Career Opportunities

Whether you have a Master's or a PhD degree from the Graduate Programme E-Mat, your profile will be very relevant to companies and laboratories specialized in:

- Functional Materials Engineering
- New and Renewable Energies
- Energy production and storage
- Information and Communication Technologies
- Automotive - Aeronautics - Aerospace

Examples of employment

- Engineer/manager in research and development and innovation
- Engineer/manager in a design office or in consulting firms
- Researcher or research professor (PhD level)
- Scientific manager (PhD level)
- Chief project officer (PhD level)

Contact

Programme leaders

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Innovative Materials and Energy Systems

(E-Mat)

Graduate Programme

MASTER'S AND DOCTORAL DEGREES

Nantes Université

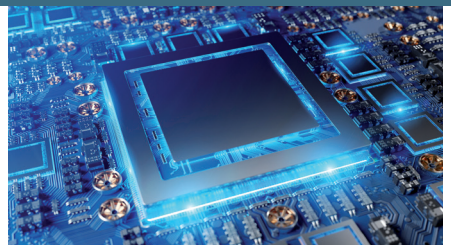
The Graduate Programme E-Mat aims to train the actors in physics, chemistry, and engineering who will have to meet the challenges of tomorrow's energy transition. Integrated into the Faculty of Science and Technology and the Graduate School of Matter, Molecules, Materials and Geosciences (3MG), the programme is supported by two international laboratories: *Institut Des Matériaux de Nantes Jean Rouxel* (IMN)[1] and *Laboratoire de Thermique et d'Energie de Nantes* (LTeN)[2].

This interdisciplinary training programme offers degrees at Master's and Doctorate levels; covers the design, synthesis and development of functional materials, the study of their properties and their exploitation for specific functions, particularly for energy applications and advanced technologies. Students will have a chance to carry out their research projects and internship in two of our laboratories or in academic and industrial partners, in France or worldwide.

1 Joint research unit CNRS 6502 - 2 Joint research unit CNRS 6607

Why us ?

- To benefit from the environment and skills of two international laboratories, professors and CNRS researchers.
- To promote innovative solutions in the leading field of materials, functional systems and energy.
- To develop independence through the laboratory research project.
- To implement experimental methodologies on advanced instruments.



- To be trained with new tools and new technologies, especially at the cutting edge of material sciences, professional software and artificial intelligence.
- To acquire the necessary skills for a professional orientation dedicated to global and sustainable transitions.
- To benefit from personalized mentoring.

Admission

Academic requirement

Students must have obtained a degree in the following fields: Physics or Physics – Chemistry or equivalent.

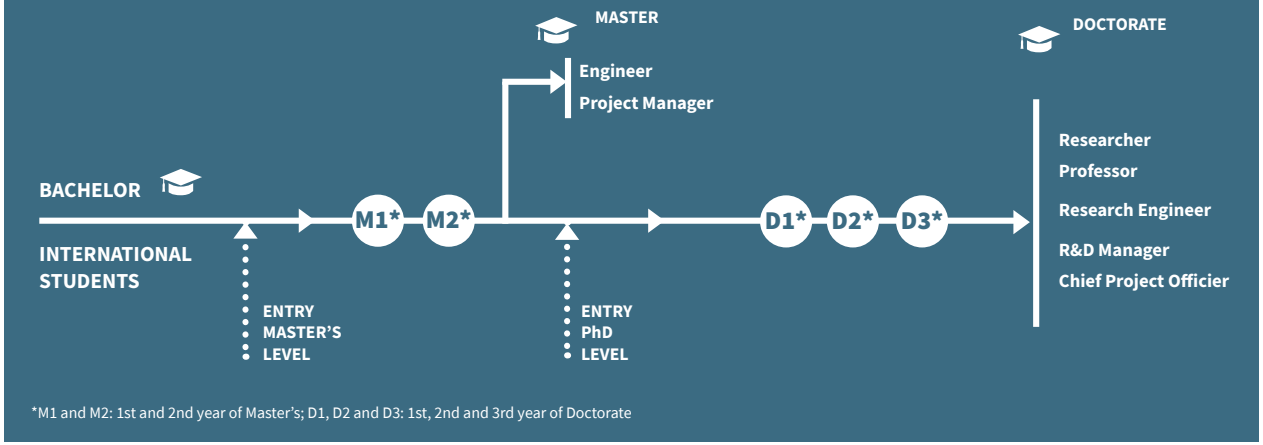
- **At master's level:** Bachelor's degree is required (180 ECTS validated).
- **At PhD level:** Master's degree is required (bachelor + 120 ECTS validated).

Language requirement

For Master Level:
Students must achieve **ONE** of the English conditions.
below:
- Minimum overall TOEIC score of 800 or equivalent.
- Graduated from a university in an English – speaking country.
- Direct English interview.

For PhD level:
Fluency in speaking, listening, reading and writing English.

The Graduate Programme



*M1 and M2: 1st and 2nd year of Master's; D1, D2 and D3: 1st, 2nd and 3rd year of Doctorate

Our programme

First year of Master (M1) - Taught in French with direct translation in English

Fundamental Physics	Methods for synthesis of (nano) materials (I)	Characterization properties - Energy systems (I)	Materials properties - Energy systems (I)	Modeling *(Finite elements; Atomic-scale; Data processing)*

Soft Skills | Thematic School | Internship (2 to 4 months)

Second year of Master (M2) - Taught fully in English

Methods for synthesis of (nano)materials (II)	Characte-rization of materials (II)	Nanosciences - Electronic devices	Energy systems (II)	Modeling *(Multiphysics; Quantum; Artificial Intelligence)*

Thematic School | Soft skills | Internship (5 to 7 months)

A 3000 euros scholarship will be granted to the best foreign candidate at the Master's level

Doctorate

Research project	Transversal training (Communication, innovation, ethical	Specialized training (Example: advanced spectroscopic and diffraction methods)	International Mobility

Workshops and seminars | Supervising Master students | Summer and winter schools

Financial support from Nantes University, CNES, ANR, ERC, CNRS and the Pays de la Loire Region will be available for internship, international mobility and doctoral funding

Skills

Master

- Carry out a research or research and development (R&D) project in the field of materials/energy, innovative systems and their applications related to sustainable development and strategic challenges.
- Collect, analyse, model and interpret data, demonstrate critical analysis through both experimental and theoretical approaches.
- Merge in any professional structure, especially in an international context.
- Communicate in French or English, both written and spoken, with proficiency in technical vocabulary.

Doctorate

- Develop expertise by carrying out an innovative project within a research team in a promising field.
- Deepen the specialized knowledge.
- Acquire proficiency in the use of point analysis techniques and tools.
- Develop teaching and project management skills.