UCLouvain

ELME2M

2024 - 2025

ELME2M - Introduction

Introduction

Introduction

The Master's degree programme in electro-mechanical engineering draws equally from two fields (mechanics and electricity) and prioritises basic knowledge with the goal of deepening or reorienting students' knowledge mid-career.

By the end of the programme, students will be able to keep up with technical developments and adapt themselves to the needs of the job market.

Your profile

You

- Have solid knowledge of electricity and mechanics;
- Want to improve your understanding of current technological and scientific issues;
- Want to design, model, realise and validate experimental devices and systems;
- Want to specialise in mechatronics or in energy and foresee a career in robotics and "flexible production", energy transformation and management, vehicles and transportation systems and/or aeronautics.

Your programme

This Master's degree offers:

- General knowledge of electro-mechanics based on research;
- The mastery of mathematical and physical methods used in electricity and mechanics;
- An interdisciplinary approach to problem solving with particular emphasis placed on interface problems;
- Pedagogy centred on project-based learning;
- The possibility of testing your knowledge in the job market thanks to internships in the industrial sector

Majors: Mechatronics; Energy

Year

PROFESSIONAL FOCUS : MECATRONICS [30.0]

LELEC2531

- Mandatory
- Optional
- Not offered in 2024-2025
- Not offered in 2024-2025 but offered the following year
- Offered in 2024-2025 but not the following year
- Not offered in 2024-2025 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:

Pour LINFO1361, une alternative peut être proposée pour les non-speaking French students (as Machine Learning course).

				Year 1	Year 2
LELME2311	Physics of Electromechanical Converters	Bruno Dehez	[EN] [q2] [30h+30h] [5 Credits] > *French-friendly*	x	x
LELEC2531	Digital electronic systems	Martin Andraud	[EN] [q1] [30h+30h] [5 Credits] > *French-friendly*	x	x

OPTIONS DU MASTER INGÉNIEUR CIVIL ÉLECTROMÉCANICIEN

MAJOR IN CIRCUITS AND ELECTRONIC SYSTEMS

The goal of this major (which it shares with Master's degree programs in electricity and electro-mechanics) is to introduce students to system design techniques, computer aided simulation, manufacturing and experimental characterisation of components and circuits (both analogue and numerical) as well as mixed systems. Emphasis is placed on practical applications and the completion of projects.

- Mandatory
- Optional
- Not offered in 2024-2025
- Not offered in 2024-2025 but offered the following year
- Offered in 2024-2025 but not the following year
- Not offered in 2024-2025 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 may select 15 to 30 credits from the following courses:

From 15 to 30credit(s)

Year
1 2

Content:

MAJOR IN SYSTEMS AND CONTROL ENGINEERING

- O Mandatory
- ⊠ Optional
- △ Not offered in 2024-2025
- ⊘ Not offered in 2024-2025 but offered the following year
- ⊕ Offered in 2024-2025 but not the following year
- △ ⊕ Not offered in 2024-2025 or the following year

Year
1 2

Content:

MAJOR IN DESIGN, MANUFACTURING AND MECHANICS OF MATERIALS

- Mandatory
- Optional
- Not offered in 2024-2025
- Not offered in 2024-2025 but offered the following year
- Offered in 2024-2025 but not the following year
- Not offered in 2024-2025 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...)

If the course LMECA1451 has not been taken during the bachelor, you must add it to your programme.
From 20 to 30credit(s)

Content:

			Year
Optional	LMAPR2483	Durability of materials	Laurent Delannay Thomas Pardoen	1 2

COURS AU CHOIX DISCIPLINAIRES

- Mandatory
- Optional
- Not offered in 2024-2025
- Not offered in 2024-2025 but offered the following year
- Offered in 2024-2025 but not the following year
- Not offered in 2024-2025 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
LELEC1930	Intoduction to telecommunication	Jérôme Louveaux	FR [q2] [30h+15h] [4 Credits]	x	x
LELEC2753	Electrical power systems: advanced topics and smart grids	Emmanuel De Jaeger	EN [q2] [30h+15h] [5 Credits] > French-friendly	x	x
LINFO2147	Communication networks	Cristel Pelsser	EN [q1] [30h+15h] [5 Credits] > French-friendly	x	x
LELEC2595	Electrical power systems dynamics and quality of supply	Emmanuel De Jaeger	EN [q2] [30h+30h] [5 Credits] > French-friendly	x	x
LENVI2007	Renewable energy sources	Emmanuel De Jaeger Patrick Gerin (coord.) Nicolas Parmentier (compensates Hervé Jeanmart)	EN [q1] [45h+15h] [5 Credits] > French-friendly	x	x
LINMA2370	Modelling and analysis of dynamical systems	Jean-Charles Delvenne	EN [q1] [30h+22.5h] [5 Credits] > French-friendly	x	x
LMECA1451	Mechanical manufacturing.	Laurent Delannay Aude Simar	FR [q2] [30h+30h] [5 Credits]	x	x
LELME2240	Energy systems lab.	Hervé Jeanmart Nicolas Parmentier (compensates Francesco Contino)	EN [q2] [30h+30h] [5 Credits] > French-friendly	x	x
LMECA2325	Biomass conversion	Patrick Gerin Arnaud Rouanet (compensates Hervé Jeanmart)	EN [q1] [30h+30h] [5 Credits] > French-friendly	x	x
LMECA2410	Mechanics of Materials	Laurent Delannay Nicolas Moës (compensates Aude Simar)	EN [q2] [30h+30h] [5 Credits] > French-friendly		

COURS AU CHOIX EN CONNAISSANCES SOCIO-ÉCONOMIQUES

- Mandatory
- Optional
- Not offered in 2024-2025
- Not offered in 2024-2025 but offered the following year
- Offered in 2024-2025 but not the following year
- Not offered in 2024-2025 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
LELEC2590	Seminars in electronics and communications	Denis Flandre Isabelle Huynen Jérôme Louveaux	EN [q2] [30h] [3 Credits]		

OTHERS ELECTIVE COURSES

OTHERS ELECTIVE COURSES

- Mandatory
- Optional
- Not offered in 2024-2025
- Not offered in 2024-2025 but offered the following year
- Offered in 2024-2025 but not the following year
- Not offered in 2024-2025 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:

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

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.

ELME2M - Information

Access Requirements

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

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

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

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

SUMMARY

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

Specific access requirements

This programme is taught in English with no prerequisite in French. A certificate is required for the holders of a non-Belgian degree, see selection criteria of the Access on the file.

University Bachelors

Diploma	Special Requirements	Access	Remarks
UCLouvain Bachelors			
Bachelor in Engineering		Direct access	Students who have neither major nor minor in the field of their civil engineering Master's degree may have an adapted master programme.
Bachelor in Engineering		Direct access	Students with a Bachelor's degree in engineering sciences who have not taken the equivalent of a minor in the field of their civil enginering master degree may have an adapted master programme.
Bachelors of the Dutch speaking Community of Belgium			
Bachelor in engineering		Access with additional training	Students who have no specialisation in the field of their civil engenering master degree may have an adapted master programme with up o3 1 w 0 0 m 63.5999

			degree may have an adapted master programme.
Bachelor in Engineering	For others institutions	Access based on application	See Personalized access

Non university Bachelors

> Find out more about links to the university

Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
"Licenciés"			

Teaching method

The majority of classes consist of lectures and tutorials. The tutors are upper-class students who have specialised tutor training (the class LEPL2351). This class provides its participants with practical tutoring techniques to help fellow students.

Methods that promote multidisciplinary studies

UCLouvain's Master's degree programme in electro-mechanics is by nature multidisciplinary because it combines classes in electricity, mechanics, automation and computer sciences. It also includes non-engineering elective classes such as economics, management and languages.

Various teaching strategies

Through a pedagogy that prioritises projects that integrate several subjects, students gain critical thinking skills, which in turn allows them to design, model, and create electro-mechanic prototypes and systems.

In the last year of the programme, half of the time is devoted to the graduation project, which offers students the possibility of working

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

Specialised Master's Degrees

- Advanced Master in Nanotechnologies
- Advanced Master in Nuclear Engineering
- Specialised Master's Degree in Biotechnology and Applied Biology

Doctoral Programmes

Most doctoral students study at the Institute of Information and Communication Technologies, Electronics and Applied Mathematics as well as the Institute of Mechanics, Materials and Civil Engineering. The faculty of these Institutes participate in numerous doctoral programmes. A comprehensive list is available from the President of the Third Cycle Commission.

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

For example:

- The Master [120] in Environmental Science and Management (automatic admission with possible complementary coursework)
- Different Master's degree programmes in management (automatic admission based on written application)
- The Master [60] in Information and Communication at Louvain-la-Neuve or the Master [60] in Information and Communication at Mons

Contacts

Curriculum Management

Entity

Structure entity	SST/EPL/ELME
Denomination	