



The version you're consulting is not definitive. This programme still may change. The final version will be published on 1th June.

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 literature 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
- increasingly 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 via 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 program consists of four parts:

- a common core (30 credits), including a final thesis (25 credits).
- a specialized focus, compulsory training (30 credits).
- one or more options allowing students to specialize in a field of IT (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]

- Mandatory
- ⊗ Optional
- △ Not offered in 2025-2026
- ⊙ Not offered in 2025-2026 but offered the following year
- ⊕ Offered in 2025-2026 but not the following year
- △ ⊕ Not offered in 2025-2026 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 <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	x

○ **Computer science seminars**

Students may choose 3 credits among

The student shall select 3 credits from amongst

⌘ LINFO2349	Networking and security seminar		EN [q1] [30h] [3 Credits] 🌐 > French-friendly		x
⌘ LINFO2359	Software engineering and programming systems seminar		EN [q1] [30h] [3 Credits] 🌐 > French-friendly		x
⌘ LINFO2369	Artificial intelligence and machine learning seminar		EN [q1] [30h] [3 Credits] 🌐 > French-friendly		x

PROFESSIONAL FOCUS [30.0]

- Mandatory
- ⊗ Optional
- △ Not offered in 2025-2026
- ◊ Not offered in 2025-2026 but offered the following year
- ⊕ Offered in 2025-2026 but not the following year
- △ ⊕ Not offered in 2025-2026 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 Computer science courses**

○ LINFO2132	Languages and translators	Ramin Sadre	30 [q2] [30h+30h] [6 Credits] 🌐 > French-friendly	X	X
○ LINFO2172	Databases		30 [q2] [30h+30h] [6 Credits] 🌐 > French-friendly	X	X
○ LINFO2241	Architecture and performance of computer systems	Tom Barbette	30 [q1] [30h+30h] [6 Credits] 🌐 > French-friendly	X	X
○ LINFO2262	Machine Learning :classification and evaluation		30 [q2] [30h+30h] [6 Credits] 🌐 > French-friendly	X	X
○ LINFO2255	Software engineering project		30 [q1] [30h+30h] [6 Credits] 🌐 > French-friendly	X	X

OPTIONS

The student completes his/her program by selecting 60 credits from the following sections.

In the "Computer Science Options" section, the student must validate at least one of the 6 options. He/she can also validate several.

In the "Options and elective courses in socio-economic knowledge" section, the student validates one of the two options or must choose at least 6 credits from the courses in the option in business issues (maximum one class of innovation may be chosen, maximum one course among those offered by the CPs may be taken into account in these 6 credits).

He/she completes his/her program by choosing from the computer science option courses and the list of elective courses.

Options en sciences informatiques

- > [Major in Artificial Intelligence: big data, optimization and algorithms](#) [en-prog-2025-sinf2m-lsinf223o]
- > [Major in Software Engineering and Programming Systems](#) [en-prog-2025-sinf2m-lsinf224o]
- > [Option in Data science and Applied Mathematics](#) [en-prog-2025-sinf2m-lsinf226o]
- > [Option en Cybersecurity](#) [en-prog-2025-sinf2m-linfo309o]
- > [Option Networks and systems](#) [en-prog-2025-sinf2m-linfo319o]
- > [Option en Informatique médicale](#) [en-prog-2025-sinf2m-linfo329o]
- > [Cours au choix disciplinaires](#) [en-prog-2025-sinf2m-linfo237o]

Options et cours au choix en connaissances socio-économiques

- > [Business risks and opportunities](#) [en-prog-2025-sinf2m-linfo233o]
- > [Major in Interdisciplinary Program in Entrepreneurship - INEO](#) [en-prog-2025-sinf2m-linfo232o]

Others Elective courses

- > [Others elective courses](#) [en-prog-2025-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.

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.

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.

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.

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.

- Mandatory
- ⊗ Optional
- △ Not offered in 2025-2026
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- △ ⊕ Not offered in 2025-2026 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 2

o Content:

Students shall select 20 to 30 credits among:

o Required courses in Cybersecurity

○ LINFO2145	Cloud Computing		🌐 [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
○ LINFO2144	Secured systems engineering		🌐 [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
○ LELEC2770	Privacy Enhancing technology	Olivier Pereira François-Xavier Standaert	🌐 [q1] [30h+30h] [5 Credits] 🌐 > French-friendly	X	X
○ LINFO2347	Computer system security	Ramin Sadre	🌐 [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X

o Elective courses in Cybersecurity

⊗ LINFO2143	Concurrent systems : models and analysis	Charles Pecheur	🌐 [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LMAT2450	Cryptography		🌐 [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LINFO2142	Computer networks: configuration and management		🌐 [q1] [30h+30h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LINFO2146	Mobile and Embedded Computing	Ramin Sadre	🌐 [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LINFO2345	Languages and algorithms for distributed Applications	Peter Van Roy	🌐 [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LELEC2348	Information theory and coding	Jérôme Louveaux Benoît Macq Olivier Pereira	🌐 [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LINFO2315	Design of Embedded and real-time systems		🌐 [q2] [30h+30h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LINFO2381	Health Informatics		🌐 [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 2025-2026
- ⊙ Not offered in 2025-2026 but offered the following year
- ⊕ Offered in 2025-2026 but not the following year
- △ ⊕ Not offered in 2025-2026 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 2

o Content:

o Required courses in Networks and systems

○ LINFO2142	Computer networks: configuration and management		FR [q1] [30h+30h] [5 Credits] 🌐 > French-friendly	X	X
○ LINFO2146	Mobile and Embedded Computing	Ramin Sadre	FR [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
○ LINFO2315	Design of Embedded and real-time systems		FR [q2] [30h+30h] [5 Credits] 🌐 > French-friendly	X	X
○ LINFO2355	Multicore programming		FR [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X

o Elective courses in Networks and Systems

⊗ LINFO2347	Computer system security	Ramin Sadre	FR [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LINFO2145	Cloud Computing		FR [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LINFO2144	Secured systems engineering		FR [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LINFO2143	Concurrent systems : models and analysis	Charles Pecheur	FR [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LINFO2345	Languages and algorithms for distributed Applications	Peter Van Roy	FR [q1] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LINFO2381	Health Informatics		FR [q2] [30h+30h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LELEC2760	Secure electronic circuits and systems	François-Xavier Standaert	FR [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.

- Mandatory
- ⊗ Optional
- △ Not offered in 2025-2026
- ⊙ Not offered in 2025-2026 but offered the following year
- ⊕ Offered in 2025-2026 but not the following year
- △ ⊕ Not offered in 2025-2026 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 2

o Content:

o Cours obligatoires en Informatique médicale







○ LGBIO2050	Medical Imaging	Greet Kerckhofs John Lee Benoît Macq	EN [q1] [30h+30h] [5 Credits] 🌐 > French-friendly	X	X
○ LGBIO2010	Bioinformatics	Pierre Dupont	EN [q1] [30h+30h] [5 Credits] 🌐 > French-friendly	X	X
○ LINFO2381	Health Informatics		EN [q2] [30h+30h] [5 Credits] 🌐 > French-friendly	X	X
○ LSTAT2330	Statistics in clinical trials.		EN [q2] [22.5h+7.5h] [5 Credits] 🌐	X	X

o 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	Olivier Pereira François-Xavier Standaert	EN [q1] [30h+30h] [5 Credits] 🌐 > French-friendly	X	X
⊗ LEPL2210	Ethics and ICT	Axel Gosseries Olivier Pereira	EN [q2] [30h] [3 Credits] 🌐 > French-friendly	X	X
⊗ LGBIO2020	Bioinstrumentation	André Mouraux 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 Delhayé Philippe Lefèvre	EN [q2] [30h] [3 Credits] 🌐 > French-friendly	X	X
⊗ 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		EN [q2] [30h+15h] [5 Credits] 🌐 > French-friendly	X	X

Year

1 2

				1	2
⌘ LINFO2401	Open Source strategy for software development		EN [q1] [30h+15h] [5 Credits]  > French-friendly	x	x
⌘ LINMA2472	Algorithms in data science	Vincent Blondel Jean-Charles Delvenne (coord.)	EN [q1] [30h+22.5h] [5 Credits]  > French-friendly	x	x
⌘ LMAT2450	Cryptography		EN [q1] [30h+15h] [5 Credits]  > French-friendly	x	x
⌘ WESP2123	Principles of clinical trials		EN [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
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- 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		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

Validate one of the two options below or take a minimum of 6 course credits in the business issues option (max. one course among those offered by the program commission, max. one innovation class).

BUSINESS RISKS AND OPPORTUNITIES

- Mandatory
- ⌘ Optional
- △ Not offered in 2025-2026
- ⊙ Not offered in 2025-2026 but offered the following year
- ⊕ Offered in 2025-2026 but not the following year
- △ ⊕ Not offered in 2025-2026 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...)

The student who wishes to validate this option must select at least 15 credits among the courses offered (maximum one course among those offered by the CPs can be taken into account in these 15 credits).

This option cannot be taken simultaneously with the "Interdisciplinary training in entrepreneurship - INEO" option.

Year

1 2

⌘ **Content:**

Courses offered by the Program Commission.

⌘ **Cours spécifiques aux enjeux de l'entreprise**

⌘ LFSA2995	Company Internship	Dimitri Lederer	FR [q1+q2] [30h] [10 Credits] 🌐	X	X
⌘ LEPL1805	People management [M] This course cannot be chosen if it has already been validated in the bachelor's degree.	Bauduin Auquier Philippe Henrotaux Renaud Ronsse	FR [q1] [30h+0h] [3 Credits] 🌐	X	X
⌘ LEPL2020	Professional integration work [M]		EN [q1+q2] [30h+0h] [3 Credits] 🌐 > French-friendly		X
⌘ LEPL2210	Ethics and ICT This course cannot be chosen if the LLSMS2280 course has already been validated.	Axel Gosseries Olivier Pereira	EN [q2] [30h] [3 Credits] 🌐 > French-friendly	X	X
⌘ LEPL2211	Introduction to new venture management [M]	Benoît Gailly	EN [q2] [30h] [3 Credits] 🌐 > French-friendly	X	X
⌘ LEPL2214A	Law, Regulation and Legal Context - Law, regulation and legal context (partim A)		FR [q1] [30h+0h] [3 Credits] 🌐	X	X

				Year	
				1	2
⌘ LMECA2645	Major technological hazards in industrial activity.		EN [q2] [30h] [3 Credits]	x	x
⌘ LMECA2711	Quality management and control.		EN [q2] [30h+30h] [5 Credits] > French-friendly	x	x
⌘ LLSMS2036	Supply Chain Procurement	Per Joakim Agrell	EN [q1] [30h] [5 Credits]	x	x
⌘ LLSMS2280	Business Ethics and Compliance Management <i>Ce cours ne peut être choisi si le cours LEPL2210 a déjà été validé.</i>		EN [q1] [30h] [5 Credits]	x	x

⌘ Innovation classe

Maximum one innovation class can be chosen.

⌘ LEPL2021	Innovation classes for transition and sustainable development		EN [q1] [30h+15h] [5 Credits]	x	x
⌘ LEPL2022	Health Innovation Classes [C]		EN [q2] [30h+30h] [5 Credits] > French-friendly	x	x

⌘ Courses offered by the Program Commission

⌘ 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

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 2025-2026
- ⊖ Not offered in 2025-2026 but offered the following year
- ⊕ Offered in 2025-2026 but not the following year
- △ ⊕ Not offered in 2025-2026 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 Cours obligatoires:

○ 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	FR [q1] [30h+15h] [5 Credits] 🌐	X	
○ LINEO2003	Plan d'affaires et étapes-clefs de la création d'entreprise <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>	Frank Janssen	FR [q2] [30h+15h] [5 Credits] 🌐		X
○ LINEO2004	Séminaire d'approfondissement en entrepreneuriat	Frank Janssen	FR [q2] [30h+15h] [5 Credits] 🌐	X	

⊗ Cours préalable:

○ LINEO2021	Financer son projet		FR [q2] [30h+15h] [5 Credits] 🌐	X	
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OTHERS ELECTIVE COURSES

OTHERS ELECTIVE COURSES

- Mandatory
- ⊗ Optional
- △ Not offered in 2025-2026
- ⊙ Not offered in 2025-2026 but offered the following year
- ⊕ Offered in 2025-2026 but not the following year
- △ ⊕ Not offered in 2025-2026 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 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:

⊗ 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) [M]	Paula Lorente Fernandez (coord.)	ES [q1] [45h] [3 Credits] 🌐	X	X
⊗ LESPA2601	Vocational Induction Seminar - Spanish (B2.2/C1)	Paula Lorente Fernandez (coord.)	ES [q1] [45h] [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

⊗ Group dynamics

⊗ LEPL2351	Become a tutor		FR [q1] [15h+30h] [3 Credits] 🌐	X	X
⊗ LEPL2352	Become a tutor		FR [q2] [15h+30h] [3 Credits] 🌐	X	X

⊗ Autres UEs hors-EPL

L'étudiant-e peut choisir maximum 8 crédits de cours hors EPL, considérés comme non-disciplinaires par la commission de programme.

Supplementary classes

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

- Mandatory
- ⊗ Optional
- △ Not offered in 2025-2026
- ⊖ Not offered in 2025-2026 but offered the following year
- ⊕ Offered in 2025-2026 but not the following year
- △ ⊕ Not offered in 2025-2026 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.

○ LINFO1114	Discrete Mathematics [M]	Marco Saerens	FR [q1] [30h+15h] [5 Credits] 🌐
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○ 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] 🌐

○ Cours alternatifs Intelligence artificielle

L'étudiant-e choisit un cours parmi:

⊗ LINFO1361	Artificial intelligence	Yves Deville	FR [q2] [30h+30h] [5 Credits] 🌐
⊗ LSINC1361	Artificial intelligence		FR [q2] [30h+30h] [5 Credits] 🌐

○ Cours alternatifs Systèmes informatiques

L'étudiant-e choisit un cours parmi:

⊗ LINFO1252	Informatic Systems		FR [q1] [30h+30h] [5 Credits] 🌐
⊗ LSINC1252	Informatic Systems	Etienne Riviere	FR [q1] [30h+30h] [5 Credits] 🌐

○ Cours alternatifs Réseaux informatiques

L'étudiant-e choisit un cours parmi:

⊗ LINFO1341	Computer networks		FR [q2] [30h+30h] [5 Credits] 🌐
⊗ LSINC1341	Computer networks		FR [q2] [30h+30h] [5 Credits] 🌐

○ Cours alternatifs Algorithmique et structures de données

L'étudiant-e choisit un cours parmi:

⊗ LINFO1121	Algorithms and data structures		FR [q1] [30h+30h] [5 Credits] 🌐
⊗ LSINC1121	Algorithms and data structure		FR [q1] [30h+30h] [5 Credits] 🌐

○ 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] 🌐
○ LEPL1509	Project 4 (in informatics)		FR [q2] [30h+22.5h] [5 Credits] 🌐

○ Cours alternatifs Calculabilité, logique et complexité

L'étudiant-e choisit un cours parmi:

⌘ LINFO1123	Calculability and Complexity [M]		EX [q2] [30h+30h] [5 Credits] 🌐
⌘ LSINC1123	Calculability, Logic and Complexity	Yves Deville	EX [q2] [30h+30h] [5 Credits] 🌐

Course prerequisites

There are no prerequisites between course units (CUs) for this programme, i.e. the programme activity (course unit, CU) whose learning outcomes are to be certified and the corresponding credits awarded by the jury before registration in another CU.

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 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. See selection criteria of the Access on the file.

University Bachelors

Diploma	Special Requirements	Access	Remarks
UCLouvain Bachelors			
Bachelor in Computer Science (Louvain-la-Neuve)		Direct access	
Bachelor in Computer Science (Charleroi)		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
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BA en informatique de gestion - crédits supplémentaires entre 30 et 60

BA en informatique et systèmes, orientation informatique industrielle - crédits supplémentaires entre 30 et 60

BA en informatique et systèmes, orientation réseaux et télécommunications - crédits supplémentaires entre 30 et 60

BA en informatique et systèmes, orientation sécurité des systèmes - crédits supplémentaires entre 30 et 60

BA en informatique et systèmes, orientation technologie de l'informatique - crédits supplémentaires entre 30 et 60

BA en informatique, orientation développement d'applications - crédits supplémentaires entre 30 et 60

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

Les enseignements supplémentaires éventuels peuvent être consultés dans le [module complémentaire](#).

Type court

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 may 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

Over the years, EPL has developed over a hundred partnerships with partners in more than 36 countries (EU and non-EU) to offer exchange programmes to its students. We also offer the possibility of obtaining Double degrees, Joint Degrees or Dual Masters in several fields. The EPL is currently participating in two Erasmus Mundus programmes: [FAME](#) and [STRAINS](#).

In addition to exchange programmes under the Erasmus+ programme, numerous agreements have been established with a wide range of universities through various partner networks such as:

- [TIME](#) network (Top Industrial Managers in Europe).
- [CLUSTER](#) network
- [Magalhães](#) network
- [Circle U](#). network through several networks and European University Alliance

So, there's no shortage of opportunities to gain an additional qualification and/or spend part of the year abroad during your two-year Master's degree! It's the perfect opportunity to discover or improve your knowledge of a foreign language, tackle subjects from a new angle and gain unique experience in Europe or the rest of the world.

If you would like more information, please visit the dedicated pages of the [EPL International Office](#) to discover all the destinations, testimonials from former students and all the procedures to follow to make these opportunities a success.

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

Denomination

Faculty

Sector

Acronym

Postal address

SST/EPL/INFO

[\(INFO\)](#)

Louvain School of Engineering ([EPL](#))

Sciences and Technology ([SST](#))

INFO

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Useful Contact(s)

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- faculty secretariat: masters-epl-sinf@uclouvain.be

