

Master's degree in Nuclear Engineering

The **master's degree in Nuclear Engineering** ([master's degree website](#)) aims to provide students with the skills required to take on positions of responsibility in companies and research centres in the nuclear sector. Students will gain thorough knowledge of the theoretical and practical aspects of nuclear engineering and of the technology associated with energy production by nuclear fission chain reaction. Students will acquire a broad understanding of the entire chain of energy conversion of nuclear fuel into final energy and of the life cycle of facilities, from uranium mining and initial plant construction to spent fuel management and decommissioning. Students will become familiar with regulations and nuclear safety culture, develop a strategic view of the sector and acquire the ability to understand problems and make decisions.

Approximately half of the lectures of the master's degree are taught by nuclear industry experts from companies, research centres and other universities. Work placement will allow students to work with experts who will share their knowledge and expertise.

This master's degree is included in the [InnoEnergy / Campus Energia](#) educational project, as the European Master in Nuclear Energy (EMINE).

The EIT Label is a quality seal awarded by the [European Institute of Innovation and Technology](#) (EIT) to a KIC educational programme that has been assessed positively by the EIT on the implementation of the EIT Quality Assurance and Learning Enhancement (EIT QALE) system and the application of specific quality criteria with focus on the EIT Overarching Learning Outcomes (EIT OLOs), robust entrepreneurship education, highly integrated, innovative 'learning?by?doing' curricula, international mobility and outreach.



GENERAL DETAILS

Duration and start date

One academic year, 90 ECTS credits. Starting September

Timetable and delivery

Mornings and afternoons. Face-to-face

Fees and grants

Approximate fees for the master's degree, excluding other costs, €4,149 (€6,224 for non-EU residents).

This master's degree was selected in the Masters of Excellence grant programme of the Catalunya-La Pedrera Foundation. More information is available at the [Foundation's website](#).

[More information about fees and payment options](#)

[More information about grants and loans](#)

Language of instruction

English

Location

Official degree

[Recorded in the Ministry of Education's degree register](#)

ADMISSION

General requirements

[Academic requirements for admission to master's degrees](#)

Specific requirements

The master's degree is addressed to people with the following scientific-technological university qualifications:

- Pre-EHEA degrees in Industrial Technologies, Materials, Energy, Chemistry, Mechanics and Electricity.
- Other pre-EHEA Engineering degrees and bachelor's degrees in Engineering.
- Bachelor's degrees in Physics or Chemistry.

Admission criteria

- English level B2.2 is required.
- Academic record.
- First degree and university of origin.
- Professional experience.

Places

20

Pre-enrolment

Pre-enrolment closed (consult the new pre-enrolment periods in the [academic calendar](#)).

[How to pre-enrol](#)

Enrolment

[How to enrol](#)

Legalisation of foreign documents

All documents issued in non-EU countries must be [legalised and bear the corresponding apostille](#).

DOUBLE-DEGREE AGREEMENTS

Double-degree pathways at a single school

- Master's degree in Nuclear Engineering + Master's degree in Industrial Engineering (ETSEIB)

With foreign universities

- Bachelor's degree in Industrial Technology Engineering + Master's degree in Nuclear Engineering and Diplôme d'ingénieur from one of the Ecoles Centrales (Lille, Lyon, Marseille, Nantes, Supélec).

PROFESSIONAL OPPORTUNITIES

Professional opportunities

In Europe, nuclear engineering graduates are in high demand, and not just because of the need to replace those who retire from employment at European nuclear power plants. Economic globalisation and the growing presence of European companies in a variety of projects have contributed considerably to the need for qualified staff within the sector. The increased demand for qualified staff that is foreseen is a cause for concern not only for Spanish companies but also for the Nuclear Safety Council, the Spanish regulatory body.

This master's degree focuses on preparing students for positions of responsibility within the nuclear power sector and producing qualified graduates for employment in research and development, and even teaching, in this field.

Competencies

Generic competencies

Generic competencies are the skills that graduates acquire regardless of the specific course or field of study. The generic competencies established by the UPC are capacity for innovation and entrepreneurship, sustainability and social commitment, knowledge of a foreign language (preferably English), teamwork and proper use of information resources.

Specific competencies

On completion of the course, students will:

- Have acquired a thorough understanding of the theoretical and practical fundamentals of nuclear engineering and technology for producing energy from nuclear fission.
- Have a clear, comprehensive view of the entire chain of energy conversion of nuclear fuel, from uranium mining to spent nuclear fuel management.
- Be familiar with the life cycle of facilities, from the construction to the decommissioning of a nuclear plant.
- Have a deep understanding of nuclear regulations and safety.
- Have developed a strategic view of the sector and the ability to understand problems and make decisions.

ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

UPC school

[Barcelona School of Industrial Engineering \(ETSEIB\)](#)

Academic coordinator

[Lluís Batet Miracle](#)

Academic calendar

[General academic calendar for bachelor's, master's and doctoral degrees courses](#)

Academic regulations

[Academic regulations for master's degree courses at the UPC](#)

CURRICULUM
