

# Bachelor's degree in ICT Systems Engineering

The **bachelor's degree in ICT Systems Engineering** trains and qualifies you to deal with engineering problems in which electronics, informatics and communications play a part. You will have a general training profile and the specific knowledge required to work in the emerging, high-impact sector of embedded systems, which are present in automobiles, home automation, industrial machinery, medical equipment, consumer electronics and traffic control systems.

---

## 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

### Language of instruction

Check the language of instruction for each subject (and timetable) in the course guide in the curriculum.

Information on [language use in the classroom and students' language rights](#).

### Fees and grants

Approximate fees per academic year: €1,107 (€2,553 for non-EU residents). [Consult the public fees system based on income \(grants and payment options\)](#).

### Location

[Manresa School of Engineering \(EPSEM\)](#)

### Official degree

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

---

## ADMISSION

---

### Places

44

### 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

- Design, specification and implementation of widgets and systems that require knowledge of electronics, informatics and communications.
- ICT companies or companies for which ICTs may provide added value.
- Businesses and institutions that develop products or provide services in which electronics, informatics and communications play a part, such as the automobile industry; companies that develop manufacturing

machinery and testing and laboratory equipment; biomedical, electronics, home automation and environmental industries; and the control systems industry.

- Engineering firms that carry out interdisciplinary projects.
- Project management in ICT companies.
- R&D design engineering.
- R&D project management.
- Product management.
- Technical, sales and management positions.

---

## ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

---

### 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](#)

Manresa School of Engineering (EPSEM)

---

## CURRICULUM

---

Subjects	ECTS credits	Type
<b>FIRST SEMESTER</b>		
Basic Engineering Mathematics	6	Compulsory
Fundamental Mathematics for Icts	6	Compulsory
Informatics	6	Compulsory
Introduction to the Digital Design	6	Compulsory
Physics	6	Compulsory
<b>SECOND SEMESTER</b>		
Circuit Theory	6	Compulsory
Complementary Technologies I	6	Compulsory
Digital Systems	6	Compulsory
Programming Technologies	6	Compulsory
Statistics	6	Compulsory
<b>THIRD SEMESTER</b>		
Advanced Engineering Mathematics	6	Compulsory
Business	6	Compulsory
Complementary Technologies II	6	Compulsory
Linear Circuits and Systems	6	Compulsory
Programmable Devices	6	Compulsory
<b>FOURTH SEMESTER</b>		
Analogue Systems	6	Compulsory

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Computer Architecture	6	Compulsory
Low-Level Programming	6	Compulsory
Radio-Frequency Circuits and Systems	6	Compulsory
Signals and Systems	6	Compulsory
<b>FIFTH SEMESTER</b>		
Communication Networks	6	Compulsory
Concurrent and Real-Time Programming	6	Compulsory
Digital System Processing	6	Compulsory
Operating Systems	6	Compulsory
Project Management	6	Compulsory
<b>SIXTH SEMESTER</b>		
Bioengineering	6	Optional
Chemistry	6	Optional
Data Transmission	6	Optional
Databases	6	Optional
Decision Optimisation and Theory	6	Optional
Digital Audio and Video	6	Optional
Electronic Control Systems	6	Compulsory
Embedded Systems	6	Compulsory
Energy Resources	6	Optional
Eolic and Photovoltaic Energy Generation	6	Optional
Graphic Expression	6	Optional
Innovation, People Management and Business Start-Up	6	Optional
Internet Applications and Services	6	Compulsory
Materials Science and Technology	6	Optional
Mechanical Systems	6	Optional
Strength of Materials	6	Optional
Systems Engineering	6	Compulsory
User Interfaces	6	Optional
<b>SEVENTH SEMESTER</b>		
Automatic and Robotic Systems	6	Compulsory
Business English	6	Optional
Communication Systems	6	Optional
Microelectronics	6	Optional
Quality Management and Integrated Quality, Safety and Environmental Management Systems	6	Optional
Secret and Security in Information Coding	6	Optional
Systems Integration	6	Compulsory
<b>EIGHTH SEMESTER</b>		

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Bachelor's Thesis	24	Project

---

September 2024. [UPC](#). Universitat Politècnica de Catalunya · BarcelonaTech