UCLouvain

SINF2M

2023 - 2024

Master [120] in Computer Science

At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In English
Dissertation/Graduation Project : **YES** - Internship : **optional**
Activities in English: **YES** - Activities in other languages : **optional**
Activities on other sites : **NO**
Main study domain : **Sciences**
Organized by: **Louvain School of Engineering (EPL)**
Programme acronym: **SINF2M** - Francophone Certification Framework: 7

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SINF2M - Introduction

Introduction

Introduction

This Master's degree programme tries to strike **a balance between "soft skills" and scientific and technical knowledge, between excellence in research and the pragmatism of field work.** It offers:

- an approach to computer science based on fundamental **concepts** that keep up with the rapid pace of technological progress;
- a programme taught **entirely in English** in order to improve students' language skills, especially in technical English (both written and spoken);
- **exchange programmes** and dual degrees in Belgium, Europe and across the world.

Your profile

You would like to

- **Imagine, design, and implement** computer science systems that will shape the future;
- continue your education beyond the Bachelor's degree with a major in computer sciences (or the equivalent);
- improve your **theoretical knowledge** and develop your technical expertise in fields like artificial intelligence, computer networks, information security, software engineering and programming systems;
- improve your **interdisciplinary knowledge** in areas such as foreign languages, resource management, teamwork, autonomy and ethics.

Your future job

We train

- **scientists** who know how to investigate a sharp problematic using scientific litterature in the field;
- **professionals** who will design computer systems that meet users' needs;
- **innovators** who can master a wide range of constantly evolving technologies;
- **specialists** capable of implementing software solutions with particular attention paid to product quality and its development process.

Your programme

This Master's degree programme consists of

- **required coursework** that seeks to give students the necessary skills to model and design complex applications (which is an indispensable part of the education of all university-trained computer scientists);
- **a major** selected by students that allows them to gain cutting edge knowledge in a field of their interest: software engineering and programming systems, artificial intelligence and big data, networks and security;
- **elective courses** that allow students to explore their interests whether it be computer science or another discipline (management, business creation, languages). As a comprehensive university, UCLouvain has numerous courses of study;
- a **graduation project** that makes up half of the programme during the last year. It offers students the possibility to study a subject in-depth and thanks to its size, introduces students to the professional life of a computer scientist or researcher; the topic of this project is selected in consultation with the programme supervisors and possibly a company.

SINF2M - Teaching profile

Learning outcomes

The computer science developers and designers of tomorrow face two major challenges:

- increasingly complex computer science systems
- ncreasingly varied areas of application

In order to meet these challenges, future diploma holders should

- master real computer science technologies but also keep up with their constant progress
- innovate by integrating in computer systems elements linked to artificial intelligence, software engineering, and security networks
- work as part of multidisciplinary teams that take into account non-technical issues, be open to social sciences and the humanities to help with this task.

This programme is based on research:

UCLouvain is a research university. The computer science research conducted at the institute ICTEAM is internationally recognised. Through the major courses offered in this Master's degree programme, students will be able to take advantage of cutting edge knowledge. In addition to providing fundamental knowledge, this programme is based on the in-depth understanding of concepts and the ability to think abstractly. These tools allow students to quickly adapt to the needs of companies. Moreover, this research may be continued through projects carried out at the doctoral level.

Applying concepts:

The application of concepts is a key part of this Master's degree programme. It is inconceivable that students can master theoretical concepts but not know how to apply them to a concrete problem. Thus, the programme includes a number of projects and studies, a large-scale graduation project and the possibility of completing an internship in a company.

International openness:

English is de facto the most used language in companies and those in the technical field in particular. This Master's degree programme is thus taught in English, which gives our students good speaking and writing skills. By offering a Master's degree in English, this programme demonstrates its international openness. The use of English allows the programme to welcome international students while at the same time immersing them in a French-speaking environment. It also increases the possibility of exchanges and dual diplomas with other (non-Belgian) universities.

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

1.demonstrate mastery of a solid body of knowledge in computer science allowing them to solve problems raised in their field of study

This Master's degree programme aims to provide students with advanced knowledge. A diversity of subjects are offered in the common curriculum and students specialise vria a major:

- security networks
- programming systems
- software engineering
- artificial intelligence
- Data Science and Applied Mathematics
- Business issues

2.organise and carry out the development of a computer system that meets the complex demands of a client

2.1.Analyse a problem to solve or the functional needs to be met and formulate a corresponding specifications note.
2.2.Model a problem and design one or more technical solutions in line with the specifications note.
2.3.Evaluate and classify the solutions in light of all the criteria included in the specifications note: efficiency, feasibility, quality, ergonomics and environmental security.
2.4. Implement and test the chosen solution.
2.5.Come up with recommendations to improve the operational nature of the solution.

3.organise and carry out a study to understand a new problem in the field

3.1. Document and summarize the existing body of knowledge in the area under consideration
3.2. Propose a model and/or an experimental device in order to simulate or test a hypotheses relating to the phenomenon being studied
3.3. Write a cumulative report that explains the potential of the theoretical or technical innovations resulting from the research project

4. contribute as part of a team to the planning and completion of a project while taking into account its objectives, allocated resources, and constraints

4.1. Frame and explain the project's objectives (in terms of performance indicators) while taking into account its issues and constraints
4.2. Collaborate on a work schedule, deadlines and roles
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)

5. communicate effectively (orally or in writing) with the goal of carrying out assigned projects in the workplace (in English in particular)

5.1. Identify the needs of the client or the user: question, listen and understand all aspects of their request and not just the technical aspects.
5.2. Present your arguments and adapt to the language of your interlocutors: technicians, colleagues, clients, superiors
5.3. Communicate through graphics and diagrams: interpret a diagram, present project results, structure information
5.4. Read and analyse different technical documents (rules, plans, specification notes)
5.5. Draft documents that take into account contextual requirements and social conventions
5.6. Make a convincing oral presentation using modern communication techniques.

6. Demonstrate rigor, openness and critical thinking as well as a sense of ethics in your work

6.1. Rigorously apply the standards of your discipline (terminology, measurement units, quality standards and security)
6.2. Find solutions that go beyond strictly technical issues by considering sustainable development and the socio-economic ethics 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 remain knowledgeable in the field.

Programme structure

The programme consists of four parts:

- a common curriculum, mainly the graduation project (30 credits).
- a final specialisation, required (30 credits).
- one or more majors allowing for specialisation in a field of computer science (20-40 credits).
- elective courses (20-40 credits).

The graduation project is normally carried out in the last year. However, students may, depending on their training, conduct other courses in either the first or second year so long as they have completed the prerequisite courses. This is especially the case for students who have completed a portion of their studies abroad. The yearly allocation of course activities found in the detailed programme description is for information purposes only.

In general, this Master's degree will consist of a minimum of 120 credits spread over two years with 60 credits taken per year (regardless of the focus, major or elective courses selected).

SINF2M Programme

Detailed programme by subject

CORE COURSES [30.0]

O Mandatory
X 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
LINFO2992	Graduation project/End of studies project *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.*		EN [q1+q2] [] [25 Credits]	x	x
LEPL2020	Professional integration work *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.*	Myriam Banaï Francesco Contino (coord.) Delphine Ducarme Jean-Pierre Raskin	EN [q1+q2] [30h+15h] [2 Credits] *> French-friendly*	x	x

Computer science seminars

Students may choose 3 credits among
The student shall select 3 credits from amongst

LINFO2349	Networking and security seminar	Etienne Riviere Ramin Sadre	EN [q1] [30h] [3 Credits] *> French-friendly*		x
LINFO2359	Software engineering and programming systems seminar	Axel Legay	EN [q1] [30h] [3 Credits] *> French-friendly*		x
LINFO2369	Artificial intelligence and machine learning seminar	Sébastien Jodogne Siegfried Nijssen	EN [q1] [30h] [3 Credits] *> French-friendly*		x

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 1	Year 2
Content:					
Computer science courses					
LINFO2132	Languages and translators	Ramin Sadre	EN [q2] [30h+30h] [6 Credits] > *French-friendly*	x	x
LINFO2172	Databases	Siegfried Nijssen	EN [q2] [30h+30h] [6 Credits] > *French-friendly*	x	x
LINFO2241	Architecture and performance of computer systems	Tom Barbette	EN [q1] [30h+30h] [6 Credits] > *French-friendly*	x	x
LINFO2262	Machine Learning :classification and evaluation	Pierre Dupont	EN [q2] [30h+30h] [6 Credits] > *French-friendly*	x	x
LINFO2255	Software engineering project	Axel Legay	EN [q1] [30h+30h] [6 Credits] > *French-friendly*	x	x

OPTIONS

The student completes his program with options and/or elective courses. He/she selects 60 credits from the following sections. In the section "Options and elective courses in socio-economic knowledge", the student validates one of the two options or chooses at least 3 credits from among the elective courses or the courses of the option in business issues.

Options en sciences informatiques

> Major in Artificial Intelligence: big data, optimization and algorithms *[en-prog-2023-sinf2m-lsinf223o]*
> Major in Software Engineering and Programming Systems *[en-prog-2023-sinf2m-lsinf224o]*
> Option in Data science and Applied Mathematics *[en-prog-2023-sinf2m-lsinf226o]*
> Option en Cybersecurity *[en-prog-2023-sinf2m-linfo309o]*
> Option Networks and systems *[en-prog-2023-sinf2m-linfo319o]*
> Option en Informatique médicale *[en-prog-2023-sinf2m-linfo329o]*
> Cours au choix disciplinaires *[en-prog-2023-sinf2m-linfo237o]*

Options et cours au choix en connaissances socio-économiques

> Business risks and opportunities *[en-prog-2023-sinf2m-linfo233o]*
> Major in Interdisciplinary Program in Entrepreneurship - INEO *[en-prog-2023-sinf2m-linfo232o]*
> Cours au choix en connaissances socio-économiques *[en-prog-2023-sinf2m-linfo200o]*

Others Elective courses

> Others elective courses *[en-prog-2023-sinf2m-lsinf923o]*

OPTIONS EN SCIENCES INFORMATIQUES

MAJOR IN ARTIFICIAL INTELLIGENCE: BIG DATA, OPTIMIZATION AND ALGORITHMS

Students completing the major in Artificial Intelligence: big data, optimization and algorithms will be able to:

- Identify and implement methods and techniques that allow software to solve complex problems that when solved by humans require "intelligence",
- Understand and put to good use methods and techniques relating to artificial intelligence such as automatic reasoning, research and heuristics, acquisition and representation of knowledge, automatic learning, problems associated with overcoming constraints,
- Identify applications and its methods and tools; understand a particular category of applications and its related techniques, for example robotics, computer vision, planning, data mining, computational linguistics and bioinformatics, big data processing,
- Formalise and structure a body of complex knowledge and use a systematic and rigorous approach to develop quality "intelligence" systems.

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...)

From 20 to 30credit(s)

Content:

Required courses in Artificial Intelligence: big data, optimization and algortihms

				Year 1	Year 2
LINFO2263	Computational Linguistics	Pierre Dupont	EN [q1] [30h+15h] [5 Credits] > *French-friendly*	x	x
LINFO2266	Advanced Algorithms for Optimization	Pierre Schaus	EN [q1] [30h+15h] [5 Credits] > *French-friendly*	x	x
LINFO2365	Constraint programming	Pierre Schaus	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x
LINFO2364	Mining Patterns in Data	Siegfried Nijssen	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x

Elective courses in Artificial Itelligence

The student select 10 credits among

LELEC2870	Machine learning : regression, deep networks and dimensionality reduction	John Lee John Lee (compensates Michel Verleysen) Michel Verleysen	EN [q1] [30h+30h] [5 Credits] > *French-friendly*	x	x
LELEC2885	Image processing and computer vision	Christophe De Vleeschouwer (coord.) Laurent Jacques	EN [q1] [30h+30h] [5 Credits] > *French-friendly*	x	x
LGBIO2010	Bioinformatics	Vincent Branders (compensates Pierre Dupont)	EN [q1] [30h+30h] [5 Credits] > *French-friendly*	x	x
LINFO2145	Cloud Computing	Etienne Riviere	EN [q1] [30h+15h] [5 Credits] > *French-friendly*	x	x
LINMA1691	Discrete mathematics - Graph theory and algorithms	Vincent Blondel Jean-Charles Delvenne	FR [q1] [30h+22.5h] [5 Credits]	x	x
LINMA1702	Optimization models and methods I	François Glineur	FR [q2] [30h+22.5h] [5 Credits]	x	x
LINMA2450	Combinatorial optimization	Julien Hendrickx Geovani Nunes Grapiglia	EN [q1] [30h+22.5h] [5 Credits] > *French-friendly*	x	x

				Year 1	2
⊠ LINMA2472	Algorithms in data science	Jean-Charles Delvenne (coord.) Gautier Krings (compensates Vincent Blondel)	EN [q1] [30h+22.5h] [5 Credits] *> French-friendly*	x	x
⊠ LINFO2275	Data mining & decision making	Marco Saerens	EN [q2] [30h+15h] [5 Credits] *> French-friendly*	x	x
⊠ LINFO2381	Health Informatics	Sébastien Jodogne	EN [q2] [30h+30h] [5 Credits] *> French-friendly*	x	x

MAJOR IN SOFTWARE ENGINEERING AND PROGRAMMING SYSTEMS

Students completing the major “Software engineering and programming systems” will be able to:

- Understand and explain problems that come up during large scale software projects as well as the long-term critical impact that their choice of solutions may have (construction dimensions as well as validation, documentation, communication and management of a project involving large teams as well as costs and deadlines),
- Select and apply methods and tools of software engineering to develop complex software systems and meet strict quality standards: reliability, adaptability, scalability, performance, security, usefulness,
- Model the products and processes necessary to obtain such systems and analyse these models,
- Develop and implement analytical programmes focused on conversion and optimisation as well as computer representations,
- Put to good use different programming paradigms and languages, in particular those that deal with functional, object-oriented and competing programmes,
- Understand the issues associated with different and competing programming models and use the appropriate model,
- Define a new language (syntax and semantics) suitable to a specific context.

From 20 to 30credit(s)

Content:

Required courses in software engineering and programming systems

				Year 1	Year 2
LINFO2143	Concurrent systems : models and analysis	Charles Pecheur	EN [q1] [30h+15h] [5 Credits] > French-friendly	x	x
LINFO2251	Software Quality Assurance	Charles Pecheur	EN [q2] [30h+15h] [5 Credits] > French-friendly	x	x
LINFO2252	Software Maintenance and Evolution	Kim Mens	EN [q1] [30h+15h] [5 Credits] > French-friendly	x	x
LINFO2345	Languages and algorithms for distributed Applications	Peter Van Roy	EN [q1] [30h+15h] [5 Credits] > French-friendly	x	x

Elective courses in Software Engineering and Programming Systems

The student can select 10 credits among

				Year 1	Year 2
LINFO2145	Cloud Computing	Etienne Riviere	EN [q1] [30h+15h] [5 Credits] > French-friendly	x	x
LINFO2347	Computer system security	Ramin Sadre	EN [q2] [30h+15h] [5 Credits] > French-friendly	x	x
LINFO2355	Multicore programming	Etienne Riviere	EN [q2] [30h+15h] [5 Credits] > French-friendly	x	x
LINFO2364	Mining Patterns in Data	Siegfried Nijssen	EN [q2] [30h+15h] [5 Credits] > French-friendly	x	x
LINFO2365	Constraint programming	Pierre Schaus	EN [q2] [30h+15h] [5 Credits] > French-friendly	x	x
LINFO2335	Programming paradigms	Kim Mens	EN [q2] [30h+15h] [5 Credits] > French-friendly	x	x
LINFO2381	Health Informatics	Sébastien Jodogne	EN [q2] [30h+30h] [5 Credits] > French-friendly	x	x
LINFO2382	Computer supported collaborative work	Jean Vanderdonckt	EN [q1] [30h+15h] [5 Credits] > French-friendly	x	x

OPTION IN DATA SCIENCE AND APPLIED MATHEMATICS

Students completing the major "Data science and Applied Mathematics" must be able to:

- Understand engineering fields requiring synergy between applied mathematics and computer science such as algorithms, scientific calculations, modelling computer systems, optimisation, machine learning or data mining;
- Understand and put to good use algorithms and techniques used in data science;
- Identify and implement models and techniques relating to statistics, machine learning and data mining;
- Learn classes of applications such as the treatment of noisy data, pattern recognition or automatic extraction in large data collections.

O 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...)

This option is limited to students who have taken the INFO/MAP pairing or the SINF Bachelor's degree program with the equivalent of a minor in mathematics.

From 20 to 30credit(s)

O Content:

O Required courses in Computing and Applied Mathematics

				Year 1	Year 2
O LINMA2472	Algorithms in data science	Jean-Charles Delvenne (coord.) Gautier Krings (compensates Vincent Blondel)	EN [q1] [30h+22.5h] [5 Credits] > *French-friendly*	x	x
O LINMA2710	Scientific computing	Pierre-Antoine Absil Karl Meerbergen	EN [q2] [30h+22.5h] [5 Credits] > *French-friendly*	x	x
O LINFO2275	Data mining & decision making	Marco Saerens	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x
O LINFO2364	Mining Patterns in Data	Siegfried Nijssen	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x

⊠ Elective courses in computing and applied mathematics

The student can select 10 credits amongst

⊠ LELEC2870	Machine learning : regression, deep networks and dimensionality reduction	John Lee John Lee (compensates Michel Verleysen) Michel Verleysen	EN [q1] [30h+30h] [5 Credits] > *French-friendly*	x	x
⊠ LINFO2266	Advanced Algorithms for Optimization	Pierre Schaus	EN [q1] [30h+15h] [5 Credits] > *French-friendly*	x	x
⊠ LINGI2348	Information theory and coding	Jérôme Louveaux Jérôme Louveaux (compensates Olivier Pereira) Benoît Macq	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x
⊠ LINFO2365	Constraint programming	Pierre Schaus	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x
⊠ LINFO2381	Health Informatics	Sébastien Jodogne	EN [q2] [30h+30h] [5 Credits] > *French-friendly*	x	x
⊠ LINMA2450	Combinatorial optimization	Julien Hendrickx Geovani Nunes Grapiglia	EN [q1] [30h+22.5h] [5 Credits] > *French-friendly*	x	x
⊠ LINMA2470	Stochastic modelling	Philippe Chevalier Mehdi Madani (compensates Philippe Chevalier)	EN [q2] [30h+22.5h] [5 Credits] > *French-friendly*	x	x

				Year 1	2
⊠ LINMA2471	Optimization models and methods II	François Glineur Geovani Nunes Grapiglia	EN [q1] [30h+22.5h] [5 Credits] > *French-friendly*	x	x
⊠ LMAT2450	Cryptography	Thomas Peters (compensates Olivier Pereira)	EN [q1] [30h+15h] [5 Credits] > *French-friendly*	x	x
⊠ LMECA2170	Numerical Geometry	Vincent Legat Jean-François Remacle	EN [q1] [30h+30h] [5 Credits] > *French-friendly*	x	x

OPTION EN CYBERSECURITY

Students who have completed the "Cybersecurity and Information Technology" track should be able to:

• Understand areas of engineering that require synergy between computer security, networks, and systems, such as cryptography, data protection, application security, security architecture, or programming,

• Comprehend and appropriately apply methods and techniques related to cybersecurity, including prevention, detection, and response to cyber threats,

• Identify and implement security practices and standards to protect the infrastructure, systems, and data of organizations,

• Apply their knowledge to real-life scenarios through projects.

O 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...)

Students shall select 20 to 30 credits among:

				Year 1	Year 2
O Content:					

Students shall select 20 to 30 credits among:

O Required courses in Cybersecurity

O LINFO2347	Computer system security	Ramin Sadre	EN [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	x	x
O LINFO2145	Cloud Computing	Etienne Riviere	EN [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	x	x
O LINFO2144	Secured systems engineering	Axel Legay	EN [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	x	x
O LELEC2770	Privacy Enhancing technology	Thomas Peters (compensates Olivier Pereira) François-Xavier Standaert	EN [q1] [30h+30h] [5 Credits] 🌐 > French-friendly	x	x

O Elective courses in Cybersecurity

⊠ LINFO2143	Concurrent systems : models and analysis	Charles Pecheur	EN [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	x	x
⊠ LMAT2450	Cryptography	Thomas Peters (compensates Olivier Pereira)	EN [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	x	x
⊠ LINFO2142	Computer networks: configuration and management	Olivier Bonaventure	EN [q1] [30h+30h] [5 Credits] 🌐 > French-friendly	x	x
⊠ LINFO2146	Mobile and Embedded Computing	Ramin Sadre	EN [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	x	x
⊠ LINFO2345	Languages and algorithms for distributed Applications	Peter Van Roy	EN [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	x	x
⊠ LINGI2348	Information theory and coding	Jérôme Louveaux Jérôme Louveaux (compensates Olivier Pereira) Benoît Macq	EN [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	x	x
⊠ LINFO2315	Design of Embedded and real-time systems	Cristel Pelsser	EN [q2] [30h+30h] [5 Credits] 🌐 > French-friendly	x	x
⊠ LINFO2381	Health Informatics	Sébastien Jodogne	EN [q2] [30h+30h] [5 Credits] 🌐 > French-friendly	x	x

OPTION NETWORKS AND SYSTEMS

Students who have completed the “Networks and Systems" track should be able to:

- Understand and explain different devices and protocols used in computer and cellular networks;
- Design, configure and manage computer networks while taking into account application needs;
- Understand the operation of IoT and cellular networks;
- Explain the problems that affect cellular and IoT networks and develop solutions to cope with them;
- Understand how to optimise applications to efficiently use parallel cores;
- Understand, implement and use lock-free data structures;
- Understand the interactions between real-time operating systems and hardware;
- Design and implement applications running on embedded systems

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...)

Students shall select 20 to 30 credits among:

Content:

				Year 1	Year 2
Required courses in Networks and systems					
LINFO2142	Computer networks: configuration and management	Olivier Bonaventure	EN [q1] [30h+30h] [5 Credits] > *French-friendly*	x	x
LINFO2146	Mobile and Embedded Computing	Ramin Sadre	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x
LINFO2315	Design of Embedded and real-time systems	Cristel Pelsser	EN [q2] [30h+30h] [5 Credits] > *French-friendly*	x	x
LINFO2355	Multicore programming	Etienne Riviere	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x
Elective courses in Networks and Systems					
LINFO2347	Computer system security	Ramin Sadre	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x
LINFO2145	Cloud Computing	Etienne Riviere	EN [q1] [30h+15h] [5 Credits] > *French-friendly*	x	x
LINFO2144	Secured systems engineering	Axel Legay	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x
LINFO2143	Concurrent systems : models and analysis	Charles Pecheur	EN [q1] [30h+15h] [5 Credits] > *French-friendly*	x	x
LINFO2345	Languages and algorithms for distributed Applications	Peter Van Roy	EN [q1] [30h+15h] [5 Credits] > *French-friendly*	x	x
LINFO2381	Health Informatics	Sébastien Jodogne	EN [q2] [30h+30h] [5 Credits] > *French-friendly*	x	x
LELEC2760	Secure electronic circuits and systems	François-Xavier Standaert	EN [q2] [30h+30h] [5 Credits] > *French-friendly*	x	x

OPTION EN INFORMATIQUE MÉDICALE

Students completing the major in "Health informatics" will be able to:

- Identify and use methods and techniques that provide software-based solutions to complex problems encountered in hospitals, in bio-pharmaceutical environments, in life sciences, or in digital health.
- Take part in multidisciplinary projects bringing together medical, biological and engineering expertise to the benefit of patient health.
- Understand and put to good use the methods and techniques pertaining to medical informatics and bioinformatics, such as artificial intelligence, health interoperability, clinical knowledge structuring, applied statistics, information security, software quality, as well as the effective management and processing of large volumes of data.
- Understand specific categories of applications where these methods and techniques can be applied, such as diagnostic support, therapeutic assistance, hospital information systems, medical and biomedical imaging, smart devices, clinical trials, health data mining, as well as automated processing of the medical language.
- Formalize and structure a body of complex knowledge by using a systematic and rigorous approach to the development of high-quality medical and biomedical information systems.

Students shall select 20 to 30 credits among:

Content:

				Year 1	Year 2
Cours obligatoires en Informatique médicale					
O LGBIO2050	Medical Imaging	Greet Kerckhofs John Lee Benoît Macq Frank Peeters	EN [q1] [30h+30h] [5 Credits] *> French-friendly*	x	x
O LGBIO2010	Bioinformatics	Vincent Branders (compensates Pierre Dupont)	EN [q1] [30h+30h] [5 Credits] *> French-friendly*	x	x
O LINFO2381	Health Informatics	Sébastien Jodogne	EN [q2] [30h+30h] [5 Credits] *> French-friendly*	x	x
O LSTAT2330	Statistics in clinical trials.	Catherine Legrand Annie Robert	FR [q2] [22.5h+7.5h] [5 Credits]	x	x
Cours aux choix en Informatique médicale					
⊠ LDATA2010	Information visualisation	John Lee	EN [q1] [30h+30h] [5 Credits] *> French-friendly*	x	x
⊠ LELEC2770	Privacy Enhancing technology	Thomas Peters (compensates Olivier Pereira) François-Xavier Standaert	EN [q1] [30h+30h] [5 Credits] *> French-friendly*	x	x
⊠ LEPL2210	Ethics and ICT	Maxime Lambrecht (compensates Axel Gosseries) Maxime Lambrecht (compensates Olivier Pereira)	EN [q2] [30h] [3 Credits] *> French-friendly*	x	x
⊠ LGBIO2020	Bioinstrumentation	André Mouraux Dounia Mulders (compensates Michel Verleysen)	EN [q2] [30h+30h] [5 Credits] *> French-friendly*	x	x
⊠ LGBIO2060	Modelling of biological systems	Philippe Lefèvre	EN [q1] [30h+30h] [5 Credits] *> French-friendly*	x	x
⊠ LGBIO2072	Mathematical models in neuroscience	Frédéric Crevecoeur	EN [q1] [30h+30h] [5 Credits] *> French-friendly*	x	x
⊠ LGBIO2110	Introduction to Clinical Engineering	Benoit Delhaye Philippe Lefèvre	EN [q2] [30h] [3 Credits] *> French-friendly*	x	x

				Year 1	2
⊠ LINFO2251	Software Quality Assurance	Charles Pecheur	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x
⊠ LINFO2263	Computational Linguistics	Pierre Dupont	EN [q1] [30h+15h] [5 Credits] > *French-friendly*	x	x
⊠ LINFO2347	Computer system security	Ramin Sadre	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x
⊠ LINFO2364	Mining Patterns in Data	Siegfried Nijssen	EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x
⊠ LINFO2401	Open Source strategy for software development	Lionel Dricot	EN [q1] [30h+15h] [5 Credits] > *French-friendly*	x	x
⊠ LINMA2472	Algorithms in data science	Jean-Charles Delvenne (coord.) Gautier Krings (compensates Vincent Blondel)	EN [q1] [30h+22.5h] [5 Credits] > *French-friendly*	x	x
⊠ LMAT2450	Cryptography	Thomas Peters (compensates Olivier Pereira)	EN [q1] [30h+15h] [5 Credits] > *French-friendly*	x	x
⊠ WESP2123	Principles of clinical trials	Diego Castanares Zapatero Philippe Lysy Annie Robert (coord.) Françoise Smets	FR [q1] [20h+10h] [4 Credits]	x	x
⊠ WFARM2177	Biostatistics	Laure Elens	EN [q2] [20h+10h] [3 Credits]	x	x
⊠ WSBIM2122	Omics data analysis	Laurent Gatto	EN [q1] [30h+10h] [3 Credits]	x	x

- 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

Content:

LINFO2401	Open Source strategy for software development	Lionel Dricot	EN [q1] [30h+15h] [5 Credits] > French-friendly	x	x
LINFO2402	Open Source Project		EN [q1+q2] [0h] [5 Credits] > French-friendly	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...)

Les étudiant·es doivent réussir au moins 15 crédits pour valider l'option. Cette option ne peut être prise simultanément avec l'option « Formation interdisciplinaire en création d'entreprise - CPME ».

Year 1 2

Content:

LEPL2211	Business issues introduction	Benoît Gailly	EN [q2] [30h] [3 Credits] > French-friendly	x	x
LEPL2212	Financial performance indicators	Anne-Catherine Provost	EN [q2] [30h+5h] [4 Credits] > French-friendly	x	x
LEPL2214	Law, Regulation and Legal Context	Vincent Cassiers Werner Derycke	FR [q1] [30h+5h] [4 Credits]	x	x

One course between

From 3 to 5credit(s)

LEPL2210	Ethics and ICT	Maxime Lambrecht (compensates Axel Gosseries) Maxime Lambrecht (compensates Olivier Pereira)	EN [q2] [30h] [3 Credits] > French-friendly	x	x
LLSMS2280	Business Ethics and Compliance Management	Carlos Desmet	EN [q1] [30h] [5 Credits]	x	x

Cours en marketing

MGEST1108	Marketing	Nadia Sinigaglia	FR [q2] [45h+20h] [6 Credits]	x	x
MLSMM2136	Trends in Digital Marketing	Ingrid Poncin	FR [q2] [30h] [5 Credits]		x

				Year 1	2
MLSMM2134	e-Consumer Behavior	Nicolas Kervyn (compensates Karine Charry)	FR [q2] [30h] [5 Credits]		x

Cours en Sourcing and Procurement

LLSMS2036	Supply Chain Procurement	Per Joakim Agrell Antony Paulraj	EN [q1] [30h] [5 Credits]	x	x
LLSMS2038	Procurement Organisation and Scope	Constantin Blome Canan Kocabasoglu Hillmer	EN [q1] [30h] [5 Credits]	x	x
LLSMS2037	Sourcing Strategy	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'entreprenariat 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...)

Content:

Required courses

				Year 1	Year 2
LINEO2001	Théorie de l'entrepreneuriat	Frank Janssen	FR [q1] [30h+20h] [5 Credits]	x	
LINEO2002	Aspects juridiques, économiques et managériaux de la création d'entreprise	Yves De Cordt Marine Falize	FR [q1] [30h+15h] [5 Credits]	x	
LINEO2003	Plan d'affaires et étapes-clefs de la création d'entreprise *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.*	Frank Janssen	FR [q2] [30h+15h] [5 Credits]		x
LINEO2004	Séminaire d'approfondissement en entrepreneuriat	Frank Janssen	FR [q2] [30h+15h] [5 Credits]	x	

Prerequisite courses

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

				Year 1	Year 2
LINEO2021	Financer son projet	Yves De Rongé Philippe Grégoire (compensates Yves De Rongé)	FR [q2] [30h+15h] [5 Credits]	x	

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...)

Content:

				Year 1	Year 2
LFSA2995	Company Internship	Dimitri Lederer Jean-Pierre Raskin	FR [q1+q2] [30h] [10 Credits]	x	x
LFSA2212	Innovation classes	Benoît Macq Jean-Pierre Raskin Benoît Raucent	EN [q1] [30h+15h] [5 Credits] *> French-friendly*	x	x
LINFO2399	Industrial seminar in computer science	Yves Deville Bernard Geubelle	EN [q2] [30h] [3 Credits] *> French-friendly*	x	x
LINFO2402	Open Source Project		EN [q1+q2] [0h] [5 Credits] *> French-friendly*	x	x

OTHERS ELECTIVE COURSES

OTHERS 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...)

Content:

Les étudiant·e·s 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:

				Year 1	Year 2
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

				Year 1	2
⊠ 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

⊠ Group dynamics

⊠ LEPL2351	Become a tutor	Jean-Charles Delvenne (coord.) Delphine Ducarme Thomas Pardoen Benoît Raucent	FR [q1] [15h+30h] [3 Credits]	x	x
⊠ LEPL2352	Become a tutor	Jean-Charles Delvenne (coord.) Delphine Ducarme Thomas Pardoen Benoît Raucent	FR [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

Supplementary classes

To access this Master, students must have a good command of certain subjects. If this is not the case, students must take supplementary classes chosen by the faculty to satisfy course prerequisites.

- 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...)

Courses for students coming from bachelor in "informatique de gestion" or "informatique et systèmes".These students will have to take at least 150 credits to obtain the master in computer science.

O LINFO1114	Discrete Mathematics	Marco Saerens	FR [q1] [30h+15h] [5 Credits]

O Cours alternatifs Probabilités et statistiques

L'étudiant·e choisit un cours parmi:

⊠ LBIR1212	Probabilities and statistics (I)	Patrick Bogaert	FR [q1] [30h+15h] [5 Credits]
⊠ LSINC1211	Probability and Statistics		FR [q2] [30h+30h] [5 Credits]

O Cours alternatifs Intelligence artificielle

L'étudiant·e choisit un cours parmi:

⊠ LINFO1361	Artificial intelligence	Eric Piette (compensates Yves Deville)	FR [q2] [30h+30h] [5 Credits]
⊠ LSINC1361	Artificial intelligence		FR [q2] [30h+30h] [5 Credits]

O Cours alternatifs Systèmes informatiques

L'étudiant·e choisit un cours parmi:

⊠ LINFO1252	Informatic Systems	Etienne Riviere	FR [q1] [30h+30h] [5 Credits]
⊠ LSINC1252	Informaticals Systems	Etienne Riviere	FR [q1] [30h+30h] [5 Credits]

O Cours alternatifs Réseaux informatiques

L'étudiant·e choisit un cours parmi:

⊠ LINFO1341	Computer networks	Olivier Bonaventure	FR [q2] [30h+30h] [5 Credits]
⊠ LSINC1341	Computer networks		FR [q2] [30h+30h] [5 Credits]

O Cours alternatifs Algorithmique et structures de données

L'étudiant·e choisit un cours parmi:

⊠ LINFO1121	Algorithms and data structures	Pierre Schaus	FR [q1] [30h+30h] [5 Credits]
⊠ LSINC1121	Algorithms and data structure		FR [q1] [30h+30h] [5 Credits]

O Cours alternatifs Concepts des langages de programmation

L'étudiant·e choisit un cours parmi:

⊠ LINFO1104	Programming language concepts	Peter Van Roy	FR [q2] [30h+30h] [5 Credits]
⊠ LSINC1104	Programming Paradigms and Concurrency	Peter Van Roy	FR [q2] [30h+30h] [5 Credits]
O LEPL1509	Project 4 (in informatics)	Marc Lainez (compensates Yves Deville)	FR [q2] [30h+22.5h] [5 Credits]

Cours alternatifs Calculabilité, logique et complexité

L'étudiant·e choisit un cours parmi:

LINFO1123	Calculability, Logic and Complexity	Yves Deville	FR [q2] [30h+30h] [5 Credits]
LSINC1123	Calculability, Logic and Complexity	Yves Deville	FR [q2] [30h+30h] [5 Credits]

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 puposes 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.

 # Prerequisities list

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

For each UCLouvain training programme, a reference framework of learning outcomes specifies the 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.

SINF2M - Information

Access Requirements

Master course admission requirements are defined by the French Community of Belgium Decree of 7 November 2013 defining the hiher 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

Specific access requirements

This programme is taught in English with no prerequisite in French. See selection criteria of the Access on the file.

University Bachelors

Diploma	Special Requirements	Access	Remarks
UCLouvain Bachelors			
Bachelor in Computer Science		Direct access	
Bachelor in Economics and Management Bachelor in Mathematics Bachelor in Engineering : Architecture	Minor in Computer Sciences	Access with additional training	maximum 60 additional credits integrated into their Master's degree programme If the UCLouvain Admissions Office considers the enrolment application sufficiently complete, it will submit the application to the faculty for a decision
Others Bachelors of the French speaking Community of Belgium			
Bachelor in computer science		Direct access	
Bachelors of the Dutch speaking Community of Belgium			
Bachelor in de informatica		Direct access	
Foreign Bachelors			
Bachelor in computer science		Access based on application	See "Personalized Access"

Non university Bachelors

> Find out more about links to the university

Diploma	Access	Remarks
BA en informatique, orientation développement d'applications - crédits supplémentaires entre 30 et 60	Les enseignements supplémentaires éventuels	Type court

BA en informatique, orientation informatique industrielle - crédits supplémentaires entre 30 et 60 BA en informatique, orientation réseaux et télécommunications - crédits supplémentaires entre 30 et 60 BA en informatique, orientation sécurité des systèmes - crédits supplémentaires entre 30 et 60 BA en informatique, orientation technologies de l'informatique - crédits supplémentaires entre 30 et 60	peuvent être consultés dans le module complémentaire.

Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
"Licenciés"			
"Licencié en informatique"		-	
Masters			
Master in computer science		-	

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 (contact : epl-admission@uclouvain.be).

Admission and Enrolment Procedures for general registration

Teaching method

Active learning and non-technical skills

You will play an active role in your training. The pedagogical approach is a well-balanced mix of lectures, exercises, and projects to be carried out alone or in a group. The teaching methods vary. Sometimes, you will discover concepts and techniques independently. At these times, the teaching team acts as a resource in the learning process. At other times, the pedagogy focuses on transmitting the knowledge necessary to complete future tasks.

Special emphasis is placed on non-technical skills (autonomy, organisation, time management, different modes of communication, etc.) In particular, by emphasising project-based activities (including a large scale project that puts students in a semi-professional situation), this programme develops students' critical thinking skills, which allows them to design, model, implement, and validate complex computing systems.

Languages

The lingua franca of computer science is English. The use of English in the programme allows students to develop their mastery of this language, which facilitates their integration into professional life. All course material and course supervision are in English. However, students may always ask or respond to exam questions in French if desired.

Moreover, the programme allows students to attend language courses at the university's Language Institute (ILV) and to take part in exchange programmes.

Interdisciplinary approach

Over the course of their careers, computer scientists are expected to manage projects as well as teams and show interest in the complex socio-economic environment in which computer science belongs. It is therefore suggested that students learn about disciplines through elective courses or certain major courses such as the interfaculty major "small and medium sized business creation".

Evaluation

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".

The learning activities are assessed according to the rules of the University (see exam regulations), that is through written and oral exams, personal or group assignments, public presentation of projects and defence of the graduation thesis. For the courses given in English, questions will be expressed in English by the teacher, but the student may choose to answer in French. For the courses given in French, the questions will be expressed in French by the teacher, but the student man ask for help in translation and choose to answer in English.

Some activities such as projects during the semester under the supervision of the teaching staff and in collaboration with other students are not reorganized outside the period prescribed for the course. They are not re-evaluated at a later session.

Evaluation methods specific to each course are communicated to students by teachers at the beginning of the semester.

Mobility and/or Internationalisation outlook

Outgoing students

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.

Students are informed about study abroad opportunities at the end of their Bachelor's degree programme, notably through intensive academic programmes like the BEST network. This network giives students an initial study abroad experience.

In addition, within the framework of the Erasmus/Mercator exchange programmes, students have the possibility of studying at a partner university for one year (two semesters) during the 1st year of the Master's degree programme or 5 months (first semester) in the 2nd year of the Master's degree programme. To this end, the EPL participates in different study abroad networks.

- In Belgium, the EPL has a partnership with the Faculteit Ingenieurswetenschappen de la Katholieke Universiteit Leuven.
- Within Europe, the EPL participates in the CLUSTER network, which provides quality training and accommodations for exchange students. Furthermore, the members of the CLUSTER network have signed an agreement that mutually recognises their Bachelor's degree programmes. This agreement means that all the Bachelor degree holders in the CLUSTER network are automatically admitted to the Master's degree programme in member institutions.
- Outside of Europe, the EPL is a member of the Magalhães network that brings together 15 European universities with the best scientific and technological universities in Latin America.

In addition to these networks and partnerships, the EPL has signed a certain number of individual agreements with different universities in Europe, North America and elsewhere in the world. The list of these agreements is available at UCLouvain's International Relations Administration website.

Joint degree programmes have also been put into place.

- Dual Masters degrees allow students to receive a diploma from two universities at the end of their two year Master's degree programme (one year at UCLouvain and the other at a host university).

Students are informed about the different exchange programmes in the second year of their Bachelor's degree programme. They are encourage to prepare in advance, specifically their language skills through classes offered at the Institute for Living Languages (Institut des langues vivants) at UCLouvain.

Beyond exchange programmes, students may intern in a research laboratory or a foreign company.

Incoming students

Thanks to the CLUSTER network, foreign students have the same status as local UCLouvain students. UCLouvain favours students coming from institutions that participate in the Socrates exchange network.

Overall the Master's degree programme is taught in English and does not require previous knowledge of French with the exception of the majors in biomedical engineering, management and small and medium sized business creation (CPME). Except for rare cases, all courses are taught in English. For non-francophone students, substitute courses may take the place of courses taught in French. These courses are suggested by the programme commission on a case by case basis and are based on the student's course curriculum.

More information about mobility programmes.

Possible trainings at the end of the programme

Accessible supplementary Master's degree programme: not applicable

Accessible Doctoral Programmes

The Master's degree in computer science may be followed by a doctoral programme in engineering sciences.

Most of the UCLouvain Master's degree programmes (generally 60) are open to UCLouvain Master's degree diploma holders. For example:

Different Master's degree programmes (60) 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

Curriculum Management

Entity

Structure entity	SST/EPL/INFO
Denomination	(INFO)
Faculty	Louvain School of Engineering (EPL)
Sector	Sciences and Technology (SST)
Acronym	INFO
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Academic supervisor: Pierre Schaus

Jury

- Président du Jury: Claude Oestges
- Secrétaire du Jury: Cristel Pelsser

Useful Contact(s)

- Secrétariat: Vanessa Maons
- faculty secretariat: masters-epl-sinfo@uclouvain.be