UCLouvain

ELME2M

*2020 - 2021*

# Master [120] in Electro-mechanical Engineering

**At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In English**
Dissertation/Graduation Project : **YES** - Internship : **optional**
Activities in English: **NO** - Activities in other languages : **YES**
Activities on other sites : **optional**
Main study domain : **Sciences de l'ingénieur et technologie**
Organized by: **Louvain School of Engineering (EPL)**
Programme acronym: **ELME2M** - Francophone Certification Framework: 7

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# 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

# ELME2M - Teaching profile

## Learning outcomes

Integrating the fields of mechanics and electricity is one of the major challenges of the civil engineering student in electro-mechanics.

The Master's degree in Electro-mechanical engineering from UCL favours multidisciplinary training and the ability to solve interface problems raised by the integration of several fields. It integrates the fields of electricity and mechanics into a coherent whole and prioritises basic knowledge with the aim of deepening or reorienting students' knowledge mid-career.

Students will acquire the knowledge and skills necessary to become:

- Specialists in mechatronics (electronics, mechanical production, automation and robotics) or specialists in energy (smart grids/ energy networks, thermodynamics and energy).
- Individuals with field experience capable of putting into practice their knowledge of research and technology.
- Managers who can manage team projects

The Master's degree programme in electro-mechanical engineering prepares its students to be aware of technical progress and adapt to the needs of the job market and changes in business.

Polytechnic and multidisciplinary, the training provided by the Louvain School of Engineering privileges the acquisition of knowledge that combines theory and practice and that is open to analysis, design, manufacturing, production, research and development and innovation all the while paying attention to ethics and sustainable development.

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

1.démontrer la maîtrise d'un solide corpus de connaissances en sciences fondamentales et sciences de l'ingénieur, lui permettant d'appréhender et de résoudre des problèmes qui relèvent de l'életromécanique (axe 1).

1. 1. Identifier et mettre en oeuvre les concepts, lois, raisonnements applicables à une problématique donnée faisant appel à plusieurs disciplines de la mécanique et de l'électricité :

- L'électricité (au sens large)
- L'énergie électrique (transport, qualité, gestion...)
- L'électrotechnique (conversion, commande, actionnement...)
- L'électronique (électronique digitale, instrumentation, capteurs...)
- L'automatique
- L'informatique (temps réel)
- La mécanique (modélisation, conception...)
- La thermodynamique et la thermique
- La dynamique des fluides et les transferts
- La robotique et l'automatisation
- Les systèmes énergétiques: production, distribution, chaleur et efficience énergétique

1. 2. Identifier et utiliser les outils de modélisation et de calcul adéquats pour résoudre des problématiques liées aux disciplines (ci-dessus).

1. 3. Vérifier la vraisemblance et confimer la validité des résultats obtenus au regard de la nature du problème posé, notamment en ce qui concerne les ordres de grandeurs et les unités dans lesquelles les résultats sont exprimés.

2.organiser et de mener à son terme une démarche d'ingénierie appliquée au développement d'un produit (et/ou d'un service) répondant à un besoin ou à une problématique particulière dans le domaine de l'électromécanique (axe 2).

2.1. Analyser le problème à résoudre ou le besoin fonctionnel à rencontrer, inventorier les fonctionnalités et contraintes, formuler le cahier des charges dans un domaine où les contraintes techniques et économiques sont prises en compte.

2.2. Modéliser le problème et concevoir une ou plusieurs solutions techniques en y intégrant les aspects mécaniques, électriques, électroniques, électrotechniques ou informatiques et répondant au cahier des charges.

2.3. Évaluer et classer les solutions au regard de l'ensemble des critères figurant dans le cahier des charges : efficacité, faisabilité, qualité ergonomie et sécurité dans l'environnement considéré (exemples : trop couteux, trop complexes, trop dangereux, trop difficile à manipuler).

2.4. Implémenter et tester une solution sous la forme d'une maquette, d'un prototype et/ou d'un modèle numérique.

2.5. Formuler des recommandations pour améliorer une solution technique, soit pour la rejeter, soit pour expliquer les améliorations à y apporter dans la perspective d'en faire un produit opérationnel.

3.organiser et de mener à son terme un travail de recherche pour appréhender un phénomène physique ou une problématique inédite relevant de l'életromécanique (axe 3).

3.1. Se documenter et résumer l'état des connaissances actuelles dans le domaine de la mécanique et de l'électricité.

3.2. Proposer une modélisation et/ou un dispositif expérimental (par exemple dans le domaine de la régulation thermique) en construisant d'abord un modèle mathématique, en réalisant à partir de celui-ci en laboratoire, un dispositif permettant de simuler le comportement du système, en testant les hypothèses qui y sont relatives.

3.3. Synthétiser dans un rapport les conclusions de sa recherche, en mettant en évidence les paramètres clés et leur influence sur le comportement du phénomène étudié (choix des formes et matériaux, environnement physio-chimique, conditions d'exploitation...).

4.contribuer, en équipe, à la réalisation d'un projet pluridisciplinaire et de le mener à son terme en tenant compte des objectifs, des ressources, allouées et des contraintes qui le caractérisent (axe 4).

4.1. Cadrer et expliciter les objectifs d'un projet compte tenu des enjeux, des contraintes, des problèmes d'interface entre les domaines qui caractérisent l'environnement du projet.

4.2. S'engager collectivement dans un environnement pluridisciplinaire (mécanique et électricité) sur un plan de travail, un échéancier (environnement qui peut être conflictuel)

4.3. Fonctionner dans un environnement pluridisciplinaire, conjointement avec d'autres acteurs porteurs de différents points de vue, ou des experts venant des domaines ou spécialités différents en prenant le recul nécessaire pour dépasser les difficultés ou les conflits rencontrés au sein de l'équipe.

4.4. Prendre des décisions en équipe lorsqu'il y a des choix à faire : que ce soit sur les solutions techniques ou sur l'organisation du travail pour faire aboutir le projet.

5.communiquer efficacement oralement et par écrit (en français et idéalement dans une ou plusieurs langues étrangères) en vue de mener à bien les projets qui lui sont confiés (axe 5).

5.1. Identifier les besoins du client : questionner, écouter et s'assurer de la bonne compréhension de toutes les dimensions de sa demande et pas seulement les aspects techniques.

5.2. Argumenter et convaincre en s'adaptant au langage de ses interlocuteurs : techniciens, collègues, clients, supérieurs hiérarchiques.

5.3. Communiquer sous forme graphique et schématique ; interpréter un schéma, présenter les résultats d'un travail, structurer des informations.

5.4. Lire, analyser et exploiter des documents techniques (normes, plans, cahier des charges...)

5.5. Rédiger des documents écrits en tenant compte des exigences contextuelles et des conventions sociales en la matière.

5.6. Faire un exposé oral convaincant, en utilisant les techniques modernes de communication.

6.faire preuve de rigueur, d'ouverture, d'esprit critique et d'éthique dans son travail. Tout en tirant parti des innovations technologiques et scientifiques à sa disposition, il prendra le recul nécessaire pour valider la pertinence socio-technique d'une hypothèse ou d'une solution (axe 6).

6.1. Appliquer les normes et s'assurer de la robustesse de la solution dans les disciplines de la mécanique et de l'électricité.

6.2. Relativiser les solutions en élargissant le spectre à des enjeux non-techniques (le domaine de l'énergie et du climat, la prise en compte des aspects environnementaux et sociaux).

6.3. Faire preuve d'esprit critique vis-à-vis d'une solution technique, ou d'une approche méthodologique en regard de l'ensemble des parties prenantes impliquées.

6.4. Autoévaluer son propre travail.

## Programme structure

The student's programme includes:

- A common core curriculum (54 credits)
- A final specialisation (30 credits)
- One of more of the major courses or elective courses listed below.

The graduation project is normally completed in the second year. However, students may, depending on the nature of their project, choose to take their classes in the first or second year so long as their course prerequisites allow it. This is particularly the case for students completing part of their program abroad.

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

These types of programmes will be submitted for approval by the relevant Master's degree programme commission.

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

> Core courses for the Master in Electro-mechanical Engineering *[ en-prog-2020-elme2m-tronc_commun ]*

Professional specialisations in electro-mechanical

> Professional Focus : Mecatronics *[ en-prog-2020-elme2m-lelme220s ]*
> Professional Focus : Energy *[ en-prog-2020-elme2m-lelme221s ]*

> List of electives *[ en-prog-2020-elme2m-options ]*

List of electives

> Major in circuits and electronic systems *[ en-prog-2020-elme2m-lelme227o ]*
> Major in Systems and control engineering *[ en-prog-2020-elme2m-lelme230o ]*
> Major in dynamics, robotics and biomechanics *[ en-prog-2020-elme2m-lelme223o ]*

> Major in nuclear engineering *[ en-prog-2020-elme2m-lelme237o ]*
> Major in aeronautics *[ en-prog-2020-elme2m-lelme240o ]*
> Major in design, manufacturing and mechanics of materials *[ en-prog-2020-elme2m-lelme241o ]*

List of electives

> Major in business risks and opportunities *[ en-prog-2020-elme2m-lelme235o ]*
> Major in small and medium sized business creation *[ en-prog-2020-elme2m-lelme236o ]*

List of electives

> Elective courses available for Master students in electro-mechanical engineering *[ en-prog-2020-elme2m-lelme231o ]*
> Elective courses: transversal skills and contacts with industry *[ en-prog-2020-elme2m-lelme953o ]*

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

> Master [120] in Electro-mechanical Engineering *[ en-prog-2020-elme2m-module_complementaire ]*

# ELME2M Detailled programme

## Programme by subject

### *CORE COURSES [54.0]*

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| O LELME2990 | Graduation project/End of studies project | | | 28 Credits | | | x |
| **O Electricity and electronics courses** | | | | | | | |
| O LELEC2311 | Physics of Electromechanical Converters | Bruno Dehez | 30h+15h | 4 Credits | q2 | x | |
| O LELEC2660 | Power electronics | Marc Bekemans | 30h+15h | 4 Credits | q1 | x | |
| O LELEC2811 | Instrumentation and sensors | David Bol (coord.)<br>Laurent Francis | 30h+30h | 5 Credits | q1 | x | |
| **O Mechanical courses** | | | | | | | |
| O LMECA2755 | Industrial automation | Bruno Dehez<br>Paul Fisette<br>Renaud Ronsse | 30h+30h | 5 Credits | q1 | x | |
| **O Religion courses for students in exact sciences (2 credits)** | | | | | | | |
| *The students select one course between:* | | | | | | | |
| *The student shall select* | | | | | | | |
| ⊠ LTECO2100 | Sociétés, cultures, religions : Biblical readings | Hans Ausloos | 15h | 2 Credits | q1 | x | x |
| ⊠ LTECO2300 | Societies, cultures, religions : Ethical questions | Marcela Lobo Bustamante | 15h | 2 Credits | q1 | x | x |

| | | | | | | Year 1 | 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LTECO2200 | Societies-cultures-religions : Human Questions | Régis Burnet<br>Dominique Martens | 15h | 2 Credits | q1 or q2 | x | x |

## Project (6 credits)

*Les étudiants choisissent le projet qui correspond à leur finalité:*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LELME2002 | Project in mechatronics | Bruno Dehez<br>Renaud Ronsse | 30h+30h | 6 Credits | q1+q2 | x | |
| ⊠ LELME2003 | Project in energy | Francesco Contino<br>Emmanuel De Jaeger<br>Hervé Jeanmart | 30h+30h | 6 Credits | q1+q2 | x | |

## LIST OF FOCUSES



## PROFESSIONAL FOCUS : MECATRONICS [30.0]

O Mandatory
⊠ Optional
△ Courses not taught during 2020-2021
⊘ Periodic courses not taught during 2020-2021
⊕ Periodic courses taught during 2020-2021
Activity with requisites

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

### Content:

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| O LELEC2103 | Project in Electricity 3 : Electronic systems | Jean-Didier Legat<br>Jérôme Louveaux<br>Luc Vandendorpe | 75h | 5 Credits | q1+q2 | x | x |
| O LELEC2313 | Dynamic modelling and control of electromechanical converters | Emmanuel De Jaeger<br>Bruno Dehez | 30h+30h | 5 Credits | q1 | x | x |
| O LELEC2531 | Design and Architecture of digital electronic systems | Jean-Didier Legat | 30h+30h | 5 Credits | q1 | x | x |
| O LMECA2732 | Robot modelling and control | Renaud Ronsse | 30h+30h | 5 Credits | q2 | x | x |
| O LMECA2801 | Machine design | Thomas Servais<br>(compensates<br>Benoît Raucent) | 30h+30h | 5 Credits | q1 | x | x |
| O LINGI2315 | Design of Embedded and real-time systems | Jean-Didier Legat | 30h+30h | 5 Credits | q2 | x | x |

## PROFESSIONAL FOCUS : ENERGY [30.0]

O Mandatory
⊠ Optional
△ Courses not taught during 2020-2021
⊘ Periodic courses not taught during 2020-2021
⊕ Periodic courses taught during 2020-2021
Activity with requisites

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

### Content:

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| O LMECA2150 | Thermal cycles | Yann Bartosiewicz | 30h+30h | 5 Credits | q1 | x | x |
| O LMECA2160 | Combustion and fuels | Miltiadis Papalexandris | 30h+30h | 5 Credits | q1 | x | x |
| O LMECA2220 | Internal combustion engines | Francesco Contino<br>Hervé Jeanmart | 30h+30h | 5 Credits | q2 | x | x |
| O LMECA2322 | Fluid mechanics and transfer II | Matthieu Duponcheel<br>Grégoire Winckelmans | 30h+30h | 5 Credits | q1 | x | x |
| O LELEC2520 | Electric Power Systems | Emmanuel De Jaeger | 30h+30h | 5 Credits | q1 | x | x |
| O LELEC2595 | Electric Power Systems Quality | Emmanuel De Jaeger | 30h+30h | 5 Credits | q2 | x | x |

## OPTIONS

*Students complete their programme through a combination of major course work and elective classes for a minimum total of 120 credits.*

List of electives

> Major in circuits and electronic systems *[ en-prog-2020-elme2m-lelme227o ]*
> Major in Systems and control engineering *[ en-prog-2020-elme2m-lelme230o ]*
> Major in dynamics, robotics and biomechanics *[ en-prog-2020-elme2m-lelme223o ]*
> Major in nuclear engineering *[ en-prog-2020-elme2m-lelme237o ]*
> Major in aeronautics *[ en-prog-2020-elme2m-lelme240o ]*
> Major in design, manufacturing and mechanics of materials *[ en-prog-2020-elme2m-lelme241o ]*

List of electives

> Major in business risks and opportunities *[ en-prog-2020-elme2m-lelme235o ]*
> Major in small and medium sized business creation *[ en-prog-2020-elme2m-lelme236o ]*

List of electives

> Elective courses available for Master students in electro-mechanical engineering *[ en-prog-2020-elme2m-lelme231o ]*
> Elective courses: transversal skills and contacts with industry *[ en-prog-2020-elme2m-lelme953o ]*

## *LIST OF ELECTIVES*

*Students may select one of the majors suggested by the Master¿s degree programme in electrical or mechanical engineering provided that the courses in question are not already part of their course schedule. The following majors are highly recommended.*

## *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.

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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 30 credits*

### *Content:*

#### Compulsory course in electronic circuits and systems

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| O LELEC2532 | Design and Architecture of analog electronic systems | David Bol<br>Denis Flandre | 30h+30h | 5 Credits | q2 | x | x |

#### Elective courses in electronic circuits and systems

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LELEC2541 | Advanced Transistors | Denis Flandre (coord.)<br>Benoît Hackens<br>Jean-Pierre Raskin | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LELEC2570 | Synthesis of digital integrated circuits | David Bol | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LELEC2580 | Design of RF and microwave communication circuits | Christophe Craeye<br>Dimitri Lederer | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LELEC2590 | Seminars in electronics and communications | Denis Flandre<br>Isabelle Huynen<br>Jérôme Louveaux | 30h | 3 Credits | q2 | x | x |

| | | | | | | Year 1 | 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LELEC2620 | Modeling and implementation of analog and mixed analog/ digital circuits and systems on chip | David Bol | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LELEC2650 | Synthesis of analog integrated circuits | Denis Flandre | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LELEC2660 | Power electronics | Marc Bekemans | 30h+15h | 4 Credits | q1 | x | x |
| ⊠ LELEC2700 | Microwaves | Dimitri Lederer | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LELEC2760 | Secure electronic circuits and systems | François-Xavier Standaert | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LELEC2811 | Instrumentation and sensors | David Bol (coord.) Laurent Francis | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LGBIO2020 | Bioinstrumentation | André Mouraux Michel Verleysen | 30h+30h | 5 Credits | q1 | x | x |

## MAJOR IN SYSTEMS AND CONTROL ENGINEERING

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

*The student may select:*
*From 15 to 30 credits*

### Content:

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LGBIO2060 | Modelling of biological systems | Philippe Lefèvre | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LINMA2300 | Analysis and control of distributed parameter systems | Denis Dochain | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LINMA2361 | Nonlinear dynamical systems | Pierre-Antoine Absil | 30h +22.5h | 5 Credits | q1 | x | x |
| ⊠ LINMA2671 | Advanced control and applications | Julien Hendrickx | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LINMA2875 | System Identification | Julien Hendrickx | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LINMA2510 | Mathematical ecology | Eric Deleersnijder (coord.) Denis Dochain Emmanuel Hanert | 30h +22.5h | 5 Credits | q2 ⊘ | x | x |

## MAJOR IN DYNAMICS, ROBOTICS AND BIOMECHANICS

The goal of this major (which it shares with Master's degree programs in electricity and electro-mechanics) is to give students a complete education in this field. All phases of the mechanical manufacturing process are studied from the design stage to putting manufacturing techniques into place to production planning and the organisation of workshops. In addition, students will learn about important technological techniques (machine parts) as well as solid mechanics (elasticity and plasticity) in order to master the processing, behaviour and use of common materials. Finally, attention is paid to methods used in the fields of automation and robotics.

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

*The class LMECA 2732 may not be taken as part of this major by ELME (mechatronics)students. Students majoring in this field may select:*
*From 20 to 30 credits*

### Content:

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LGBIO2040 | Biomechanics | Greet Kerckhofs | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LGCIV2042 | Dynamics of structures | João Saraiva Esteves Pacheco De Almeida | 20h+15h | 5 Credits | q1 | x | x |
| ⊠ LMECA2170 | Numerical Geometry | Vincent Legat Jean-François Remacle | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LMECA2215 | Vehicle System Dynamics | Paul Fisette | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LMECA2355 | Mechanical design in biomedical engineering | Greet Kerckhofs Ann Vankrunkelsven (compensates Benoît Raucent) | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LMECA2732 | Robot modelling and control | Renaud Ronsse | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LMECA2802 | Multibody system Dynamics | Paul Fisette | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LINMA2875 | System Identification | Julien Hendrickx | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LMECA2335 | Biorobotics | Renaud Ronsse | 30h+30h | 5 Credits | q2 | x | x |

## MAJOR IN NUCLEAR ENGINEERING

As with the Master's in civil electromechanical engineering with a specialization in energy as well as the Master's in civil and mechanical engineering, the goal of this major is to offer an in-depth education in the principal aspects of nuclear engineering. Entry into this programme, which is primarily overseen by the Mol Centre of Nuclear Energy, is contingent on an evaluation of candidates' skills based on the rules used for ERASMUS-SOCRATES exchange students. Further information about this major may be found on Mol's website SCK-CEN.

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

*Visit http://www.sckcen.be/BNEN/ for further information about course locations, hours and language. The student may select*
*From 16 to 21 credits*

### Content:

#### Compulsory courses for the nuclear engineering major (10 credits)

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| O LMECA2600 | Introduction to nuclear engineering and reactor technology | Hamid Aït Abderrahim | 30h+30h | 5 Credits | q1 | x | |
| O LMECA2648 | Nuclear thermal-hydraulics (Centre d'étude nucléaire-Mol) | Yann Bartosiewicz | 40h+7.5h | 5 Credits | q1 | | x |

#### Elective courses for the nuclear engineering major

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LBNEN2002 | Introduction to Nuclear Physics & Measurements (Centre d'étude nucléaire-Mol) | | | 3 Credits | q1 | | x |
| ⊠ LBNEN2003 | Safety of Nuclear Powerplants (Centre d'étude nucléaire-Mol) | | | 5 Credits | q2 | | x |
| ⊠ LBNEN2011 | Radiation protection (Centre d'étude nucléaire-Mol) | | | 3 Credits | q1 | x | x |

## MAJOR IN AERONAUTICS

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

*Open to all students of civil and mechanical engineering and electromechanical engineering, classes in this major review mechanical applications of aeronautics: aeronautic structures, vibrations, aerodynamics, dynamics of flight, etc. The learning process consists of advanced classes in the mechanics of fluids and solids, with particular attention paid to numerical methods.*

*From 20 to 30 credits*

### O Content:

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LGCIV2041 | Numerical analysis of civil engineering structures | Luca Sgambi | 20h+15h | 5 Credits | q2 | x | x |
| ⊠ LMECA2195 | Gasdynamics and reacting flows | Miltiadis Papalexandris | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LMECA2300 | Advanced Numerical Methods | Philippe Chatelain<br>Christophe Craeye (coord.)<br>Vincent Legat<br>Jean-François Remacle | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LMECA2323 | Aerodynamics of external flows | Philippe Chatelain<br>Grégoire Winckelmans | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LMECA2550 | Aircraft propulsion systems. | Yves Marichal (compensates Philippe Chatelain) | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LMECA2520 | Calculation of planar structures | Issam Doghri | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LMECA2660 | Numerical methods in fluid mechanics | Grégoire Winckelmans | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LMECA2830 | Aerospace dynamics. | Pierre Schrooyen (compensates Philippe Chatelain) | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LMECA2853 | Turbulence. | Eric Deleersnijder<br>Grégoire Winckelmans | 30h+30h | 5 Credits | q1 | x | x |

## MAJOR IN DESIGN, MANUFACTURING AND MECHANICS OF MATERIALS

| | |
|---|---|
| ⭘ Mandatory | ⛌ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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 30 credits*

### ⭘ Content:

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| ⛌ LMAPR2483 | Durability of materials | Laurent Delannay<br>Thomas Pardoen | 30h<br>+22.5h | 5 Credits | q2 | x | x |
| ⛌ LMECA2453 | Advanced manufacturing technologies | Aude Simar | 30h+30h | 5 Credits | q1 | x | x |
| ⛌ LMECA2520 | Calculation of planar structures | Issam Doghri | 30h+30h | 5 Credits | q2 | x | x |
| ⛌ LMECA2860 | Welding Science and Technology | Pascal Jacques<br>Aude Simar | 30h+30h | 5 Credits | q1 | x | x |
| ⛌ LMECA2640 | Mechanics of composite materials | Issam Doghri | 30h+30h | 5 Credits | q2 | x | x |
| ⛌ LMECA2711 | Quality management and control. | Nicolas Bronchart | 30h+30h | 5 Credits | q2 | x | x |
| ⛌ LMAPR2020 | Materials Selection | Pierre Bollen<br>(compensates<br>Bernard Nysten)<br>Thomas Pardoen | 30h<br>+22.5h | 5 Credits | q2 | x | x |
| ⛌ LMAPR2018 | Rheology | Evelyne Van Ruymbeke | 30h+30h | 5 Credits | q2 | x | x |

*LIST OF ELECTIVES*

## *MAJOR IN BUSINESS RISKS AND OPPORTUNITIES*

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

*From 17 to 20 credits*

### *O Content:*

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| O LFSA1290 | Introduction to financial and accounting management | Philippe Grégoire | 30h+15h | 4 Credits | q2 | x | x |
| O LFSA2140 | Elements of law for industry and research | Vincent Cassiers<br>Werner Derijcke<br>Bénédicte Inghels | 30h | 3 Credits | q1 | x | x |
| O LFSA2210 | Organisation and human resources | John Cultiaux<br>Eline Jammaers | 30h | 3 Credits | q2 | x | x |
| O LFSA2230 | Introduction to management and to business economics | Benoît Gailly | 30h+15h | 4 Credits | q2 | x | x |
| O LFSA2245 | Environment and business | Jean-Pierre Tack | 30h | 3 Credits | q1 | x | x |

### O One course between

*From 3 to 5 credits*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ⊠ LFSA2202 | Ethics and ICT | Axel Gosseries<br>Olivier Pereira | 30h | 3 Credits | q2 | x | x |
| ⊠ LLSMS2280 | Business Ethics and Compliance Management | Carlos Desmet | 30h | 5 Credits | q1 | x | x |

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

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

## MAJOR IN SMALL AND MEDIUM SIZED BUSINESS CREATION

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

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

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

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

*From 20 to 25 credits*

### O Content:

#### O Required courses for the major in small and medium sized businesses

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| O LCPME2001 | Entrepreneurship Theory (in French) | Frank Janssen | 30h+20h | 5 Credits | q1 | x | |
| O LCPME2002 | Managerial, legal and economic aspects of the creation of a company (in French) | Yves De Cordt<br>Marine Falize | 30h+15h | 5 Credits | q1 | x | x |
| O LCPME2003 | Business plan of the creation of a company (in French)<br>*Les séances du cours LCPME2003 sont réparties sur les deux blocs annuels du master. L'étudiant doit les suivre dès le bloc annuel 1, mais ne pourra inscrire le cours que dans son programme de bloc annuel 2.* | Frank Janssen | 30h+15h | 5 Credits | q2 | | x |
| O LCPME2004 | Advanced seminar on Entrepreneurship (in French) | Frank Janssen | 30h+15h | 5 Credits | q2 | x | x |

#### ⊠ Prerequisite CPME courses

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

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| O LCPME2000 | Venture creation financement and management I | Yves De Rongé<br>Olivier Giacomin | 30h+15h | 5 Credits | q1 | x | |

*LIST OF ELECTIVES*

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

## *ELECTIVE COURSES AVAILABLE FOR MASTER STUDENTS IN ELECTRO-MECHANICAL ENGINEERING*

| | |
|---|---|
| O Mandatory | ⊠ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

### *Content:*

| | | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|---|
| ⊠ LELEC1930 | Intoduction to telecommunication | Jérôme Louveaux | 30h+15h | 4 Credits | q2 | x | x |
| ⊠ LELEC2753 | Electrical Power Systems: Advanced Topics | Emmanuel De Jaeger | 30h+15h | 5 Credits | q2 | x | x |
| ⊠ LELEC2920 | Communication networks | Sébastien Lugan (compensates Benoît Macq) | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LENVI2007 | Renewable energies | Xavier Draye Patrick Gerin (coord.) Hervé Jeanmart Geoffrey Van Moeseke | 30h | 4 Credits | q1 | x | x |
| ⊠ LFSA2212 | Innovation classes | Benoît Macq Jean-Pierre Raskin Benoît Raucent | 30h+15h | 5 Credits | q1 | x | x |
| ⊠ LINMA2370 | Modelling and analysis of dynamical systems | Jean-Charles Delvenne (coord.) Denis Dochain | 30h +22.5h | 5 Credits | q1 | x | x |
| ⊠ LMECA1451 | Mechanical manufacturing. | Laurent Delannay Aude Simar | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LMECA2240 | Testing of thermal machinery. | Francesco Contino Hervé Jeanmart | 15h+15h | 2 Credits | q2 | x | x |
| ⊠ LMECA2325 | Biomass conversion | Patrick Gerin Hervé Jeanmart | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LMECA2410 | Mechanics of Materials | Laurent Delannay Aude Simar | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LMECA2420 | Advanced topics in energetics. | Yann Bartosiewicz Hervé Jeanmart | 30h | 3 Credits | q2 | x | x |
| ⊠ LMECA2645 | Major technological hazards in industrial activity. | Denis Dochain | 30h | 3 Credits | q2 | x | x |
| ⊠ LMECA2771 | Thermodynamics of irreversible phenomena. | Miltiadis Papalexandris | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LMECA2780 | Introduction to Turbomachinery | Tony Arts | 30h+30h | 5 Credits | q2 | x | x |
| ⊠ LMECA2801 | Machine design | Thomas Servais (compensates Benoît Raucent) | 30h+30h | 5 Credits | q1 | x | x |
| ⊠ LEPL2351 | Dynamique des groupes - Q1 | Christine Jacqmot Claude Oestges Benoît Raucent Vincent Wertz | 15h+30h | 3 Credits | q1 | x | x |
| ⊠ LEPL2352 | Dynamique des groupes - Q2 | Christine Jacqmot Claude Oestges Benoît Raucent Vincent Wertz | 15h+30h | 3 Credits | q2 | x | x |

# ELECTIVE COURSES: TRANSVERSAL SKILLS AND CONTACTS WITH INDUSTRY

| | |
|---|---|
| ⭘ Mandatory | ⛌ Optional |
| △ Courses not taught during 2020-2021 | ⊘ Periodic courses not taught during 2020-2021 |
| ⊕ Periodic courses taught during 2020-2021 | Activity with requisites |

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

*The student chooses between 3 and 22 credits (max 27 if the student chooses the intership) in this list below or in the courses of the major "business risks and opportunities". An alternative is to choose the Major in small and medium sized business creation.*
*From 3 to 22 credits*

## ⭘ Content:

### ⭘ Transversal skills and contacts with industry

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

#### ⛌ Internship

| | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|
| ⛌ LFSA2995 | Company Internship | Jean-Pierre Raskin | 30h | 10 Credits | q1+q2 | x | x |

#### ⛌ Professional integration activity specific to the program

### ⛌ Communication

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

#### ⛌ Languages

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

| | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|
| ⛌ LALLE2500 | Professional development seminar German | Caroline Klein (coord.) | 30h | 3 Credits | q1+q2 | x | x |
| ⛌ LALLE2501 | Professional development seminar-German | Caroline Klein (coord.) | 30h | 5 Credits | q1+q2 | x | x |
| ⛌ LESPA2600 | Vocational Induction Seminar - Spanish (B2.2/C1) | Paula Lorente Fernandez (coord.) | 30h | 3 Credits | q1 | x | x |
| ⛌ LESPA2601 | Vocational Induction Seminar - Spanish (B2.2/C1) | Paula Lorente Fernandez (coord.) | 30h | 5 Credits | q1 | x | x |
| ⛌ LNEER2500 | Seminar of Entry to professional life in Dutch - Intermediate level | Isabelle Demeulenaere (coord.) Marie-Laurence Lambrecht | 30h | 3 Credits | q1 or q2 | x | x |
| ⛌ LNEER2600 | Seminar of entry to professional life in Dutch - Upper-Intermediate level | Isabelle Demeulenaere (coord.) Dag Houdmont | 30h | 3 Credits | q1 or q2 | x | x |

#### ⛌ Group dynamics

| | | | | | Year 1 | Year 2 |
|---|---|---|---|---|---|---|
| ⛌ LEPL2351 | Dynamique des groupes - Q1 | Christine Jacqmot Claude Oestges Benoît Raucent Vincent Wertz | 15h+30h | 3 Credits | q1 | x | x |
| ⛌ LEPL2352 | Dynamique des groupes - Q2 | Christine Jacqmot Claude Oestges Benoît Raucent Vincent Wertz | 15h+30h | 3 Credits | q2 | x | x |

### ⛌ Other non-disciplinary courses

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

## Course prerequisites

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 competences expected of every graduate on completion of the programme. You can see the contribution of each teaching unit to the programme's reference framework of learning outcomes in the document *"In which teaching units are the competences and learning outcomes in the programme's reference framework developed and mastered by the student?"*

*The document is available by clicking this link after being authenticated with your UCLouvain account.*

# ELME2M - Information

## Admission

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

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

SUMMARY



### Specific Admission Requirements

This programme is taught in English with no prerequisite in French. The student is supposed to have at least a B2 level in the European Framework of Reference. A certificate is required for the holders of a non-Belgian degree, see selection criteria of the 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. |
| **Others Bachelors of the French speaking Community of Belgium** | | | |
| Bachelor in Engineering | | direct_access | Students with a Bachelor's degree in engineering sciences who have not taken the equivalent of a minor in the field of their civil enginering master degree may have an adapted master programme. |
| **Bachelors of the Dutch speaking Community of Belgium** | | | |
| Bachelor in engineering | | access_with_training | Students who have no specialisation in the field of their civil engenering master degree may have an adapted master programme with up to 60 additional credits. |
| **Foreign Bachelors** | | | |
| Bachelor in engineering | Bachelor degree of Cluster Institution | direct_access | Students with a Bachelor's degree in engineering sciences who have not taken the equivalent of a minor in the field of their civil enginering master degree may have an adapted master programme. |
| Bachelor in Engineering | For others institutions | on_the_file | See Personalized access |

### Non university Bachelors

> Find out more about links to the university

## Holders of a 2nd cycle University degree

| Diploma | Special Requirements | Access | Remarks |
|---|---|---|---|
| **"Licenciés"** | | | |
| **Masters** | | | |
| Masters in engineering | | direct_access | |

## Holders of a non-University 2nd cycle degree

> Find out more about links to the university

## Adults taking up their university training

> See the website Valorisation des acquis de l'expérience

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

## Access on the file

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

The first step of the admission procedure requires to submit an application online: www.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

The majority of classes consist of lectures and tutorials. The tutors are upper-class students who have specialised tutor training (the class LFSA2351). This class provides its participants with practical tutoring techniques to help fellow students.

**Methods that promote multidisciplinary studies**

UCL'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 as part of a research team or collaborating with the industrial sector to study a given subject in-depth. It provides an introduction to the actual working life of an engineer or researcher (thanks to the size of the project and the context within which it is carried out).

**Diverse learning situations**

Various pedagogical approaches are used: lectures, projects, exercise sessions, problem solving sessions, case studies, experimental laboratories, computer simulations, educational software, internships in industry or research, factory visits, seminars and group as well as individual work. In certain subjects, eLearning allows students to learn at their own pace and carry out virtual experiments.

These diverse learning situations permit students to build their knowledge in an iterative and progressive manner all the while developing their independence, organisational and time management skills as well as their ability to communicate. Students have access to the newest information technology (materials, software, networks) during their studies.

## 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".***

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

**ELME Evaluation Methods :**

| Learning outcomes | Certificate-based evaluation |
|---|---|
| *Demonstrate mastery of a solid body of knowledge in basic science and engineering science allowing the student to learn and solve problems pertaining to electro-mechanics (axis 1)*<br>*Organize and carry out an applied engineering process to develop a product and/or service responding to a particular need or problem in the field of electro-mechanics. (Axis 2)* | • End of the semester exam based on course exercises<br>• Tests in some introductory classes |
| *Organise and carryout a research project to learn about a physical phenomenon or a new problem relating to the field of electro-mechanics. (Axis 3)* | • Report on mini project in field of study<br>• Progress report on multidisciplinary project |
| *Contribute, through teamwork, to a multidisciplinary project and carry out the project while taking into account its objectives, resources, and constraints. (Axis 4)*<br>*Communicate effectively (speaking or writing in French or a foreign language) with the goal of carrying out assigned projects. (Axis 5)*<br>*Display rigour, openness, and critical thinking; validate the socio-technical relevance of a hypothesis or a solution, all the while drawing upon available technological and scientific innovations. (Axis 6)* | • Progress report on multidisciplinary project<br>• Report, public presentation, and yearly work for graduation project |

In certain instances, teaching is done through multidisciplinary project, the Learning by Problem Solving method (Apprentissage par problèmes or APP), flipped classes or seminars.

The certificate-based evaluation are coherent with the teachnig methods and the learning outcomes.

The formative evaluation is achieved in part during the projects via tutor feedback and above all during the graduation project.

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

## Mobility and/or Internationalisation outlook

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

# Possible trainings at the end of the programme

**Specialised Master's Degrees**

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

# Contacts

## Curriculum Management

Entity

| | |
|---|---|
| Structure entity | SST/EPL/ELME |
| Denomination | (ELME) |
| Faculty | Louvain School of Engineering (EPL) |
| Sector | Sciences and Technology (SST) |
| Acronym | ELME |
| Postal address | Place du Levant 3 - bte L5.03.02<br>1348 Louvain-la-Neuve |

Academic supervisor: Yann Bartosiewicz

Jury

- Président du Jury: Jean-Didier Legat
- Secrétaire du Jury - Energie: Paul Fisette
- Secrétaire du Jury - Mécatronique: Hervé Jeanmart

Useful Contact(s)

- Secrétariat: Isabelle Dargent