4 Credits	q2	x	x
● LFSA2245	Environment and business	Jean-Pierre Tack	30h	3 Credits	q1	x	x

o One course between

From 3 to 5 credits

⌘ LFSA2202	Ethics and ICT	Axel Gosseries Olivier Pereira	30h	3 Credits	q2	x	x
⌘ LLSMS2280	Business Ethics and Compliance Management	Carlos Desmet	30h	5 Credits	q1	x	x

⌘ Alternative to the major in business risks and opportunities for computer science students

Computer science students who have already taken courses in this field while pursuing their Bachelor's degree may choose between 16-20 credits from the courses offered in the management minor for computer sciences.

ELECTIVE COURSES

ELECTIVE COURSES AVAILABLE FOR MASTER STUDENTS IN CIVIL ENGINEERING

● Mandatory

△ Courses not taught during 2020-2021

⊕ Periodic courses taught during 2020-2021

⊗ Optional

⊖ Periodic courses not taught during 2020-2021

■ Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

The elective courses being recommended and available for Master students in civil engineering are listed here above, in the majors and other lists of elective courses. However, a student can further suggest other courses that would be relevant for his/her personal curriculum, pending that this is compliant with the rules for setting up a personal Master program

Year

1 2

o Content:

⊗ LMECA2410	Mechanics of Materials	Laurent Delannay Aude Simar	30h+30h	5 Credits	q2	x	x
⊗ LFSA2212	Innovation classes	Benoît Macq Jean-Pierre Raskin Benoît Raucent	30h+15h	5 Credits	q1	x	x

ELECTIVE COURSES: TRANSVERSAL SKILLS AND CONTACTS WITH INDUSTRY

● Mandatory

△ Courses not taught during 2020-2021

⊕ Periodic courses taught during 2020-2021

⊗ Optional

⊖ Periodic courses not taught during 2020-2021

■ Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

The student selects between 3 and 17 credits in this list below or in the courses of the major "business risks and opportunities". An alternative is to select the Major in small and medium sized business creation.

Year

1 2

o Content:

o Transversal skills and contacts with industry

The student selects min 3 credits among the courses of the majors "business risks and opportunities", "small and medium sized business creation" and courses of professional integration activity specific to the program.

⊗ Professional integration activity specific to the program

⊗ Communication

Students may select max. 8 credits of languages courses or group dynamics :
Maximum 8 credits

⊗ Languages

Students may select from any language course offered at the ILV. Special attention is placed on the following seminars in professional development:

⊗ LALLE2500	Professional development seminar German	Caroline Klein (coord.)	30h	3 Credits	q1+q2	x	x
⊗ LALLE2501	Professional development seminar-German	Caroline Klein (coord.)	30h	5 Credits	q1+q2	x	x
⊗ LESPA2600	Vocational Induction Seminar - Spanish (B2.2/C1)	Paula Lorente Fernandez (coord.)	30h	3 Credits	q1	x	x
⊗ LESPA2601	Vocational Induction Seminar - Spanish (B2.2/C1)	Paula Lorente Fernandez (coord.)	30h	5 Credits	q1	x	x

						Year	
						1	2
⌘ LNEER2500	Seminar of Entry to professional life in Dutch - Intermediate level	Isabelle Demeulenaere (coord.) Marie-Laurence Lambrecht	30h	3 Credits	q1 or q2	x	x
⌘ LNEER2600	Seminar of entry to professional life in Dutch - Upper-Intermediate level	Isabelle Demeulenaere (coord.) Dag Houdmont	30h	3 Credits	q1 or q2	x	x

⌘ Group dynamics

⌘ LEPL2351	Dynamique des groupes - Q1	Christine Jacqmot Claude Oestges Benoît Raucent Vincent Wertz	15h+30h	3 Credits	q1	x	x
⌘ LEPL2352	Dynamique des groupes - Q2	Christine Jacqmot Claude Oestges Benoît Raucent Vincent Wertz	15h+30h	3 Credits	q2	x	x

⌘ Other non-disciplinary courses

The student may further select maximum 8 credits in other disciplines.

Course prerequisites

The **table** below lists the activities (course units, or CUs) for which there are one or more prerequisites within the programme, i.e. the programme CU for which the learning outcomes must be certified and the corresponding credits awarded by the jury before registering for that CU.

These activities are also identified in the **detailed programme**: their title is followed by a yellow square.

Prerequisites and student's annual programme

As the prerequisite is for CU registration purposes only, there are no prerequisites within a programme year. Prerequisites are defined between CUs of different years and therefore influence the order in which the student will be able to register for the programme's CUs.

In addition, when the jury validates a student's individual programme at the beginning of the year, it ensures its coherence, meaning that it may:

- transform a prerequisite into a corequisite within the same year (to enable the student to continue his or her studies with a sufficient annual course load)
- require the student to combine registration in two separate CUs which it considers necessary from a pedagogical point of view.

For more information, please consult the [Academic Regulations and Procedures](https://uclouvain.be/fr/decouvrir/rgee.html) (<https://uclouvain.be/fr/decouvrir/rgee.html>).

Prerequisites list

LGCIV2012 "[Project 2: Civil engineering works](#)" has prerequisite(s) LGCIV2013

- LGCIV2013 - [Hydraulic structures, bridges and roads](#)

The programme's courses and learning outcomes

For each UCLouvain training programme, a [reference framework of learning outcomes](#) specifies the competences expected of every graduate on completion of the programme. You can see the contribution of each teaching unit to the programme's reference framework of learning outcomes in the document "*In which teaching units are the competences and learning outcomes in the programme's reference framework developed and mastered by the student?*"

GCE2M - Information

Access Requirements

In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail
Decree of 7 November 2013 defining the landscape of higher education and the academic organization of studies.
The admission requirements must be met prior to enrolment in the University.

SUMMARY

- > [Specific access requirements](#)
- > [University Bachelors](#)
- > [Non university Bachelors](#)
- > [Holders of a 2nd cycle University degree](#)
- > [Holders of a non-University 2nd cycle degree](#)
- > [Access based on validation of professional experience](#)
- > [Access based on application](#)
- > [Admission and Enrolment Procedures for general registration](#)

Specific access requirements

This programme is taught in English with no prerequisite in French. The student is supposed to have at least a B2 level in the European Framework of Reference. A certificate is required for the holders of a non-Belgian degree, see [selection criteria](#) of the Acces on the file.

University Bachelors

Diploma	Special Requirements	Access	Remarks
UCLouvain Bachelors			
Bachelor in Engineering		Direct access	Students who have neither major nor minor in the field of their civil engineering Master's degree may have an adapted master programme.
Others Bachelors of the French speaking Community of Belgium			
Bachelor in engineering		Direct access	Students with a Bachelor's degree in engineering sciences who have not taken the equivalent of a minor in the field of their civil engineering master degree may have an adapted master programme.
Bachelors of the Dutch speaking Community of Belgium			
Bachelor in engineering		Access with additional training	Students who have no specialisation in the field of their civil engineering master degree may have an adapted master programme with up to 60 additional credits.
Foreign Bachelors			
Bachelor in engineering	Bachelor degree of Cluster Institution	Direct access	Students with a Bachelor's degree in engineering sciences who have not taken the equivalent of a minor in the field of their civil engineering master degree may have an adapted master programme.
	For others institutions	Access based on application	See Personalized Access

Non university Bachelors

> Find out more about [links](https://uclouvain.be/fr/etudier/passerelles) (https://uclouvain.be/fr/etudier/passerelles) to the university

Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
"Licenciés"			

Masters

Master in engineering	Direct access
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Holders of a non-University 2nd cycle degree

Access based on validation of professional experience

> See the website [Valorisation des acquis de l'expérience](#)

It is possible to gain admission to all masters courses via the validation of professional experience procedure.

Access based on application

Reminder : all Masters (apart from Advanced Masters) are also accessible on file.

The first step of the admission procedure requires to submit an application online: <https://uclouvain.be/en/study/inscriptions/futurs-etudiants.html>

[Selection criteria are summarized here](#) (epl-admission@uclouvain.be)

Admission and Enrolment Procedures for general registration

Teaching method

Methods that promote multidisciplinary studies

The Master's degree programme in civil and environmental engineering (with a focus on construction) is by nature interdisciplinary. This is especially apparent in two projects: a building project completed with architectural engineering students and a structural engineering project completed with engineering students from all fields. Among the major courses, some are included in the Master's degree programmes in architectural engineering (design and architecture), physical engineering, chemistry and materials science, mechanics and bioengineering as well urban planning and sustainable development. Furthermore, students may expand their knowledge by taking elective courses in non-technical disciplines.

Various teaching strategies

The teaching methods used in the Master's degree programme in civil and environmental engineering are consistent with that of the Bachelor's degree programme in engineering sciences: active learning, an equal mix of group work and individual work, and emphasis on the development of non-technical skills.

One important teaching method is the assignment of projects that integrate several subjects. This allows students to develop the critical thinking skills necessary to design and model in a laboratory.

A major characteristic of the programme is the immersion of students in professors' research laboratories (and at times teaching laboratories, case studies, projects, theses) that expose students to advanced methods used in the discipline and allows them to learning by questioning, a process inherent in the research process.

During the 2nd semester of the 1st year of the Master's degree programme, students may participate in a two-month long company internship, which allows them to immerse themselves in the professional world.

Half of the students' workload in the last year consists of the graduation project and offers students the possibility to deal in-depth with a given subject, which given its size and context, provides a real initiation into the working life of engineers or researchers.

Diverse learning situations

The Master's degree programme uses a variety of teaching methods depending on the discipline:

- lectures
- projects
- exercise sessions
- problem solving sessions
- case studies
- laboratories
- computer simulations
- tutoring sessions
- internships in industry or research
- visits to construction sites
- factory visits
- graduation trips
- group work
- individual work
- seminars offered by outside scientific experts

In certain cases, e-Learning allows students to work at their own pace and complete virtual experiments.

This variety of learning situations allows students to learn in an iterative and progressive manner all the while developing their autonomy as well as their organisational, time management and communication skills. Students also have access to the most up-to-date information technology (material, software, networks).

Evaluation

The evaluation methods comply with the regulations concerning studies and exams (<https://uclouvain.be/fr/decouvrir/rgee.html>). More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading "Learning outcomes evaluation method".

Student work is evaluated according to University rules (see the rules for evaluating coursework and exams) namely written and oral exams, laboratory exams, individual or group work, public presentations of projects and theses defences.

In general, student evaluations are done orally depending on the type of course:

- An oral exam based on material covered in a given course. This oral exam may be coupled with a written exam based on practical exercises. The oral exam provides students with the opportunity to dialogue their professors, allowing the latter to evaluate whether the student can clearly and convincingly present their ideas and argue in their favour.
- Regarding projects, students must schedule an oral defence of a technical report. During the defence, special attention is paid to students' communication skills.
- Some classes assign exercises, which are completed throughout the year allowing for continuous assessment of student work. The exercise results are discussed with each student. It is also expected that students will explain the steps that they took to complete the exercises thereby showing whether they truly understood the relevant concepts.

At the beginning of the semester, professors will explain their marking scheme, which is based on the learning outcomes of the course (that it frequently shares with those of the Master's degree programme).

For more information on evaluation methods, students may consult the relevant evaluation descriptions.

To obtain a passing grade, the marks received for the teaching units are offset by their respective credits.

Mobility and/or Internationalisation outlook

Since its creation, the Louvain School of Engineering (EPL) has participated in diverse [exchange programs](https://uclouvain.be/epl-international.html) (<https://uclouvain.be/epl-international.html>) that were put into place at the European level and beyond.

Possible trainings at the end of the programme

Doctoral programmes

1. GraSMech-Graduate School in Mechanics
2. ENVITAM-Sciences, Technologies and Environmental management

UCL Master's degrees (about 60) are accessible to UCL Master's degree holders

For example:

- The Master's degree (120) in sciences and environmental management and the Master's degree (60) in sciences and environmental management (automatic admission with possible complementary coursework)
- Different Master's degree programmes in management (automatic admission based on written application): see this list
- The Master's degree (60) in information and communication at Louvain-la-Neuve or the Master's degree (60) in information and communication at Mons

Contacts

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