IMT Nord Europe
École Mines-Télécom
IMT-Université de Lille

RÉPUBLIQUE FRANÇAISE

Master of Science in **Eco-Design and Advanced Composite Structures**

Composite industry is a highly-technical and innovative sector on the rise, sensitive to the ecological transition. Its main concern is to **control the life cycle and environmental impact of products** while continuing its exponential growth.

The MSc Edo-Design and Advanced Composite Structures (EDACS) enables students **to develop extensive experience in composite industry,** especially sought-after in this cutting-edge domain. **The courses provided in this master's degree directly respond to industrial issues,** including material and design choices to address a book of requirements, industrial designing tools, the control of the process and cycle times.

EDACS students are **project-focused.** Our laboratories bring together the technical resources required to experience, on a real-world scale, composite developement: **technological platform, computing and calculation resources, physical and mechanical behaviour characterisation, cluster computing, etc.**

Besides, to become a complete engineer with the ability to manage advanced projects, **one semester in IMT Business School (IMT-BS) is dedivated to the development of management and communication skills** and to the acquisition of knowledge in the fields of business, finance and logistics. IMT Business School is located in Evry, south of Paris.

To facilitate the immersion of its international students in France, **IMT Nord Europe offers accomodation solutions in Douai and Evry and a personalized throughout their education.**

- **100% taught in English**
- **2 years on Campus**
- **6-month internship**

Tuition Fees:

- **9,000 €/year (non E.U Students)**
- **4,500 €/year (E.U Students)**
- **Possible scholarship opportunities**

Admission Process

Application Form and Interview
Deadline: June 30th, 2026
master-of science@imt-nord-europe.fr

Academic Prerequisites

A **Bachelor's Degree** or an equivalent international degree in Science, Technology or Engineering.

For non-native English speakers, a certificate or other **proof of English proficiency equivalent to B2.**

SCHOOLING PROGRAMME

Educational content of knowledge and skills blocks (KSB):

Designing high-performance composite structures adapted to technical and environmental contraints :

• By selecting fibrous reinforcements and resin matrices according to mechanical and sustainability criteria.

• By optimizing the geometry and layup of composite parts using CAD and FEA tools.

• By iintegrating weight, cost, and performance constraints into eco-design strategies.

• By applying design-for-manufacture and life-cycle thinking throughout the design process.

Conducting structural analysis and validation of composite components :

• By performing finite element modeling (FEM) of composite structures under mechanical, thermal, or fatigue loads.

• By validating structural performance against validating structural performance against.

• By interpreting test results from mechanical trials (tensile, flexural, impact) to confirm simulation accuracy.

• By identifying failure modes and proposing design improvements.

Implementing quality control and assurance processes in composite manufacturing:

• By defining inspection protocols for raw materials, in-process controls, and finished parts.

• By analyzing process deviations and implementing corrective actions.

• By ensuring compliance with aerospace, automotive, or energy sector standards (e.g., ISO, AS9100).

• By documenting quality records and supporting audits.

Supporting innovation in sustainable composite materials and applications:

• By exploring bio-based or recyclable matrix/fiber solutions in composite formulations.

• By evaluating environmental impacts using Life Cycle Assessment (LCA) tools.

• By integrating sustainable design choices in line with circular economy principles.

• By contributing to R&D projects focused on emerging applications (e.g., hydrogen storage, structural health monitoring, etc.).

Managing the development of composite products from prototype to industrialization :

• By coordinating multi-disciplinary teams across design, manufacturing, and quality functions.

• By planning development phases, from specification to qualification and production ramp-up.

• By ensuring the alignment of product development with technical, environmental, and regulatory requirements.

• By monitoring project progress, risks, costs, and reporting to stakeholders.

Do you know composite materials ?

From fibers (carbon, glass or natural fibers) and a polymeric resin, they are 5 times lighter than metals with equivalent performances and can offer plenty of design and manufacturing solutions!

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