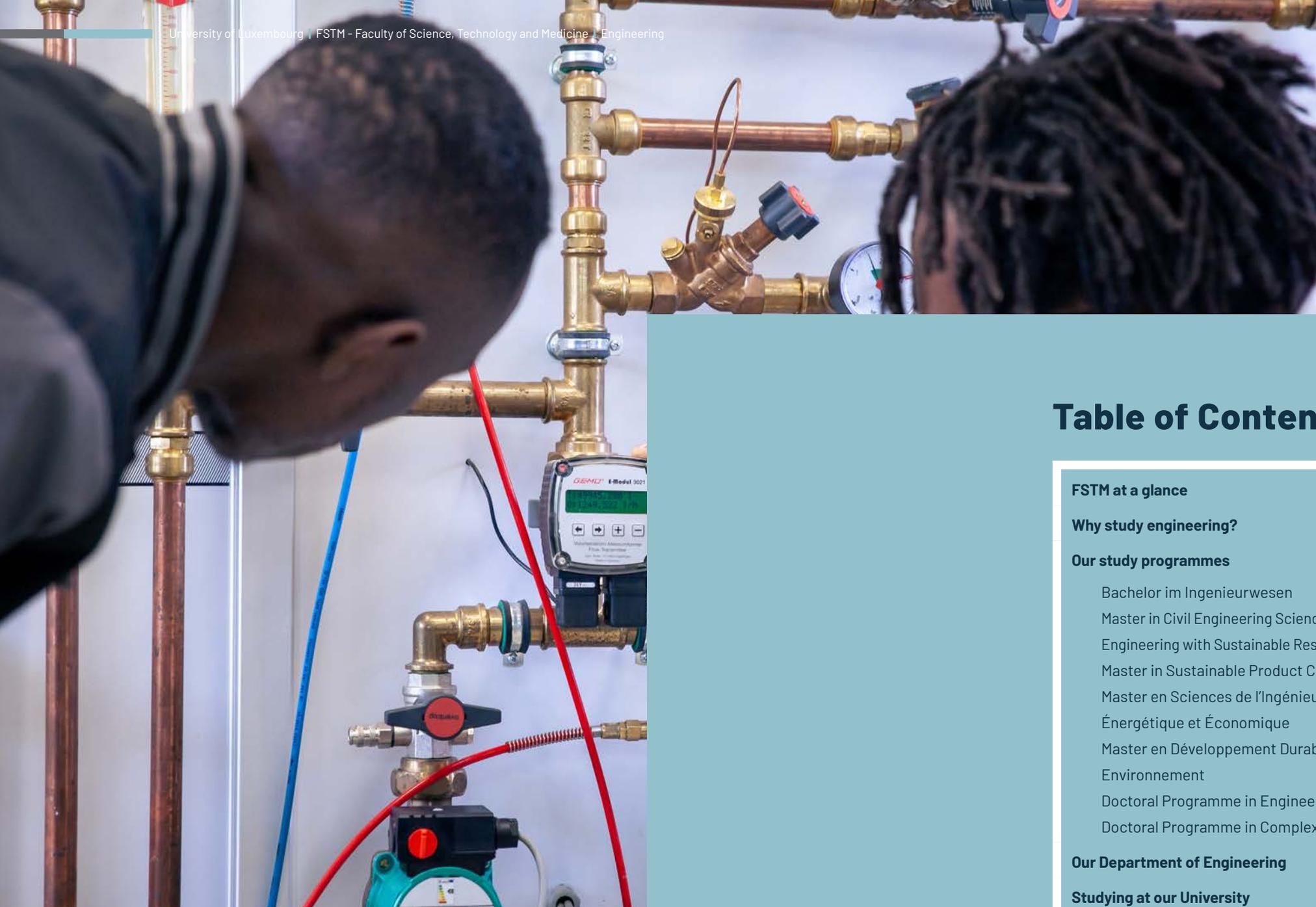


# Discover our training programmes in engineering





## We develop talents

FSTM has a key mission: attract and train the talents that Luxembourg and the world will need in the STEM fields (Science, Technology, Engineering and Mathematics) as well as in Health and Life sciences.

## Table of Contents

<b>FSTM at a glance</b>	4
<b>Why study engineering?</b>	6
<b>Our study programmes</b>	8
Bachelor im Ingenieurwesen	10
Master in Civil Engineering Sciences - Megastructure	18
Engineering with Sustainable Resources	
Master in Sustainable Product Creation	20
Master en Sciences de l'Ingénieur - Efficacité Énergétique et Économique	22
Master en Développement Durable - Énergie et Environnement	24
Doctoral Programme in Engineering Sciences	26
Doctoral Programme in Complex Systems Science	27
<b>Our Department of Engineering</b>	28
<b>Studying at our University</b>	30
<b>Discover Luxembourg</b>	34

# The Faculty of Science, Technology and Medicine (FSTM) at a glance

The Faculty of Science, Technology and Medicine (FSTM) contributes multidisciplinary expertise in the fields of Mathematics, Physics, Engineering, Computer Science, Life Sciences and Medicine. Through its dual mission of teaching and research, the FSTM seeks to generate and disseminate knowledge and train new generations of responsible citizens, in order to better understand, explain and advance society and the environment we live in.



**1**  
Faculty

**5**  
Departments

**3**  
Campus sites



**5**  
Disciplines

**39**  
Study programmes

**3**  
Official languages



**2500**  
Students

**130**  
Countries

**56 %**  
International students





## Why study Engineering?

### Building the future together

#### DYNAMIC SECTOR

Civil, mechanical, electrical engineering, energy and digital engineering play a prominent role in the Luxembourg economy. In particular, with some 4,600 companies employing 51,300 persons, the building sector is the one with the largest number of companies that employs the most people<sup>1</sup>. Structural engineering as well as infrastructure planning are key elements of the building sector. In addition, major players in mechanical, electrical and digital engineering are required in that sector, as well as in the development of renewable energy sources and environmental protection technologies.

#### INNOVATION

Luxembourg is a country that embraces innovation, evidenced by the range of construction-related clusters and initiatives that are in place. The University of Luxembourg is deeply involved in this development and a leading research institution with a special focus on numerical simulations.

#### CRUCIAL NEED OF ENGINEERS

Engineers are highly sought at national level in all sectors. Recruitment in the industrial and the construction sector is a real challenge as there is a need not only to replace natural departures, but also to hire qualified people in up-to-date technologies. Thus, there is an increased demand for skilled engineers in Luxembourg. Surveys from the Voice of Luxembourg's Industry (FEDIL)<sup>1</sup> and the Agence pour le développement de l'emploi (ADEM)<sup>2</sup> highlight the shortage in all kinds of industrial engineering jobs. Despite the stability of the construction sector, civil engineers are also finding good job opportunities.

<sup>1</sup> Source : *Les qualifications de demain dans l'industrie, 2023*

<sup>2</sup> Source : *List of occupations in very high demand, 2024*



## Excellent opportunities Join our University!

By joining us, you will benefit from many advantages:

#### EXCELLENT ENVIRONMENT

You will join small classes, benefit from individual supervision and work with state-of-the-art equipment. You will have the chance to learn from internationally renowned professors and experts from the field. You will enjoy a multicultural environment as both students and faculty members come from many different countries.

#### INVOLVEMENT IN RESEARCH

If you are interested in research, you will find plenty of opportunities to get involved during your studies. You can join a research team to work on a specific project or carry out your thesis or case study together with our researchers. This allows you to gain in-depth knowledge from experts working at the forefront of their fields.

#### STRONG LINKS WITH INDUSTRY AND OTHER STAKEHOLDERS

We work closely with non-academic partners, giving you the opportunity to gain knowledge and hands-on experience from leading companies and other external stakeholders. This includes collaborating with external mentors and having the possibility to be embedded in their working environment through internships, projects, or your thesis.



# Our study programmes overview



**Bachelor im  
Ingenieurwesen**

180 ECTS



**Master in Civil Engineering  
Sciences - Megastructure  
Engineering with Sustainable  
Resources**

120 ECTS

**Master in Sustainable  
Product Creation**

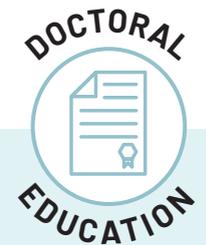
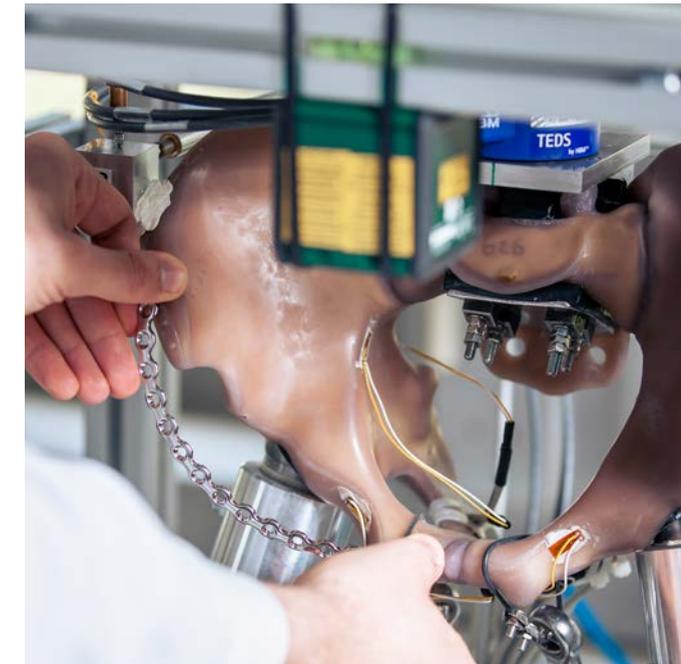
120 ECTS

**Master en Sciences de  
l'Ingénieur - Efficacité  
Énergétique et Économique**

120 ECTS

**Master en Développement  
Durable - Énergie et  
Environnement**

120 ECTS



**Doctoral Programme  
in Engineering Sciences**

RESEARCH  
+ 20 ECTS

**Doctoral Programme  
in Complex Systems Science**

RESEARCH  
+ 20 ECTS

# Bachelor im Ingenieurwesen



180 ECTS

Der Bachelor im Ingenieurwesen gibt den Absolventen sowohl ein solides Grundlagenwissen als auch praxisnahe Vertiefungen in den jeweiligen Studienrichtungen Elektrotechnik, Energie und Umwelt, Bauingenieurwesen, Maschinenbau sowie Digitales Ingenieurwesen. Das Programm vermittelt daher die notwendigen Fähigkeiten, um entweder mit dem Bachelordiplom schnell in den Arbeitsmarkt einzusteigen, oder das Studium mit einem Master an der Universität Luxemburg oder anderswo fortzusetzen.

## STÄRKEN

- Auswahl unter 6 Studienrichtungen
- Berufsqualifizierender Bachelor
- Für anschließende Masterstudiengänge geeignet

## ZULASSUNGSVORAUSSETZUNGEN (100 PLÄTZE)

- Degree: Diplôme d'études secondaires ou secondaires techniques ou diplôme de technicien avec modules préparatoires
- Sprachkenntnisse: Niveau B2 für Deutsch, B1 für Französisch, B1 für Englisch

## PERSPEKTIVEN

- Master in Engineering
- Berufsmöglichkeiten in Ingenieurbüros, in der Industrie, im Bausektor, im Energie- und Umweltbereich, im Elektro- und IT-Bereich, im öffentlichen Dienst



## EXAMPLES OF ALUMNI CAREERS

- Coordinator high voltage Lines, Creos
- Vehicle Maintenance Planning – Coordinator and Analyst, CFL.
- Advisor in sustainable energy transition, Klima-Agence.
- Civil engineer, Schroeder & Associés.

## Programme auf einen Blick

- Dauer: 3 Jahre Vollzeit/6 Semester (180 ECTS)
- Sprachen: Deutsch (60%), Französisch (20%), Englisch (20%)
- Registrierungsgebühren: 400€/semester
- Studienplätze: 100
- Registrierungsfristen:
  - > EU Studenten: Februar-Juli
  - > Nicht-EU Studenten: Februar-April

## Zusätzliche Informationen

**KONTAKT**  
beng@uni.lu

**CAMPUS**  
Kirchberg



beng.uni.lu

# Elektrotechnik

## Programm

KURSE	ECTS
<b>Semester 1</b>	
Artificial intelligence for smart technologies	2
Digitaltechnik	3
Elektrotechnik	5
Informatik	5
Mathematik	6
Measurement Technology	3
Physics	5
<b>Total</b>	<b>29</b>
<b>Semester 2</b>	
Elektronik & Photonik	5
Elektrotechnik	4
Industrial workshop	3
Informatik	4
Leistungselektronik	3
Mathematik	6
Mikroprozessor	4
Telekommunikation	2
<b>Total</b>	<b>31</b>
<b>Semester 3</b>	
CAO - Schaltungssimulation	4
Elektronik & Photonik	3
Elektrotechnik	3
Mathematik	6
Mikroprozessor	4
Regelungstechnik	5
Technik der Netze	5
<b>Total</b>	<b>30</b>
<b>Semester 4</b>	
Mobilitätssemester	30
<b>Total</b>	<b>30</b>
<b>Semester 5</b>	
Business management	4
Digital design	4
Electrical energy production, transportation and distribution	3
Elektrische Maschinen	4
Leistungselektronik	6
Signale und Systeme	4
Technik der Netze	5
<i>Wahlfächer</i>	
Automatisierungstechnik	5
Estimation approaches in advanced engineering systems	4
<b>Total</b>	<b>30</b>
<b>Semester 6</b>	
Bachelor thesis	12
Elektrische Energieverteilung	2
Vertiefung	
Leistungselektronik (& dezentrale Systeme)	5
Prototyp Mikroelektronik	4
Real world data acquisition and processing	3
Regelungstechnik	4
<i>Wahlfächer</i>	
Project Management	2
Propriété intellectuelle et veille technologique	2
<b>Total</b>	<b>30</b>

# Energie und Umwelt

## Programm

KURSE	ECTS
<b>Semester 1</b>	
CAD	5
Elektrotechnik	5
Informatik	5
Mathematik	6
Physics	5
Technische Mechanik	5
<b>Total</b>	<b>31</b>
<b>Semester 2</b>	
Bauphysik	4
Design project based learning	3
Mathematik	6
Technische Mechanik	5
Thermodynamik	5
Werkstoffkunde	6
<b>Total</b>	<b>29</b>
<b>Semester 3</b>	
Erneuerbare Energien	3
Fluid mechanics	4
Gebäudetechnik	5
Mathematik	6
Raumplanung & Verkehrsplanung	4
Thermodynamik	5
Wasserinfrastruktur	2
<b>Total</b>	<b>29</b>
<b>Semester 4</b>	
Mobilitätssemester	30
<b>Total</b>	<b>30</b>

## Semester 5

Automatisierungstechnik	5
Business management	4
Energy systems	5
Finite Elemente Methode für thermische Anwendungen	5
Regelungstechnik	5
<i>Spezialisierung - Gebäudeenergie und Umweltthemen (7 ECTS min)</i>	
Législation	3
Siedlungswasserwirtschaft	5
Städtebau & Landesplanung	5
Workshop Energiepass	3
<i>Spezialisierung - Nachhaltige Energietechnologien</i>	
Electrical energy production, transportation and distribution	3
Wärmeübertragung	4
<b>Total</b>	<b>31</b>

## Semester 6

Bachelor thesis	12
Brennstoffe - Verbrennung - Abgasreinigung	4
Energy systems	5
<i>Spezialisierung - Gebäudeenergie und Umweltthemen</i>	
Abfallwirtschaft & Altlasten	4
Gebäudetechnik	5
<i>Spezialisierung - Nachhaltige Energietechnologien</i>	
Chemical principles in engineering	5
Thermal Labs	
<i>Wahlfächer</i>	4
Project Management	2
Propriété intellectuelle et veille technologique	2
<b>Total</b>	<b>30</b>

# Bauingenieurwesen

## Programm

KURSE	ECTS
<b>Semester 1</b>	
Baukonstruktion	5
CAD	5
Informatik	5
Mathematik	6
Physics	5
Technische Mechanik	5
<b>Total</b>	<b>31</b>
<b>Semester 2</b>	
Bauphysik	4
Baustoffkunde	6
Workshop project based learning	3
Mathematik	6
Technische Mechanik	5
Vermessungskunde	5
<b>Total</b>	<b>29</b>
<b>Semester 3</b>	
Législation	3
Massivbau	3
Mathematik	6
Raumplanung & Verkehrsplanung	4
Stahlbau	3
Structural analysis	5
Technische Mechanik	5
Wasserinfrastruktur	2
<b>Total</b>	<b>31</b>
<b>Semester 4</b>	
Mobilitätssemester	30
<b>Total</b>	<b>30</b>

## Semester 5

Bodenmechanik	3
Hydromechanik	2
<i>Spezialisierung - Konstruktives Bauingenieurwesen</i>	
Advanced structural analysis	5
Massivbau	5
Stahlbau	5
Tragwerkslehre & computer aided engineering	5
Wahlfach Infrastrukturwesen	5
<i>Spezialisierung - Infrastrukturwesen</i>	
Siedlungswasserwirtschaft	5
Städtebau und Landesplanung	5
Trafic infrastructure design	5
Wahlfach Konstruktives Bauingenieurwesen	5
Wasserbau & Wasserwirtschaft	5
<b>Total</b>	<b>30</b>

## Semester 6

Bachelor thesis	12
Bauwirtschaft	4
Building information modelling	5
Grundbau / Baugruben	5
<i>Wahlfächer</i>	
Abfallwirtschaft & Altlasten	4
Baubetrieb	4
Cartographie & GIS	3
Einführung Ingenieurholzbau	3
Project Management	2
Propriété intellectuelle et veille technologique	2
Umwelttechnik	2
Verkehrsbau	2
<b>Total</b>	<b>29</b>

# Europäisches Baumanagement

## Programm

KURSE	ECTS
<b>Semester 1: Université de Lorraine</b>	
Baubetrieb	2
Baukonstruktionslehre	2
Baustoffkunde	3
Englisch	3
Festigkeitslehre	2
Fremdsprachen	4
Interkulturelles Management	2
Mathematik	6
Statik	4
Topographie	2
<b>Total</b>	<b>30</b>
<b>Semester 2: Université de Lorraine</b>	
Englisch	3
Festigkeitslehre	3
Fremdsprachen	4
Grundbau	3
Interkulturelles Management	2
Mathematik	6
Stahlbetonbau	3
Stahlbau	3
Technisches Zeichnen CAD und BIM	3
<b>Total</b>	<b>30</b>
<b>Semester 3: Université du Luxembourg</b>	
Baubetrieb	3
Baukonstruktion	5
Gebäudetechnik	5
Législation	3
Raumplanung & Verkehrsplanung	4
Technische Mechanik	5
Wasserinfrastruktur	2
<i>Wahlfächer</i>	
<b>Total</b>	<b>30</b>
<b>Semester 4: Université du Luxembourg</b>	
Baubetrieb	4
Bauphysik	4
Baustoffkunde	6
Bauwirtschaft	4
Einführung Ingenieurholzbau	3
Gebäudetechnik	5
Technische Mechanik	5
<b>Total</b>	<b>31</b>
<b>Semester 5: HTW Saarbrücken</b>	
Praktische Studienphase	22
Projekt	8
<b>Total</b>	<b>30</b>
<b>Semester 6: HTW Saarbrücken</b>	
Baubetrieb	4
Deutsches Zivilrecht	2
Englisch	2
Fremdsprachen	4
Interkulturelles Management	2
Projektmanagement	4
Schalungstechnik	2
Seminar Bauwesen	2
Wahlpflichtmodule	8
<b>Total</b>	<b>30</b>
<b>Semester 7: HTW Saarbrücken</b>	
Arbeitsschutz und Sicherheitstechnik	2
Bachelorarbeit	12
Bauvertragsrecht	2
Englisch	2
Facility Management	2
Fremdsprachen	4
Interkulturelles Management	2
Öffentliches Baurecht	2
Öffentlichkeitsarbeit und Baustelle	2
<b>Total</b>	<b>30</b>

# Maschinenbau

## Programm

KURSE	ECTS
<b>Semester 1</b>	
CAD	5
Elektrotechnik	5
Informatik	5
Mathematik	6
Physics	5
Technische Mechanik	5
<b>Total</b>	<b>31</b>
<b>Semester 2</b>	
Design project based learning	3
Informatik	4
Mathematik	6
Technische Mechanik	5
Thermodynamik	5
Werkstoffkunde	6
<b>Total</b>	<b>29</b>
<b>Semester 3</b>	
Fertigungstechnik	5
Fluid mechanics	4
Machine design	5
Mathematik	6
Regelungstechnik	5
Technische Mechanik	5
<b>Total</b>	<b>30</b>
<b>Semester 4</b>	
Mobilitätssemester	30
<b>Total</b>	<b>30</b>
<b>Semester 5</b>	
Business management	4
Electrical energy production, transportation and distribution	3
Finite Elemente Methode für dynamische Anwendungen	5
Machine design	9
Oelhydraulik	4
Thermodynamik	5
<b>Total</b>	<b>30</b>
<b>Semester 6</b>	
Bachelor thesis	12
Machine design	7
Fertigungstechnik	5
Robotik	3
<i>Wahlfächer</i>	
Digital rapid prototyping	5
Thermal labs	4
Project management	2
Chemical principles in engineering	5
Propriété intellectuelle et veille technologique	2
<b>Total</b>	<b>30</b>

# Digitales Ingenieurwesen

## Programm

### KURSE ECTS

#### Semester 1

Artificial intelligence for smart technologies	2
Digitaltechnik	3
Elektrotechnik	5
Informatik	5
Mathematik	6
Physics	5
Technische Mechanik	5

**Total 31**

#### Semester 2

Informatik	4
Mathematik	6
Mikroprozessor	4
Technische Mechanik	5
Thermodynamik	5

#### Wahlfächer

Elektrotechnik	4
Telekommunikation	2

**Total 30**

#### Semester 3

Business management	4
CAD	5
Gebäudetechnik	5
Mathematik	6
Regelungstechnik	5
Technik der Netze	5

**Total 30**

#### Semester 4: Université du Luxembourg

Mobilitätssemester 30

**Total 30**

#### Semester 5

Automatisierungstechnik	5
Cloud based applications	4
Database management	4
Digital design	4
Machine design	5
Software engineering	3
Technik der Netze	5

#### Wahlfächer

Energy systems	5
Estimation approaches in advanced engineering systems	4
Signale und Systeme	4

**Total 30**

#### Semester 6

Bachelor thesis 12

#### Wahlfächer

Building information modelling	5
Cartographie & GIS	3
Energy systems	5
Interaction design	4
Real world data acquisition and processing	3
Robotik	3
Project Management	2
Propriété intellectuelle et veille technologique	2

**Total 29**



# Master in Civil Engineering Sciences

## Megastructure Engineering with Sustainable Resources 120 ECTS

This Master enables students to acquire deeper knowledge in advanced civil engineering principles, methods and techniques while using resources sustainably. Sustainability is increasingly important and the well-trained modern civil engineer must be able to judge and optimise civil structures and infrastructures while taking into account reduced consumption of construction materials and natural resources. This dual focus on megastructures and sustainability sets us apart from other masters of civil engineering.

### STRENGTHS

- Focus on complex projects and sustainability
- Collaboration with industry
- Involvement in research activities

### ADMISSION REQUIREMENTS (20 PLACES)

- Degree: Bachelor in civil engineering or related field
- Language: B2 in English
- GRE test (optional)

### STUDY & CAREER OPPORTUNITIES

- Civil engineer, structural engineer, consultant, manager
- PhD in engineering



### EXAMPLES OF ALUMNI CAREERS

- Project sales engineer, Astron Buildings
- Structural engineer, INCA Ingénieurs Conseils
- Senior Research Engineer, ArcelorMittal

### Programme at a glance

- Duration: 2 year full-time programme/ 4 semesters (120 ECTS)
- Language: English
- Registration fees: 400€/semester
- Available places: 20
- Application period:
  - > For EU students: February-July
  - > For non-EU students: February-March

### Additional information

#### CONTACT

mces@uni.lu

#### CAMPUS

Kirchberg (main) & Belval



[mces.uni.lu](https://mces.uni.lu)

## Programme

COURSES	ECTS
<b>Semester 1</b>	
Circular economy in the construction sector	3
Concrete structures	5
Finite element analysis of structures	5
Life cycle assessment and eco design	3
Methods in digital building - BIM	4
Steel & composite structures - high rise buildings	5
Thin walled structures	5
<b>Total required</b>	<b>30</b>
<b>Semester 2</b>	
Energy efficiency of buildings	4
Engineering surveying	5
Project management methods for construction projects	3
Structural dynamics	4
Sustainable water and resources management	5
Transport systems analysis	4
Transport systems - project	2
Underground structures (Advanced soil mechanics)	3
<b>Total required</b>	<b>30</b>
<b>Semester 3</b>	
Advanced project / Case study	9
Composite structures & fire design	5
Numerical soil mechanics	4
Prestressed concrete structures	5
Scientific writing and presentation skills	3
Steel & composite structures - bridges	4
<b>Total required</b>	<b>30</b>
<b>Semester 4</b>	
Master thesis	30
<b>Total</b>	<b>30</b>

“I highly recommend this Master for the combination of qualified and experienced teachers, personalised follow-up and strong links with local partners. This programme is highly demanding in terms of work and involvement but it will be worth the effort.”

Patrick Pereira Dias,  
Civil engineer, Schroeder & Associés



# Master in Sustainable Product Creation

120 ECTS

This Master enables students to acquire a comprehensive, deep knowledge of all steps of the product creation process, from market segment specification, product planning, product design and manufacturing to product usage, service and recycling. The courses cover mechanical and electrical aspects. This Master perfectly balances academic education with industrial applicability of cutting-edge content.

## STRENGTHS

- Combination of mechanical engineering and mechatronic issues within sustainable product creation
- Focus on lean and sustainable use of all resources
- Insights into electrical engineering and computer networking to integrate industry 4.0 and IoT skills

## ADMISSION REQUIREMENTS (25 PLACES)

- Degree: Bachelor in mechanical engineering, automatics and robotics, aviation and space exploration, biomedical engineering, mechatronics, electronics and telecommunications, electrical engineering, power engineering or other related fields
- Language: B2 in English

## STUDY & CAREER OPPORTUNITIES

- Mechanical engineer, design engineer, teacher, consultant, manager, researcher
- PhD in engineering



## EXAMPLES OF ALUMNI CAREERS

- Mechatronics project engineer, Goodyear
- Project engineer, Airbus
- Design engineer, Husky Technologies
- Process engineer, DuPont

## Programme at a glance

- Duration: 2 year full-time programme/ 4 semesters (120 ECTS)
- Language: English
- Registration fees: 400€/semester
- Available places: 25
- Application period:
  - > For EU students: February-August
  - > For non-EU students: February-April

## Additional information

### CONTACT

mspc@uni.lu

### CAMPUS

Belval and Kirchberg



mspc.uni.lu

## Programme

COURSES	ECTS
<b>Semester 1</b>	
Assembly and testing technologies	4
Life cycle assessment and eco-design	3
Programming for engineers	4
Project management	4
Supply chain and logistics	4
<i>Elective 1: Mechanics</i>	
Assessment of finite element calculations	3
CAD and CAE	4
Machine design	4
<i>Elective 2: Electrical and Computer Engineering</i>	
Fundamentals of network theory	3
Networking	3
Sensors and signal processing	3
Technical energy systems modelling and simulation	4
<b>Total required (if Elective 1)</b>	<b>30</b>
<b>Total required (if Elective 2)</b>	<b>32</b>
<b>Semester 2</b>	
Manufacturing systems	3
Product planning and marketing for engineers	3
Programming for engineers	4
Robotics	4
<i>Elective 1: Mechanics</i>	
Advanced control	3
Advanced engineering materials	4
Additive manufacturing technology	3
Laser technology for manufacturing	4
Machine design exercise	3
<b>Total required (if Elective 1)</b>	<b>31</b>
<b>Semester 2</b>	
<i>Elective 2: Electrical and Computer Engineering</i>	
Information theory and coding	5
Networked feedback systems	5
Quality of service in computer networks	5
<b>Total required (if Elective 2)</b>	<b>29</b>
<b>Semester 3</b>	
Advanced project / Case study	12
Integrated management systems	3
Design for Circularity	2
Scientific writing and presentation skills	3
<i>Elective 1: Mechanics</i>	
Electrical energy production, transportation and distribution	3
Energetics of the blast furnace	3
Sensors and signal processing	3
<i>Elective 2: Electrical and Computer Engineering</i>	
Artificial intelligence	5
Estimation approaches in advanced engineering systems	4
<b>Total required (if Elective 1)</b>	<b>29</b>
<b>Total required (if Elective 2)</b>	<b>29</b>
<b>Semester 4</b>	
Master thesis	30
<b>Total</b>	<b>30</b>

# Master en Sciences de l'Ingénieur

## Efficacité Énergétique et Économique

120 ECTS



This Master enables students to acquire deeper knowledge in thermodynamics, mathematics and modern technologies needed to assess energy-related issues. The course combines technical elements with units from economical sciences and business administration in the aim of providing the full range of skills required for approaching technically and commercially energy related problems.

### STRENGTHS

- International approach to energy issues
- Possibility to obtain a double diploma with Hochschule für Technik und Wirtschaft des Saarlandes (HTW Saar), Université de Lorraine, Nancy or Umwelt-Campus Birkenfeld (UCB)
- Partnerships with the European investment Bank (EIB) and industrials (Bosch, Buderus, DGNB, Paul Wurth)

### ADMISSION REQUIREMENTS (20 PLACES)

- Degree: Bachelor in engineering or related field
- Languages: B2 in English and French

### STUDY & CAREER OPPORTUNITIES

- Energy engineer, consultant, manager, researcher
- PhD in engineering

In collaboration with:



htw saar



### EXAMPLES OF ALUMNI CAREERS

- Energy engineer, Kronospan
- Energy manager, Veolia
- Project engineer, Paul Wurth
- Maintenance engineer, a+p kieffer

### Programme at a glance

- Duration: 2 year full-time programme/ 4 semesters (120 ECTS)
- Languages: English and French
- Registration fees: 400€/semester
- Available places: 20
- Application period:
  - > For EU students: February-August
  - > For non-EU students: February-April

### Additional information

#### CONTACT

meee@uni.lu

#### CAMPUS

Belval and Kirchberg



meee.uni.lu

## Programme

COURSES	ECTS
<b>Semester 1</b>	
Case studies in finance	4
Computational fluid dynamics	3
Contrôle de gestion	4
Introduction to numerical methods for continuous optimization	5
Energetics of the blast furnace	3
Production et distribution de l'énergie électrique	3
Thermodynamics	5
Urban planning + certification DGNB	3
<b>Total</b>	<b>30</b>

<b>Semester 2</b>	
Cost accounting for engineering managers	4
Efficience énergétique des bâtiments	4
Energy efficiency of buildings	7
Financial reporting & compliance	4
Gestion intelligente de l'énergie	3
Heat and mass transfer	5
Introduction aux décisions financières de l'entreprise	4
Policy, assessment and evaluation of energy projects on European level	3
<b>Total required</b>	<b>34</b>

<b>Semester 3</b>	
Advanced control of electrical energy	3
Efficience énergétique des bâtiments	3
H2 combustion engines/turbines	3
Hydrogen systems	4
Initiation to project work: techno-economical energy project	4
Integrated energy systems	5
Introduction to the TRNSYS simulation programme	1,5
Large solar thermal systems Bosch-Buderus	1,5
<b>Total</b>	<b>25</b>

<b>Semester 4</b>	
Master thesis	30
<b>Total</b>	<b>30</b>

"I opted for this Master as it combines the engineering science and economics, which are both of immense relevance nowadays. Students are taught not only how to solve any energy-related issue but also how to evaluate it from the financial point of view. The possibility to spend one semester abroad is a great opportunity to learn more about another country."

Elena Sobon,  
Environmental Manager, Directorate of Civil Aviation,  
Luxembourg



# Master en Développement Durable Energie et Environnement

120 ECTS



Ce Master, développé en co-diplômation par l'Université du Luxembourg et l'Université de Liège, permet aux étudiants d'acquérir les compétences nécessaires pour appliquer une approche environnementale aux questions énergétiques et bâtiments durables. En outre, la mobilité des étudiants et enseignants permet une approche internationale de la question de l'énergie ainsi qu'une opportunité d'apprentissage des langues étrangères.

## ATOUTS

- Double diplôme de l'Université du Luxembourg et de l'Université de Liège
- Combinaison de cours techniques, sciences naturelles et humaines
- Approche multidisciplinaire et internationale

## CONDITIONS D'ADMISSION (20 PLACES)

- Diplôme: Bachelor ou Master en sciences exactes ou humaines
- Langues: B2 en français et en anglais

## OPPORTUNITÉS DE CARRIÈRE ET DE FORMATION

- Expert en énergie, consultant, enseignant, chercheur
- PhD en ingénierie

In collaboration with:



## EXEMPLES DE CARRIÈRE DES ALUMNI

- Circular economy engineer, LSC Engineering group
- Project adviser, European Innovation Council
- Quality consultant, Contern
- Conseiller en énergie, myenergy

## Programme en un coup d'œil

- Durée: 2 ans à temps plein / 4 semestres (120 ECTS)
- Langues: français (85%), anglais (15%)
- Frais d'inscription: 1<sup>ère</sup> année Université de Liège, 2<sup>ème</sup> année Université du Luxembourg
- Places disponibles: 20
- Périodes d'inscription:
  - > Étudiants UE: Février - août
  - > Étudiants non UE: Février - avril

## Information complémentaire

### CONTACT

mdd@uni.lu

### CAMPUS

Arlon (BE), Belval et Kirchberg (LU)



mdd.uni.lu

## Programme

COURS	ECTS
<b>Semestre 1 : Université de Liège</b>	
Analyse des systèmes appliquée à l'environnement	2
Biodiversité et sociétés	4
Économie, énergie et environnement	2
Environnement sol	4
Fondement de droit / politique de l'environnement	3
Gestion intégrée de l'énergie	4
Gestion intégrée et participative des ressources en eau	4
Introduction à l'anthropocène	2
Qualité de l'air: pression, état, réponse	4
<b>Total</b>	<b>29</b>

<b>Semestre 2 : Université du Luxembourg</b>	
Circular economy in construction sector	3
Energy efficiency of buildings	7
Gestion intelligente de l'énergie	3
Initiation to project work	2
Policy, assessment and evaluation of energy projects on European level	3
Sustainable water and resource management	4
Thermodynamics	5
Transport systems analysis	4
<b>Total</b>	<b>31</b>

<b>Semestre 3 : Université de Liège</b>	
Analyse technico-économique des systèmes énergétiques	4
Introduction aux risques environnementaux et sanitaires	5
Production décentralisée et stockage de l'énergie	3
Théories et gestions des transitions écologiques	5
Valorisation des énergies renouvelables	5
<i>Options (2 cours à choisir)</i>	
Dimensionnement et simulation des systèmes énergétiques du bâtiment	4
Gestion quantitative et qualitative des eaux souterraines	4
Modélisation de la dispersion atmosphérique	4
Optimisation énergétique du bâtiment et intégration des énergies renouvelables	4
Outils d'analyse et d'aide à la décision pour une gestion intégrée des ressources en eau	4
Politiques et actions publiques	4
Réseaux d'énergie : les systèmes d'énergie électrique et les réseaux de chaleur	4
Systèmes de production agricole et sécurité alimentaire	4
<b>Total requis</b>	<b>30</b>

<b>Semestre 4 : Université du Luxembourg ou de Liège</b>	
Master thesis	25
Stage	5
<b>Total</b>	<b>30</b>

# Doctoral Programme in Engineering Sciences



This programme offers research training in civil, environmental and geospatial engineering as well as in energy, mechanical, manufacturing, electrical and communications engineering at an internationally competitive level following a multidisciplinary scientific approach to the ever increasing complexity of modern engineering.

## STRENGTHS

- Personal supervision by internationally leading scientists
- Immediate integration into research groups and projects
- Broad offer of transferable skills, disciplinary and interdisciplinary training
- State of the art laboratories and equipment
- Publications in world-leading journals
- Solid partnerships with industry and public administrations.

## ADMISSION REQUIREMENTS

- Degree: Master in engineering sciences or related field
- Language: B2 in English

## CAREER OPPORTUNITIES

- Postdoctoral researcher, research scientist, research associate, university professor
- Engineer, R&D engineer, R&D manager, project manager, product manager, Chief Technology Officer



## EXAMPLES OF ALUMNI CAREERS

- Business development manager, Bosch
- Professor, Kaiserslautern University of Applied Sciences
- Team manager, European Patent Office
- Senior manager, SES
- Associate manager, Tesla Automation
- Senior GNSS scientist, TrustPoint

## Programme at a glance

- Duration: 3 to 4 years
- Language: English
- Registration fees: 400€/semester
- Number of doctoral candidates: 75

## Additional information

### CONTACT

dpes@uni.lu

### CAMPUS

Belval and Kirchberg



dpes.uni.lu

# Doctoral Programme in Complex Systems Science



Complex systems are networks of interconnected components whose interactions produce unpredictable and emergent behaviours, such as those found in ecosystems, financial markets, and the brain. Understanding these systems requires interdisciplinary approaches combining mathematics, computer science, and domain-specific knowledge. Our programme offers comprehensive training in complex systems science, equipping PhDs with the skills to analyse and model these systems and apply their insights to fields like health, engineering, social sciences, and beyond.

## STRENGTHS

- Multi-disciplinary, method-centric training based on strong fundamentals with wide application areas
- Supervision by world-leading professors
- Close collaborations with over 30 companies worldwide
- Strong, mathematical underpinning, and computer science bases transferable to a wide variety of fields and jobs
- Publications in world-leading journals, open-source code release, data curation, storage, GDPR
- Joint activities with the local start-up ecosystem

## ADMISSION REQUIREMENTS

- Degree: Master in natural sciences, computer science or engineering science
- Language: B2 in English

## CAREER OPPORTUNITIES

- Postdoctoral researcher, research scientist, research associate, university professor
- Data scientist, R&D specialist, engineer, startup creation, geodesy specialist



## EXAMPLES OF ALUMNI CAREERS

- Data scientist, Goodyear
- Process engineer, Paul Würth
- Associate professor, University of Exeter
- Business intelligence engineer, Amazon
- Structural engineer, Lunar Outpost
- Machine learning R&D engineer, MDSim
- Technology engineer, Axens
- Engineer, MDSim (startup in Luxembourg)

## Programme at a glance

- Duration: 3 to 4 years
- Language: English
- Registration fees: 400€/semester
- Number of doctoral candidates: 40

## Additional information

### CONTACT

dpcs@uni.lu

### CAMPUS

Belval



dpcs.uni.lu



## Our department Engineering

### DoE at a glance

The Department of Engineering (DoE) is an interdisciplinary group active in the classical domains of civil, electrical and mechanical engineering, as well as logistics, geospatial engineering and geophysics. The main focus of research is on the development of technological solutions, the sustainable and economical use of resources, and the offer of competences for the technological requirements of Luxembourg and the Greater Region industrial and public actors. In many cases special emphasis is given to numerical simulation to reduce the required experimental effort, but the validation of models remains an essential asset.

#### MEMBERS

- 26 professors, lecturers and research scientists
- 35 post-docs
- 65 doctoral candidates
- 21 technical and administrative staff

#### FUNDING AND COLLABORATIONS

- €9.5 million in 24 new projects with industry and public institutions
- €4 million in 9 new European projects

#### PUBLICATIONS (2025)

- 202 contributions to journals, books and conference proceedings

### Additional information

#### CONTACT

doe@uni.lu

#### CAMPUS

Belval and Kirchberg



doe.uni.lu



## Research areas

The department (DoE) carries out research activities around five thematic axes:

### CIVIL, ENVIRONMENTAL & GEOSPATIAL ENGINEERING

We are in an era where our World is impacted by two major and interconnected challenges: (i) climate and environmental changes and natural resources consumption and waste; (ii) the increasing occurrence of severe natural events and disasters. To face these challenges, we must develop the necessary structures and infrastructure to guarantee the sustainable living of our modern civilization and develop methods to understand the impact and in turn protect the environment as well as to mitigate climate change. The groups develop innovative and original solutions for smart cities & circular economy especially for the reduction of carbon emissions, material consumption and waste.

### COMPUTATIONAL ENGINEERING & SCIENCE

This field has been in the last years a major driver of research excellence for the department, by covering multiple disciplines and create bridges between many domain-specific applications (e.g., aerospace, bioengineering, renewable energy, health, environment and many more). Research carried within the field enables the development of many if not all the common strategic developments of the department through theoretical physics-based, data-driven model-predictive and simulation approaches, Artificial Intelligence/Machine Learning approaches, Big data analytics, hybrid intelligence, meta-modelling, multi-scale modelling, etc. Building on the established international standing of the group, and the various collaborations created with other departments, faculties and centres, the research area is a key enabler for promoting and further nurturing the interdisciplinary vision of the department.

### ENERGY TECHNOLOGY & ELECTRICAL ENGINEERING

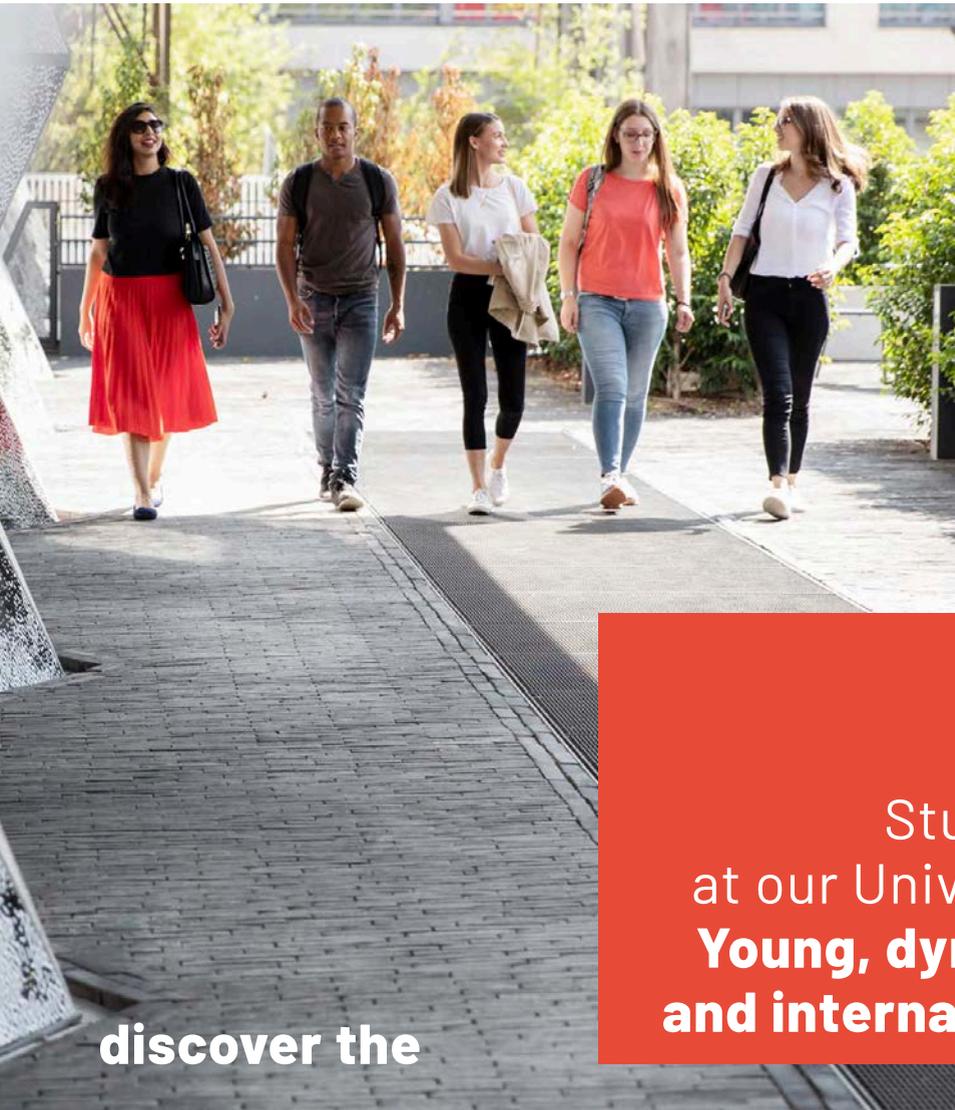
The area applies an interdisciplinary approach for the design and management of a modern energy supply concept. This includes addressing the energy consumption aspects and challenges in e.g. wastewater and transport management, building-, heating- and cooling technology. Moreover, modern communication and sensor technologies, big data management and artificial intelligence are also required to ensure the most efficient energy supply possible. Thanks to its interdisciplinary approach, the department offers expertise in the fields of biogas and biofuels, building energy technology, thermal- and electrical energy and other alternative energy technologies. The first step towards networked energy technology has already been taken by establishing the Chair for Process Technology with a focus on hydrogen technology, sponsored by the company Paul Wurth.

### LOGISTICS AND SUPPLY CHAIN MANAGEMENT

Modern logistics and supply chain management form the backbone of our value creation which increasingly is becoming long, interconnected, and global. This requires agility, data-driven decision-making, and advanced modeling and optimization skills, as well as integration and coordination of diverse stakeholders. Research in this area focuses on the design, coordination, and optimisation of supply chains. Key topics include supply chain coordination and contracts, inventory and retail operations, revenue management and dynamic pricing, digital procurement, supply chain analytics, behavioral operations.

### PRODUCTION, MANUFACTURING & MATERIALS ENGINEERING

Digitalisation is rapidly advancing within production and manufacturing technology, primarily fuelled by the automation and robotisation of industrial processes. We are on the threshold of a technological revolution, which manifests itself in the concept of Industry 4.0. The speed of change we are experiencing is overwhelming and presents us with remarkable challenges. These new challenges involve new competencies and related research and education in fields such as Artificial Intelligence, advanced robotics, 3D printing and sustainable design, and digitalisation of the manufacturing processes. These new fields are included in vital areas of the University's research mission, namely Digital Transformation and Sustainable and Societal Development.



discover the

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**Young, dynamic  
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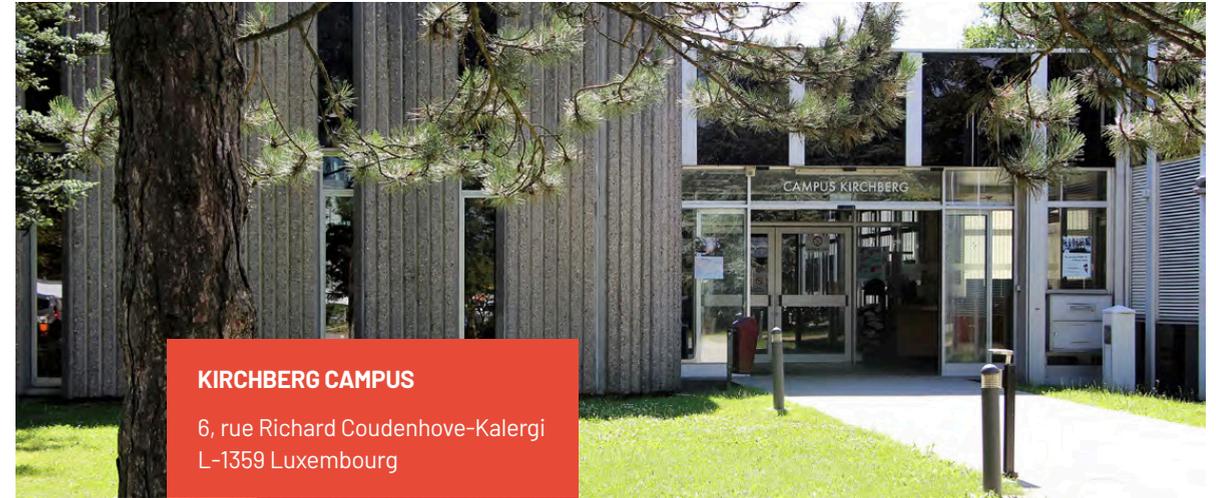
# UNIVERSITY OF LUXEMBOURG

With more than 6,200 students from all over the world, the University of Luxembourg has an international and multilingual character that offers its students a higher research-oriented education.

## Three campus sites



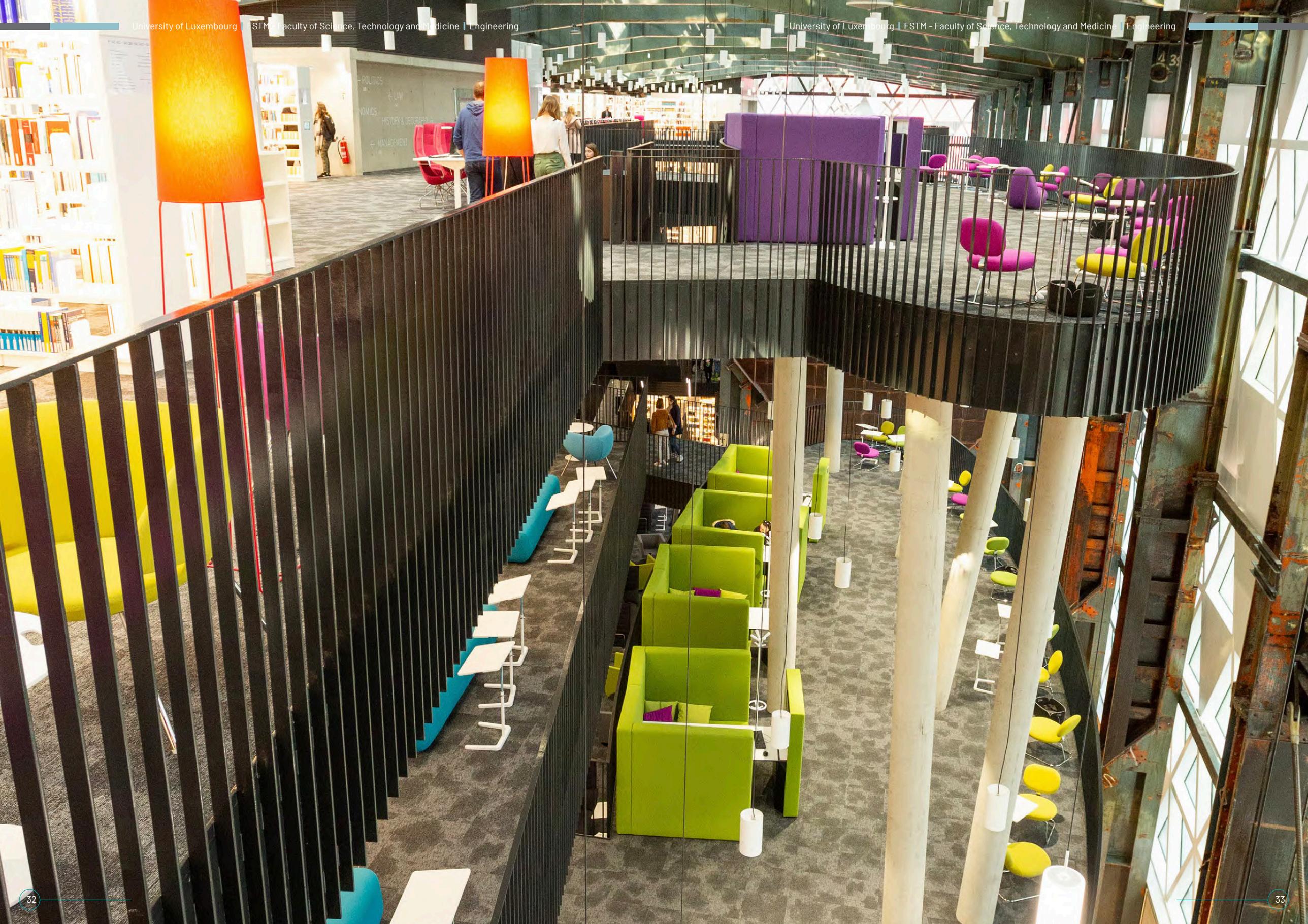
**BELVAL CAMPUS**  
2, place de l'Université  
L-4365 Esch-sur-Alzette



**KIRCHBERG CAMPUS**  
6, rue Richard Coudenhove-Kalergi  
L-1359 Luxembourg



**LIMPERTSBERG CAMPUS**  
162 A, avenue de la Faïencerie  
L-1511 Luxembourg





[visitluxembourg.com](https://visitluxembourg.com)

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Faculty of Science  
Technology  
and Medicine

## Contact

### University of Luxembourg

Faculty of Science, Technology  
and Medicine (FSTM)

[fstm.uni.lu](http://fstm.uni.lu)

### Campus Belval

2, place de l'Université  
L-4365 Esch-sur-Alzette

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### Campus Kirchberg

6, rue Richard Coudenhove-Kalergi  
L-1359 Luxembourg

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### Campus Limpertsberg

162 A, avenue de la Faïencerie  
L-1511 Luxembourg

03 - 2026

## Stay in touch

