# Bachelor's degree in Electronic Engineering and Telecommunications

Today, practically all spheres of human activity require the support of electronics, including communications systems, multimedia services, industrial process control, energy management, the automobile industry, medicine, all of which depend on electronics and its ability to cut across disciplines. In addition, the current trend in clean electricity makes electronics more present than ever: from microchips to train engines, electronics is everywhere.

This bachelor's degree aims to cover the needs of companies and institutions in a wide range of sectors that require staff who are highly qualified in design and technological development in the field of electronics. It provides a solid grounding in the principles of electronics and mathematics and gives students the skills they need to work in a field whose future is beyond our imagination.

## GENERAL DETAILS

**Duration**

4 years

**Study load**

240 ECTS credits (including the bachelor's thesis). One credit is equivalent to a study load of 25-30 hours.

**Delivery**

Face-to-face

**Fees and grants**

Approximate fees per academic year: €1,660 (€2,490 for non-EU residents). Consult the public fees system based on income (grants and payment options).

**Location**

Barcelona School of Telecommunications Engineering (ETSETB)

## ADMISSION

**Places**

50

**Registration and enrolment**

What are the requirements to enrol in a bachelor's degree course?

**Legalisation of foreign documents**

All documents issued in non-EU countries must be legalised and bear the corresponding apostille.

## PROFESSIONAL OPPORTUNITIES

**Professional opportunities**

Graduates may find employment in the areas of ICT engineering. They will be equipped to supervise and carry out tasks related to the design, implementation and management of electronic systems in fields and sectors such as the following:

- Consumer electronics.
- Telecommunications.
- Microtechnology and nanotechnology.
- Automobile industry.
- Automatic control and robotics.
- Multimedia, image and sound.
- Energy and sustainability.
- Medicine and health.

- Bioengineering.
- Photonics and light technologies.
- Aeronautics and aerospace industry.
- R&D centres.

## ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

**Course structure**

The 240 ECTS credits in the syllabus are organized into 4 academic years. Each course has 60 ECTS, divided into two semester periods of 30 ECTS. One ECTS credit is considered to correspond to a student's dedication of 25 hours.

- Basic training: 66 ECTS
- Compulsory training: 138 ECTS
- Elective training, internships and university extension activities: 18 ECTS
- Final Degree Project: 18 ECTS

**Academic calendar**

General academic calendar for bachelor's, master's and doctoral degrees courses

**Academic regulations**

Academic regulations for bachelor's degree courses at the UPC

**Language certification and credit recognition**

Queries about language courses and certification

Barcelona School of Telecommunications Engineering (ETSETB)

## CURRICULUM

| Subjects | ECTS credits | Type |
|---|---|---|
| **FIRST SEMESTER** | | |
| Algorithms and Programming | 6 | Compulsory |
| Calculus | 6 | Compulsory |
| Components and Circuits | 6 | Compulsory |
| Introduction to Mathematics | 2 | Optional |
| Linear Algebra | 6 | Compulsory |
| Physics | 6 | Compulsory |
| **SECOND SEMESTER** | | |
| Circuit Analysis | 6 | Compulsory |
| Differential Equations and Transforms | 6 | Compulsory |
| Electromagnetism | 6 | Compulsory |
| Programming and Data Structures | 6 | Compulsory |
| Vector Calculus | 6 | Compulsory |
| **THIRD SEMESTER** | | |
| A Practical Introduction to Matlab | 2 | Optional |
| Administrating Linux Systems | 2 | Optional |
| Applied Electromagnetism and Photonics | 6 | Compulsory |
| Circuit Simulation and Analysis Using PSpice | 2 | Optional |

| Subjects | ECTS credits | Type |
|---|---|---|
| Cooperation Project with Wifi Technologies | 2 | Optional |
| Create Your Future: Just a Job or Your True Passion | 2 | Optional |
| Digital Design | 6 | Compulsory |
| Electronic Devices | 6 | Compulsory |
| Ethics in Ict | 2 | Optional |
| Financial Engineering for Economic Planning of Investments | 2 | Optional |
| History of Computing | 2 | Optional |
| Ictd. Technology for Sustainable Development | 2 | Optional |
| Linear Algebra, Linear Codes and Secret-Sharing Schemes | 2 | Optional |
| Low Cost Measurement Systems | 2 | Optional |
| Pigment Identification with Raman Spectroscopy | 2 | Optional |
| Probability and Stochastic Processes | 6 | Compulsory |
| Renewable Energy | 2 | Optional |
| Signals and Systems | 6 | Compulsory |
| Statistical Tools for Social Networks and the Www | 2 | Optional |
| Telecommunication History | 2 | Optional |
| **FOURTH SEMESTER** | | |
| Analog Circuits | 6 | Compulsory |
| Business and Project Management | 6 | Compulsory |
| Embedded Systems | 6 | Compulsory |
| Introduction to High Frequency Circuits | 6 | Compulsory |
| Signal Processing | 6 | Compulsory |
| **FIFTH SEMESTER** | | |
| Configurable Digital Systems | 6 | Compulsory |
| Control Systems | 6 | Compulsory |
| High Frequency Circuits | 6 | Compulsory |
| Materials Science and Engineering | 6 | Compulsory |
| Measurement Systems | 6 | Compulsory |
| **SIXTH SEMESTER** | | |
| Electric Power Processing | 6 | Compulsory |
| Electronic Technology | 6 | Compulsory |
| Internet of Things | 6 | Compulsory |
| Real-Tyme Systems | 6 | Compulsory |
| Techniques for Entrepreneurship | 6 | Compulsory |
| **SEVENTH SEMESTER** | | |
| Hardware Information Processing Systems | 6 | Compulsory |
| Microelectronic Design | 6 | Compulsory |
| System Integration | 12 | Compulsory |

| Subjects | ECTS credits | Type |
|---|---|---|
| **EIGHTH SEMESTER** | | |
| Bachelor's Thesis | 18 | Project |