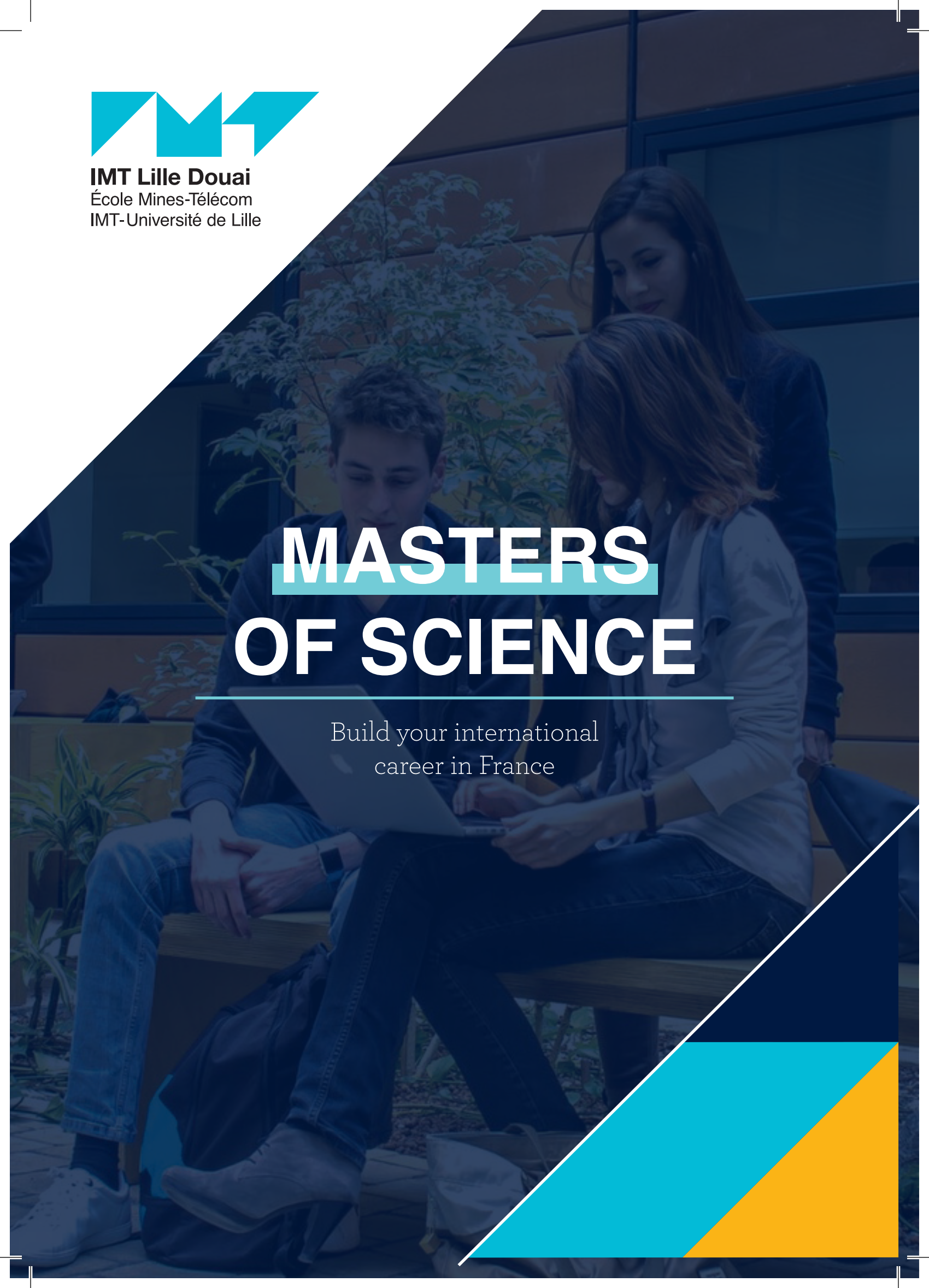




IMT Lille Douai
École Mines-Télécom
IMT-Université de Lille

MASTERS OF SCIENCE

Build your international
career in France



MSc programmes

Study a master's degree abroad. Build your international career

IMT Lille Douai is a public French National Graduate School of Engineering of Institut Mines-Télécom, partner of the University of Lille. Located in the heart of Europe, it brings together all the talented individuals and trains the executives that the world needs to undertake the energy, industrial and digital transitions. It is one of the largest engineering schools to the north of Paris.

JOIN THE NETWORK!

Institut Mines-Télécom is the leading public French group of engineering and management schools:



8
graduate schools



12,600
students
a comparable
number to major
American universities



Close to 50
patents registered
each year



Over 1,000
researchers and
1,100 doctoral
students



A network of
60,000 alumni
in all economic
sectors

IMT LILLE DOUAI'S MSc PROGRAMMES

The MSc Programme is a **high-quality master's degree** to boost employability in an international environment.

IMT Lille Douai's master's degrees benefit from **the school's research expertise** and its close links with the business community. These collaborations are a token of **quality** in terms of **technical skills** as much as **management skills**, in line with companies' needs.

Totally **taught in English**, you will study in an **international environment in France**, with students and professors coming from all around the world.

Opening the door to a PhD

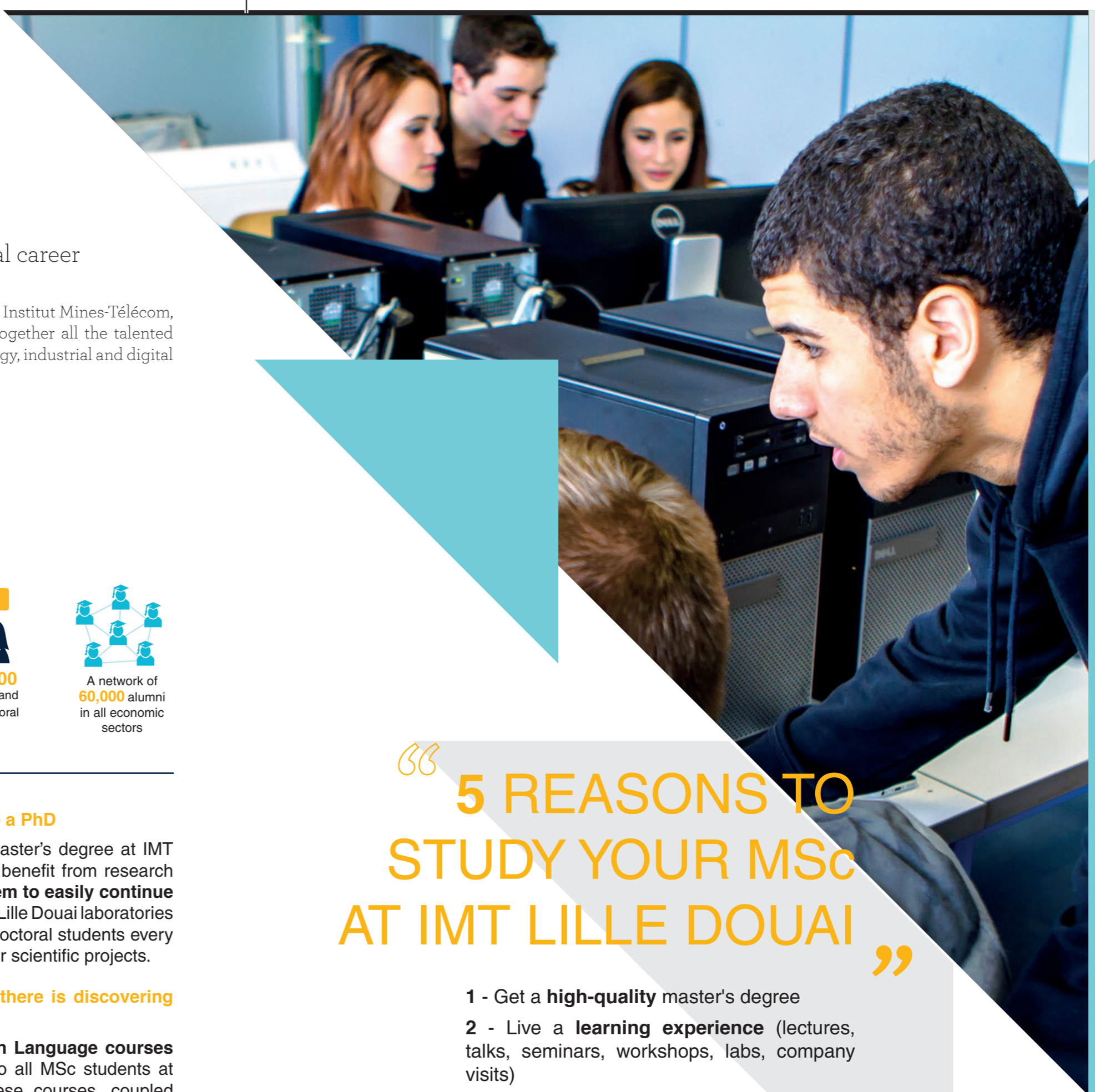
By preparing for a master's degree at IMT Lille Douai, students benefit from research training, **allowing them to easily continue on to a PhD**. The IMT Lille Douai laboratories welcome over thirty doctoral students every year, involved in major scientific projects.

Beyond education, there is discovering French culture

French as a Foreign Language courses (FLE) are provided to all MSc students at IMT Lille Douai. These courses, coupled with placements and training projects allow students to have a **solid inter-cultural grounding** after two years of education. A welcome cultural integration for pursuing an international career!

“ 5 REASONS TO STUDY YOUR MSc AT IMT LILLE DOUAI ”

- 1 - Get a **high-quality** master's degree
- 2 - Live a **learning experience** (lectures, talks, seminars, workshops, labs, company visits)
- 3 - Immerse yourself in the **French culture**
- 4 - Study one semester in the **IMT Business School** in Paris
- 5 - Benefit from IMT Lille Douai's **worldwide expertise**



ADVANCED DESIGN AND MANAGEMENT OF DURABLE CONSTRUCTIONS

Building the world of the future

Buildings, bridges, roads, etc.; constructions live and interact with their environment. They have an impact on their environment and the populations, of all kinds, who live there. Being useful to our world in the heart of the **ecological, energy, digital and industrial transition**, begins with an awareness of these environmental trade-offs.

The development of the circular economy now allows for a reduction, for example, in the use of cement, favouring waste being recycled into equally as efficient materials with a lower carbon footprint. Waste, consisting of base materials, is still too often stored, or disposed of at sea. As such, it forms a free resource, capable of providing **clean and sustainable materials**.

Sensitive to these issues, IMT Lille Douai offers students the chance to learn about **sustainable construction**, via the design and use of **innovative materials** coming from the circular economy and the consideration of the impacts of our work on their environment.

A global approach to buildings, from their design to their maintenance and repair!

The Advanced Design and Management of Durable Constructions MSc combines **extensive experience** in civil engineering (design, dimension calculation, engineering calculation) with the environmental aspect.

The MSc students learn a new way of building, making use of innovative, bio-sourced, sustainable materials with a low environmental impact.

Within the IMT Lille Douai laboratories, the students learn in direct contact with the researchers, **at the heart of the innovation**. They undertake impact and sustainability assessments on materials and their life cycles.

The training and expertise from IMT Lille Douai also allow the students to gain experience on the use of **3D printing** in construction, on the **smart home** concept and on the use of data in managing sustainable constructions.

A semester-long course takes place within the Institut Mines-Télécom Business School, our academic partner. This semester allows students to develop their skills in **management** and **project management**.



Director of Studies :
Eng. PhD.
Mouhamadou Amar

Contact :
mouhamadou.amar@imt-lille-douai.fr



SYLLABUS¹

¹Syllabuses are subject to change in accordance with IMT Lille Douai's scientific and educational advances

Building materials (8 ECTS)

- Binders, Concretes and admixtures
- Green materials for construction
- Soil physics and geotechnical design
- Lab teaching
- New materials and technologies for construction
- Material reuse, life cycle assessment and environmental impacts

Design and calculation of civil structures (8 ECTS)

- Rheology of building materials
- Reinforced concrete design - Basics
- Reinforced concrete design - Advanced
- Prestressed concrete design
- Wooden constructions

Diagnosing and repairing structures (8 ECTS)

- Durability of structures
- Techniques of diagnosing and repairing: methods, audits, analysis

Applied Numerical and Digital Methods (8 ECTS)

- Smart home and BIM
- Advanced data learning and analysis
- Models and algorithms for decision

Commercial, Logistics and management profile (6 ECTS)

- To prepare for the semester at the IMT Business School, students are offered the choice to acquire skills in the field of logistics, business, or acquire skills in team management or project management.
- A choice is offered to the students from between programs: acquire skills in the field of logistics, develop skills in the commercial field or acquire project management skills and team management skills (all concerning construction sectors).

Complementary activities (6 ECTS)

- French as foreign language (3 ECTS)
- Sport (1 ECTS)
- Construction sites and factory visits (2 ECTS) Discover and get involved during visits into a real construction site and construction companies

Research Initiation Project (8 ECTS)

An initiation to research methods and testing in order to deepen knowledge in the field of innovative building materials

Scientific and Technical Project (8 ECTS)

An initiation to handling a project in its different dimensions: design and characterisation of materials, technical aspects, innovation, economical aspects and environmental impacts

IMT Business School tailor made programme (30 ECTS)

- Sales and business (6 ECTS)
- Managerial finance (2 ECTS)
- Intellectual property (2 ECTS)
- Business Ethics (2 ECTS)
- MOOC Innovation and entrepreneurship in digital world (6 ECTS)
- Innovation projects (4 ECTS)
- Personal development and communication skills (1 ECTS)
- Business plan challenge (5 ECTS)
- French as a foreign language (2 ECTS)

Final-year project (30 ECTS)

Final-year internship to apply theoretical and technical concepts and methods to real construction projects

JOB OPPORTUNITIES

Business Director

The business director undertakes the technical drafting of a construction or installation "project". He or she determines, in a general or specific manner, the technical processes, organisational methods and costs in order to create a draft project of the future construction operation. He or she is also involved in undertaking the construction survey, defining the operating conditions and ensuring supervision responsibilities.

Works Director

Reporting to the project manager, the works director is responsible for preparing and managing the production of civil engineering works. He or she is responsible for transmitting the directives to establish the programme of works, following its development and establishing updates to planning and budget. He or she represents the construction site with the customer and external bodies and manages the teams deployed.

Project director

The project director creates both the feasibility study and the business proposal of projects which are entrusted to him or her. He or she has a technical coordination role, from business negotiation to project management, all the way to its completion. He or she is the intermediary between the customer, the internal departments and the external service providers. Depending on the size of the organisation and the complexity of the projects, duties may vary in terms of their technical, commercial or managerial nature. He or she generally reports to the commercial or technical management of the company.

Director of Studies

The director of scientific and technical studies is responsible for developing new understanding and new products or processes. Reporting to the executive management, the R&D department or the studies department of a company (large group, SME/SMI, start-ups, etc.) or a public or parapublic body, he or she generally works within design offices.

Director of production / Director of operations

The director of production is the operational representative of the industrial strategy. His or her role is to ensure the smooth running of the production process and optimise it. The director of production in general reports to the industrial director, the technical director, the plant director, the unit director or the managing director (in small organisations).



ECO-DESIGN AND ADVANCED COMPOSITE STRUCTURES

An update in composite materials and technology, meeting project management, industrial and environmental requirements!

Composite materials respond to numerous modern challenges: **reducing** vehicle **weight**, **disability** inclusion, but also improving **performance** of sporting and leisure equipment. The composite industry is on the rise.

However, against the backdrop of the **ecological transition**, this industry cannot continue its growth without controlling its **life cycle** and its **environmental impact**. Faced with this issue, IMT Lille Douai has created the Eco-design and Advanced Composite Structures MSc to train professionals in this innovative industrial sector.

The Eco-design and Advanced Composite Structures MSc enables students to develop **extensive experience** in composites, especially sought-after in this **highly-technical** industry. The courses provided in this master's degree are directly associated with the industrial issue.

Students from the Eco-design and Advanced Composite Structures MSc are **project-focused**. The IMT Lille Douai laboratories bring together the technical resources required to allow students to **experience, on a real-world scale**, composite development: technological platform, computing and calculation resources, cluster computing, etc.

Finally, a semester-long course takes place within the Institut Mines-Télécom Business School, our academic partner. This semester allows students to develop their skills in **management** and **project management**.

JOB OPPORTUNITIES

Design Manager/director

In charge of a team of designers from different technical backgrounds, the design manager organises the resources and the timeline to satisfy the customer requirements in the pre-production stage. He/she identifies technical solutions up-to-date with the evolution of market innovations while ensuring the economic viability of the product. He/she has the capacity to evaluate the social, environmental, financial impacts of the final project. He/she is in direct relationship with the customers throughout the different development stages of the project.

Development project Manager/Director

The Development Project Manager is in charge of the development and/or research on products or processes from the early design stage to series production. He/she understands and assists the customers in defining their needs, and helps them to develop solutions through innovation projects. He/she belongs to a company or an institution, and can gather competencies through collaborative projects, elaborate/validate the technical and financial programme and ensure that the project objectives will be reached. He/she also ensures that the solutions proposed throughout the project are capitalised on and transferred to the different entities or are more widely communicated.



Director of Studies :

Eng. PhD.

Mylène Lagardère

Contact :

mylene.lagardere@imt-lille-douai.fr



SYLLABUS²

²Syllabuses are subject to change in accordance with IMT Lille Douai's scientific and educational advances

Materials' structure and characterisation (7 ECTS)

- Composites' material constituents and specificities
- Market and key figures
- Technical and economical characteristics
- Sandwich structure specificities
- Preform and polymer characterisation techniques for processing modelling
- Characterisation of mechanical properties
- Non-destructive evaluation techniques
- Polymers and polymer structures
- Materials' classification

Composite manufacturing (7 ECTS)

- Exhaustive presentation of composites' processes
- Recent developments in composites' manufacturing
- Lab Sessions on RTM injection, infusion and autoclave manufacturing

Smart and advanced materials (6 ECTS)

- Nano-reinforced polymers
- Bio-based materials and biocomposite materials
- Smart materials
- Smart composites and polymers structures
- Plastics and composites recycling

Mechanics of composites and sandwich structures (7 ECTS)

- Laminate plate theory
- Evaluation of unidirectional and multi-layered composites' mechanical properties
- Influences of thermal and moisture effects
- Long-term behaviour and damage mechanisms
- Structure reliability and process robustness principles applied to composite materials
- Computer lab sessions

Composite process modelling (7 ECTS)

- Influence of process and material parameters on cycle times and part quality
- Interaction between the physics involved
- Composite modelling project
- Additive manufacturing, prototyping and augmented reality

Computer aided design (6 ECTS)

Eco design principles (5 ECTS)

- Recycling and valorisation methods
- Standards
- Life cycle analysis
- Biomaterials
- Maintenance and repairing
- Use of recycled materials
- Decision making

French as a Foreign Language (3 ECTS)

Sport (1 ECTS)

Project: design of a multifunctional composite part (5 ECTS)

Design a composite part from a book of requirements concerning a structural application

Research Project (6 ECTS)

An introduction to research methods and testing in order to deepen knowledge in the field of innovative building materials

IMT Business School tailor made programme (30 ECTS)

- Sales and business (6 ECTS)
- Managerial finance (2 ECTS)
- Intellectual property (2 ECTS)
- Business Ethics (2 ECTS)
- MOOC Innovation and entrepreneurship in digital world (6 ECTS)
- Innovation projects (4 ECTS)
- Personal development and communication skills (1 ECTS)
- Business plan challenge (5 ECTS)
- French as a foreign language (2 ECTS)

Final-year project (30 ECTS)

Final-year internship to apply theoretical and technical concepts and methods to real construction projects



DEVELOP EXTENSIVE EXPERIENCE IN COMPOSITES



APPLY TO OUR MSc PROGRAMMES

Intake: M1

Application fees: €60

Tuition fees: €9,000 per year,
€18,000 in total

Campus: Douai

Selection procedure: application
and potential interview

Teaching language: English

Starting date: Fall 2021

Application deadline: June,
30th 2021

Good to know

- Lodging and dining facilities on site
- Campus easy to reach by public transport
- A team at your service to assist you in your administrative procedures

Selection procedure

A committee of professors selects the applicants, based on the following criteria:

- C.V. / Résumé
- Motivation letter
- Applicant's previous scientific background and grades
- English level

Candidate profile

The master's degree is open to candidates with at least a scientific Bachelor of Science degree

Candidates must have a certificate or other proof of English proficiency

No prerequisite in French is needed

“
LEAD
THE WAY TO A
BETTER FUTURE
”





**From Douai's campus,
easy access to:**

Lille: 20min by train and 30min
by car

Paris (Centre): 1h20 by train and
2h20 by car

Paris CDG Airport: 1h30 by train
and 1h50 by car

From Lille:

Brussels: 30min by train,
1h30 by car

London: 1h30 by train

Contact

international-admissions@imt-lille-douai.fr

www.imt-lille-douai.fr



IMT Lille Douai
École Mines-Télécom
IMT-Université de Lille

