

**At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In English**Dissertation/Graduation Project : **YES** - Internship : **YES**Activities in English: **YES** - Activities in other languages : **optional**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

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#### 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

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The Master's degree programme includes:

- 81 credits of compulsory courses, including the courses of the common core and the specialized focus, the end-of-studies work and the long internship
- 39 credits of optional courses, including a minimum of 23 credits to be chosen from the options in structures, geomechanics and hydraulics.

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.

## GCE2M Programme

## Detailed programme by subject

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### CORE COURSES [51.0]

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- Mandatory
- ✘ Optional
- △ Not offered in 2023-2024
- ⊙ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- ⊕ Open to incoming exchange students
- ⊗ Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

Year

1 2

○ LGCE2990	<b>Graduation project/End of studies project</b> <i>The graduation project can be written and presented in French or English, in consultation with the supervisor. It may be accessible to exchange students by prior agreement between the supervisors and/or the two universities.</i>		EN [q1+q2] [ ] [25 Credits] 🌐			X
○ LEPL2020	<b>Professional integration work</b> <i>Les modules du cours LEPL2020 sont organisés sur les deux blocs annuels du master. Il est fortement recommandé à l'étudiant.e de les suivre dès le bloc annuel 1, mais il.elle ne pourra inscrire le cours qu'au plus tôt l'année où il.elle présente son travail de fin d'études.</i>	Myriam Banaï Francesco Contino (coord.) Delphine Ducarme Jean-Pierre Raskin	EN [q1+q2] [30h+15h] [2 Credits] 🌐 > French-friendly	X		X

○ **Civil and environmental engineering (17 credits)**

○ LGCIV2033	<b>Steel and composite steel-concrete structures</b>	Marion Charlier Olivier Vassart	EN [q1] [30h+30h] [5 Credits] 🌐 > French-friendly		X	
○ LGCIV2051	<b>Applied hydraulics : open-channel flows</b>	Sandra Soares Frazao	EN [q1] [30h+30h] [5 Credits] 🌐 > French-friendly		X	
○ LGCIV2041	<b>Numerical analysis of civil engineering structures</b>	Hadrien Rattez João Saraiva Esteves Pacheco De Almeida	EN [q2] [20h+15h] [4 Credits] 🌐 > French-friendly		X	
○ LGCIV2015	<b>Roads and bridges</b>	Pierre Gilles Colette Grégoire Sébastien Houdart	EN [q2] [30h] [3 Credits] 🌐 > French-friendly		X	

○ **Civil engineering project (7 credits)**

○ LGCIV2012	<b>Project 2: civil engineering structures</b> 🏗️	Bernard Cols Pierre Latteur Laurent Ney Hadrien Rattez João Saraiva Esteves Pacheco De Almeida	EN [q1] [42.5h+40h] [7 Credits] 🌐 > French-friendly			X
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**PROFESSIONAL FOCUS [30.0]**

- Mandatory
- ✘ Optional
- △ Not offered in 2023-2024
- ⊙ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

Year

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

○ LGCIV2011	<a href="#">Project 1</a>	Pierre Latteur Hadrien Rattez Thomas Vandenberg Denis Zastavni	EN [q1] [42.5h+40h] [7 Credits] 🌐 > French-friendly	X	
○ LGCIV2014	<a href="#">Building technology</a>	Sergio Altomonte Pierre Latteur Yvette Pelsser	EN [q1] [30h] [3 Credits] 🌐 > French-friendly	X	
○ LGCIV2013	<a href="#">Hydraulic structures</a>	Didier Bousmar Sandra Soares Frazao	EN [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	X	
○ LGCIV2071	<a href="#">Geotechnics</a>	Hadrien Rattez	EN [q1] [30h+30h] [5 Credits] 🌐 > French-friendly	X	

**o Company internships (10 credits)**

○ LFSA2995	<a href="#">Company Internship</a> <i>Un stage de deux mois en entreprise est prévu pendant le second quadrimestre du premier bloc annuel du master et offre une occasion d'immersion dans le monde professionnel</i>	Dimitri Lederer Jean-Pierre Raskin	EN [q1+q2] [30h] [10 Credits] 🌐	X	
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## OPTIONS

Dans la rubrique "Options du master ingénieur civil des constructions", l'étudiant-e doit sélectionner obligatoirement minimum 24 crédits parmi les cours repris dans les options "structures", "géomécanique" et "hydraulique".

Dans la rubrique "Options et cours au choix en connaissances socioéconomiques", l'étudiant-e valide une des deux options ou choisit obligatoirement au minimum 3 crédits parmi les cours au choix ou les cours de l'option en enjeux de l'entreprise.

### Majors for master in civil engineering

- > Major in Geotechnical engineering [ en-prog-2023-gce2m-lgce223o ]
- > Major in Structural engineering [ en-prog-2023-gce2m-lgce226o ]
- > Major in Hydraulic engineering [ en-prog-2023-gce2m-lgce225o ]
- > Major in architecture [ en-prog-2023-gce2m-lgce227o ]

### Options et cours au choix en connaissances socio-économiques

- > Business risks and opportunities [ en-prog-2023-gce2m-lgce230o ]
- > Major in Interdisciplinary Program in Entrepreneurship - INEO [ en-prog-2023-gce2m-lgce231o ]
- > Cours au choix en connaissances socio-économiques [ en-prog-2023-gce2m-lgce200o ]

### Other elective courses

- > Other elective courses [ en-prog-2023-gce2m-lgce229o ]

## MAJORS FOR MASTER IN CIVIL ENGINEERING

### MAJOR IN GEOTECHNICAL ENGINEERING

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊙ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

L'étudiant-e qui choisit de valider cette option doit sélectionner au minimum 15 crédits parmi les cours proposés.

Year

1 2

#### Content:

				1	2
⊗ LGCIV2073	Hydrogeology and Geoenvironment	Pierre-Yves Bolly	EN [q1] [30h] [3 Credits] 🌐 > French-friendly	X	X
⊗ LGCIV2074	Offshore Geotechnics	Benoît Spinewine	EN [q2] [20h+15h] [4 Credits] 🌐 > French-friendly	X	X
⊗ LGCIV2076	Geotechnical risks	Jean-François Vanden Berghe	EN [q1] [20h+15h] [4 Credits] 🌐 > French-friendly	X	X
⊗ LBIR1336	Soil science and integrated excursions	Yannick Agnan (coord.) Richard Lambert Caroline Vincke	EN [q2] [30h+37.5h] [5 Credits] 🌐 > English-friendly	X	X

**MAJOR IN STRUCTURAL ENGINEERING**

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊖ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫🌐 Not open to incoming exchange students
- (FR) Teaching language (FR, EN, ES, NL, DE, ...)

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

L'étudiant-e qui choisit de valider cette option doit sélectionner au minimum 15 crédits parmi les cours proposés.

Year

1 2

**Content:**

					1	2
⊗ LGCIV2032	<a href="#">Prestressed concrete structures</a>	Jean-François Cap	FR [q1] [20h+15h] [4 Credits] 🌐		X	X
⊗ LGCIV2042	<a href="#">Dynamics of structures</a>	João Saraiva Esteves Pacheco De Almeida	ES [q1] [30h+15h] [5 Credits] 🌐 > French-friendly		X	X
⊗ LGCIV2043	<a href="#">Timber Structures</a>	Pierre Latteur	FR [q2] [20h+15h] [4 Credits] 🌐		X	X
⊗ LGCIV2045	<a href="#">Structures under fire conditions</a>	Olivier Vassart	EN [q2] [20h] [3 Credits] 🌐 > French-friendly		X	X
⊗ LGCIV2046	<a href="#">Earthquake engineering</a>	João Saraiva Esteves Pacheco De Almeida	ES [q2] [20h+15h] [4 Credits] 🌐 > French-friendly		X	X
⊗ LGCIV2047	<a href="#">Pathology and rehabilitation of structures</a>	Luca Sgambi	FR [q2] [30h] [4 Credits] 🌐		X	X
⊗ LMECA2520	<a href="#">Calculation of planar structures</a>	Issam Doghri	ES [q2] [30h+30h] [5 Credits] 🌐 > French-friendly		X	X
⊗ LMECA2640	<a href="#">Mechanics of composite materials</a>	Issam Doghri	ES [q2] [30h+30h] [5 Credits] 🌐 > French-friendly		X	X
⊗ LMAPR2483	<a href="#">Durability of materials</a>	Laurent Delannay Thomas Pardoën	EN [q2] [30h+22.5h] [5 Credits] 🌐 > French-friendly		X	X
⊗ LICAR2841	<a href="#">Conception de l'architecture avec le bois</a>	Damien Nyssen-Dehayé	FR [q2] [22.5h] [3 Credits] ⊕ 🌐		X	X



**MAJOR IN HYDRAULIC ENGINEERING**

- Mandatory
- ✘ Optional
- △ Not offered in 2023-2024
- Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

L'étudiant-e qui choisit de valider cette option doit sélectionner au minimum 15 crédits parmi les cours proposés.

Year

1 2

**Content:**

✘ LGCIV2055	Analysis and mitigation of floods	Sandra Soares Frazao	EN [q1] [20h+15h] [4 Credits] 🌐 > French-friendly	X	X
✘ LGCIV2053	Fluvial hydraulics	Sandra Soares Frazao	EN [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
✘ LGCIV2056	Marine Hydrodynamics	Eric Deleersnijder	EN [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
✘ LGCIV2052	Hydropower plants	Sandra Soares Frazao	EN [q2] [20h] [3 Credits] 🌐 > French-friendly	X	X
✘ LBRES2204	Integrated water management of water resources	François Jonard Marnik Vanclooster (coord.)	FR [q1] [22.5h+22.5h] [4 Credits] 🌐	X	X

**MAJOR IN ARCHITECTURE**

- Mandatory
- ✘ Optional
- △ Not offered in 2023-2024
- Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

L'étudiant-e qui choisit de valider cette option doit sélectionner au minimum 15 crédits parmi les cours proposés.

Minimum 15 credit(s)

Year

1 2

**Content:**

✘ LICAR2801	Theory and research in the physical sciences: sustainable building	Sergio Altomonte André Stephan Geoffrey Van Moeseke	FR [q1] [80h] [9 Credits] 🌐	X	X
✘ LICAR2902	Project management and world of construction	Nicolas Van Oost	FR [q1] [20h+20h] [4 Credits] 🌐	X	X
✘ LICAR2901	Law on built and unbuilt areas	Christophe Thiebaut	FR [q1] [30h] [3 Credits] 🌐	X	X
✘ LICAR2823	Edification soutenable 3 : architecture climatique	Sergio Altomonte	FR [q2] [22.5h] [3 Credits] 🚫 🌐	X	X
✘ LICAR2841	Conception de l'architecture avec le bois	Damien Nyssen-Dehayé	FR [q2] [22.5h] [3 Credits] ⊕ 🌐	X	X
✘ LICAR2831	Architecture : rénovation, restauration	Cécile Mairy	FR [q2] [22.5h] [3 Credits] ⊕ 🌐	X	X

**OPTIONS ET COURS AU CHOIX EN CONNAISSANCES SOCIO-ÉCONOMIQUES****BUSINESS RISKS AND OPPORTUNITIES**

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊖ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

Year

1 2

**o Content:**

				1	2
○ LEPL2211	<a href="#">Business issues introduction</a>	Benoît Gailly	EN [q2] [30h] [3 Credits] 🌐 > French-friendly	X	X
○ LEPL2212	<a href="#">Financial performance indicators</a>	Anne-Catherine Provost	EN [q2] [30h+5h] [4 Credits] 🌐 > French-friendly	X	X
○ LEPL2214	<a href="#">Law, Regulation and Legal Context</a>	Vincent Cassiers Werner Derycke	FR [q1] [30h+5h] [4 Credits] 🌐	X	X

**o One course between**

From 3 to 5 credit(s)

⊗ LEPL2210	<a href="#">Ethics and ICT</a>	Maxime Lambrecht (compensates Axel Gosseries) Maxime Lambrecht (compensates Olivier Pereira)	EN [q2] [30h] [3 Credits] 🌐 > French-friendly	X	X
⊗ LLSMS2280	<a href="#">Business Ethics and Compliance Management</a>	Carlos Desmet	EN [q1] [30h] [5 Credits] 🌐	X	X

**⊗ Cours en marketing**

⊗ MGEST1108	<a href="#">Marketing</a>	Nadia Sinigaglia	FR [q2] [45h+20h] [6 Credits] 🌐	X	X
⊗ MLSMM2136	<a href="#">Trends in Digital Marketing</a> ■	Ingrid Poncin	FR [q2] [30h] [5 Credits] 🌐		X
⊗ MLSMM2134	<a href="#">e-Consumer Behavior</a> ■	Nicolas Kervyn de Meerendré (compensates Karine Charry)	FR [q2] [30h] [5 Credits] 🌐		X

**⊗ Cours en Sourcing and Procurement**

⊗ LLSMS2036	<a href="#">Supply Chain Procurement</a>	Per Joakim Agrell Antony Paulraj	EN [q1] [30h] [5 Credits] 🌐	X	X
⊗ LLSMS2038	<a href="#">Procurement Organisation and Scope</a>	Constantin Blome Canan Kocabasoglu Hilmer	EN [q1] [30h] [5 Credits] 🌐	X	X
⊗ LLSMS2037	<a href="#">Sourcing Strategy</a>	Constantin Blome Michael Henke	EN [q1] [30h] [5 Credits] 🌐	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.

## MAJOR IN INTERDISCIPLINARY PROGRAM IN ENTREPRENEURSHIP - INEO

Commune à la plupart des masters de l'EPL, cette option a pour objectif de familiariser l'étudiant-e avec les spécificités de l'entrepreneuriat et de la création d'entreprise afin de développer chez lui les aptitudes, connaissances et outils nécessaires à la création d'entreprise.

Cette option rassemble des étudiants de différentes facultés en équipes interdisciplinaires afin de créer un projet entrepreneurial. La formation interdisciplinaire en entrepreneuriat (INEO) est une option qui s'étend sur 2 ans et s'intègre dans plus de 30 Masters de 9 facultés/écoles de l'UCLouvain. Le choix de l'option INEO implique la réalisation d'un mémoire interfacultaire (en équipe) portant sur un projet de création d'entreprise. L'accès à cette option, ainsi qu'à chacun des cours, est limité aux étudiant-es sélectionnés sur dossier. Toutes les informations sur <https://uclouvain.be/fr/etudier/ineo>.

L'étudiant.e qui choisit de valider cette option doit sélectionner au minimum 20 crédits et au maximum 25 crédits. Cette option n'est pas accessible en anglais et ne peut être prise simultanément avec l'option « Enjeux de l'entreprise ».

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊖ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- ⊕ Open to incoming exchange students
- ⊖ Not open to incoming exchange students
- (FR) Teaching language (FR, EN, ES, NL, DE, ...)

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

Year

1 2

### o Content:

#### o Required courses

○ LINEO2001	<a href="#">Théorie de l'entrepreneuriat</a>	<a href="#">Frank Janssen</a>	FR [q1] [30h+20h] [5 Credits] ⊕	X	
○ LINEO2002	<a href="#">Aspects juridiques, économiques et managériaux de la création d'entreprise</a>	<a href="#">Yves De Cordt</a> <a href="#">Marine Falize</a>	FR [q1] [30h+15h] [5 Credits] ⊕	X	
○ LINEO2003	<a href="#">Plan d'affaires et étapes-clefs de la création d'entreprise</a> <i>Les séances du cours LINEO2003 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>	<a href="#">Frank Janssen</a>	FR [q2] [30h+15h] [5 Credits] ⊕		X
○ LINEO2004	<a href="#">Séminaire d'approfondissement en entrepreneuriat</a>	<a href="#">Frank Janssen</a>	FR [q2] [30h+15h] [5 Credits] ⊕	X	

#### ⊗ Prerequisite courses

Student who have not taken management courses during their previous studies must enroll in LINEO2021.

○ LINEO2021	<a href="#">Financer son projet</a>	<a href="#">Yves De Rongé</a> <a href="#">Philippe Grégoire</a> (compensates <a href="#">Yves De Rongé</a> )	FR [q2] [30h+15h] [5 Credits] ⊕	X	
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**COURS AU CHOIX EN CONNAISSANCES SOCIO-ÉCONOMIQUES**

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊖ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- (FR) Teaching language (FR, EN, ES, NL, DE, ...)

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

Year

1 2

**o Content:**

⊗ LFSA2212	Innovation classes	Benoît Macq Jean-Pierre Raskin Benoît Raucent	FR [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
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**OTHER ELECTIVE COURSES****OTHER ELECTIVE COURSES**

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊖ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- (FR) Teaching language (FR, EN, ES, NL, DE, ...)

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

Year

1 2

**o Content:**

Les étudiants peuvent également inscrire à leur programme tout cours faisant partie des programmes d'autres masters de l'EPL moyennant l'approbation du jury restreint.

**⊗ 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.)	DE [q1+q2] [30h] [3 Credits] 🌐	X	X
⊗ LALLE2501	Professional development seminar-German	Caroline Klein (coord.)	DE [q1+q2] [30h] [5 Credits] 🌐	X	X
⊗ LESPA2600	Vocational Induction Seminar - Spanish (B2.2/C1)	Paula Lorente Fernandez (coord.)	ES [q1] [30h] [3 Credits] 🌐	X	X
⊗ LESPA2601	Vocational Induction Seminar - Spanish (B2.2/C1)	Paula Lorente Fernandez (coord.)	ES [q1] [30h] [5 Credits] 🌐	X	X
⊗ LNEER2500	Seminar of Entry to professional life in Dutch - Intermediate level	Isabelle Demeulenaere (coord.)	NL [q1 or q2] [30h] [3 Credits] 🌐	X	X
⊗ LNEER2600	Seminar of entry to professional life in Dutch - Upper-Intermediate level	Isabelle Demeulenaere (coord.) Dag Houdmont	NL [q1 or q2] [30h] [3 Credits] 🌐	X	X

Year

1 2

### ⌘ Group dynamics

⌘ LEPL2351	Become a tutor	Jean-Charles Delvenne (coord.) Delphine Ducarme Thomas Pardoën Benoît Raucent	PS [q1] [15h+30h] [3 Credits] 	X	X
⌘ LEPL2352	Become a tutor	Jean-Charles Delvenne (coord.) Delphine Ducarme Thomas Pardoën Benoît Raucent	PS [q2] [15h+30h] [3 Credits] 	X	X

### ⌘ Autres UEs hors-EPL

L'étudiant-e peut choisir maximum 8 ects de cours hors EPL considérées comme non-disciplinaires par la commission de diplôme

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## Course prerequisites

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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:

- require the student to combine registration in two separate CUs which it considers necessary from a pedagogical point of view.
- transform a prerequisite into a corequisite if the student is in the final year of a degree course.

For more information, please consult the [Academic Regulations and Procedures](#).

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### # Prerequisites list

**LGCIV2012** "[Project 2: civil engineering structures](#)" has prerequisite(s) LGCIV2011

- LGCIV2011 - [Project 1](#)

**MLSMM2134** "[E-comportement du consommateur](#)" has prerequisite(s) MGEST1108

- MGEST1108 - [Marketing](#)

**MLSMM2136** "[Tendances en Digital Marketing](#)" has prerequisite(s) MGEST1108

- MGEST1108 - [Marketing](#)

## The programme's courses and learning outcomes

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For each UCLouvain training programme, a [reference framework of learning outcomes](#) specifies the skills expected of every graduate on completion of the programme. Course unit descriptions specify targeted learning outcomes, as well as the unit's contribution to reference framework of learning outcomes.

## GCE2M - Information

### Access Requirements

Master course admission requirements are defined by the French Community of Belgium Decree of 7 November 2013 defining the higher education landscape and the academic organisation of courses.

General and specific admission requirements for this programme must be satisfied at the time of enrolling at the university.

Unless explicitly mentioned, the bachelor's, master's and licentiate degrees listed in this table or on this page are to be understood as those issued by an institution of the French, Flemish or German-speaking Community, or by the Royal Military Academy.

**In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail.**

#### SUMMARY

- > [General access requirements](#)
- > [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. 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
<b>UCLouvain Bachelors</b>			
<a href="#">Bachelor in Engineering</a>		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.
<b>Others Bachelors of the French speaking Community of Belgium</b>			
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.
<b>Bachelors of the Dutch speaking Community of Belgium</b>			
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.
<b>Foreign Bachelors</b>			
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](#) 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

> It is possible, under certain conditions, to use one's personal and professional experience to enter a university course without having the required qualifications. However, validation of prior experience does not automatically apply to all courses. Find out more about [Validation of priori experience](#).

### Access based on application

Access based on application : access may be granted either directly or on the condition of completing additional courses of a maximum of 60 ECTS credits, or refused.

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 \(epl-admission@uclouvain.be\)](mailto:epl-admission@uclouvain.be)

## Admission and Enrolment Procedures for general registration



## Teaching method

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### 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

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***The evaluation methods comply with the [regulations concerning studies and exams](#). 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

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Since its creation, the Louvain School of Engineering (EPL) has participated in diverse [exchange programs](#) that were put into place at the European level and beyond.

## Possible trainings at the end of the programme

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### Doctoral programmes

1. [GraSMech-Graduate School in Mechanics](#)
2. [ENVITAM-Sciences, Technologies and Environmental management](#)

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

For example:

- Different Master's degree programmes in management (automatic admission based on written application).
- The [Master \[60\] in Information and Communication](#) at Louvain-la-Neuve or the [Master \[60\] in Information and Communication](#) at Mons

## Contacts

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### Curriculum Management

Entity

Structure entity

Denomination

[\(IMMC\)](#)

Sector

Acronym

Postal address

SST/IMMC/GCE

[\(GCE\)](#)

Sciences and Technology [\(SST\)](#)

GCE

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Jury

- Président du Jury: [Claude Oestges](#)
- Secrétaire du Jury: [Pierre Latteur](#)

Useful Contact(s)

- Secrétariat: [Nathalie Sergoigne](#)

