

# MASTER'S DEGREE IN ELECTRONIC ENGINEERING

**ETSETB**

Barcelona School  
of Telecommunications Engineering



UNIVERSITAT POLITÈCNICA  
DE CATALUNYA  
BARCELONATECH

# MASTER'S DEGREE IN ELECTRONIC ENGINEERING

The master's degree in Electronic Engineering (MEE) is a flexible training proposal built on many years of academic experience in the field. It is adaptable to the needs of both students who wish to focus on a professional career and those who want to go on to do doctoral-level research in electronics. It is intended that cutting-edge industry assimilate these engineers as benchmark professionals in a multidisciplinary work and production scenario.

To promote the employability of our graduates, both the master's thesis and some of the ECTS credits for optional subjects can be taken at a company or a laboratory. Students are helped by academic supervisors to design the most appropriate pathway for the master's degree. MEE has a strong international character. It is taught entirely in English and attracts a large number of students from other countries. The international mobility of local students is encouraged through the Erasmus programme.

## Curriculum

This information may be subject to change.  
Up-to-date information is available at [upc.edu](http://upc.edu)

**90 ECTS  
credits**

**Starting:** in September and February.

**Timetable and delivery:** Afternoons.

Face-to-face.

**Language of instruction:** English.

### Bridge courses

**Max. 25  
ECTS credits**

Assigned by the academic committee of the master's degree. To be taken by students whose academic background is not a bachelor's degree in Electronic Engineering. These subjects do not extend the master's degree and are recognised as optional credits.

### Compulsory subjects

**35 ECTS credits**

### Master's thesis

**20 ECTS credits**

### Optional credits

**Max. 35 ECTS credits**

Students may choose to take one of two academic pathways, with or without a intensification.

### With a intensification

At least 15 ECTS credits must be chosen from one of the following intensifications:

Power Electronics

Semiconductor Technology

Biomedical Engineering and Sensors

Innovation Management

Microelectronic Design

Embedded Systems

Microprocessor Design

# 36

**laboratories  
for practicals**

# 100%

**master's degree graduate  
employment rate**

Source: Graduate employment survey of master's degree graduates of Catalan universities by the Catalan University Quality Assurance Agency (AQU Catalunya) 2023

# +50%

**of students did  
internships in  
companies during  
the last academic year**

## Admission

This master's degree is intended for students with the following academic backgrounds:

- Bachelor's degree in Electronic Systems Engineering.
- Bachelor's degree in Engineering Physics.
- Bachelor's degree in Industrial Electronics and Automatic Control Engineering.
- Bachelor's degree in Telecommunications Technologies and Services Engineering.
- Bachelor's degree in Telecommunications Science and Technology.
- Bachelor's degree in Audiovisual Systems Engineering.
- Bachelor's degree in Telecommunications Systems Engineering.
- Bachelor's degree in Network Engineering.
- Bachelor's degree in Electrical Engineering.
- Five-year degree in Telecommunications Engineering: 30 ECTS credits may be recognised.
- Five-year degree in Electronic Engineering: 60 ECTS credits may be recognised.

- Diploma in Telecommunications Engineering.
- Diploma in Electronic Engineering.

## Competencies acquired

Graduates of this master's degree will be able to:

- Model, design and control power electronic systems for various functions and applications.
- Conceive and design electronic circuits for analogue RF signal processing.
- Design, implement and integrate high performance instrumentation systems.
- Analyse, design and manufacture micro- and nanoelectronic devices.
- Analyse and design digital circuits and systems-based on (multi) processors and configurable devices.
- Analyse and design mixed-signal integrated circuits.
- Manage and generate innovative business projects in the field of electronic technology.

## Professional opportunities

Given the cross-disciplinary characteristics of electronics, graduates of this master's degree may pursue careers in a broad range of sectors, such as ICT systems, electron

devices, medical electronics, consumer electronics, control systems, robotics, automation, electromagnetic compatibility, microelectronic design, smart sensors and data acquisition systems.

Companies operating in these sectors offer high added value in terms of technology and are therefore in need of professionals trained to master's degree level. Many of these companies foster technology innovation and have a highly dynamic presence in a strongly competitive market that they achieve by counting research among their activities.

Graduates may be also employed in the public sector as civil servants or contractual employees in any public administration body at the EU, national, regional and local levels in the areas of electronics and ICT innovation and as research, development and innovation specialists in public universities.

In addition to this, the master's degree offers highly specialised optional subjects intended for students who are looking to pursue a doctoral degree in Electronic Engineering. Electronic engineering is one of the top ten disciplines in the Job Quality Index by the Catalan University Quality Assurance Agency (AQU Catalunya).

## Without a intensification

No restriction on optional subjects.

## Other possibilities for optional subjects

- Introduction to Research (10 ECTS credits): a research project carried out in one of the research groups at the Department of Electronic Engineering.
- Seminars.
- Internships in companies (10 ECTS credits).
- Professional experience (Recognition of a maximum of 10 ECTS credits).
- Optional subjects from other master's degrees: with the supervisor's approval.

# MASTER'S DEGREE IN ELECTRONIC ENGINEERING

The Barcelona School of Telecommunications Engineering (ETSETB) has been an institution dedicated to teaching and research in the field of ICT since 1971. It has strong relations with the industry sector and develop an innovative activity through professors and researchers that reverse into the business and productive sector.

The ETSETB is a school of the Universitat Politècnica de Catalunya - BarcelonaTech (UPC), a benchmark public institution of research and higher education in the fields of engineering, architecture, science and technology. With 50 years of history and more than 30,000 students, the UPC has the greatest concentration of research and innovation in IT in southern Europe. It is the best Spanish university in Telecommunications, Electrical and Electronic Engineering, according to the 2024 QS World University Rankings by Subject.



## Telecommunications, engineering for the 21st century



Further information:

[telecos.upc.edu](https://telecos.upc.edu)

[electronicengineering.masters.upc.edu](https://electronicengineering.masters.upc.edu)

[masters.etsetb@upc.edu](mailto:masters.etsetb@upc.edu)

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