

Bachelor's degree in Industrial Electronics and Automatic Control Engineering

Manresa School of Engineering (EPSEM)

On the **bachelor's degree in Industrial Electronics and Automatic Control Engineering**, you will acquire the knowledge needed to supervise and manage engineering projects in the fields of industrial electronics and automatic control: design and development of analogue, digital and power electronic systems and industrial control and automation systems. You will receive multidisciplinary training in the fields of analogue, digital and power electronics, systems modelling and simulation, automatic regulation and control techniques and their application in industrial automation, and the principles and applications of robotic systems, industrial informatics and communications.

GENERAL DETAILS

Duration

4 academic 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

180

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](#).

DOUBLE-DEGREE AGREEMENTS

Double-degree pathways at the UPC

You have the possibility of complementing this bachelor's degree with a specific pathway towards a double degree by taking an additional number of credits from one of the other degrees taught at the School. Generally, this involves an additional year of study. To gain admission to a double degree of this kind you must have taken a minimum number of credits on one of the bachelor's degrees. The number of places is limited.

- Bachelor's degree in Industrial Electronics and Automatic Control Engineering + Bachelor's degree in Mechanical Engineering

PROFESSIONAL OPPORTUNITIES

Professional opportunities

- Drafting and supervision of projects involving automation and control installations and electronic drive regulation.
- Design, installation and maintenance of electronic control, power and instrumentation systems.
- Design and development of industrial informatics and process monitoring systems.
- Design, management and maintenance of industrial equipment and installations.
- Drafting of technical, advisory and feasibility reports.
- Management, organisation, planning and quality control.
- Teaching and research.

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)

This bachelor's degree is also taught at

- Barcelona · EEBE · [Show degree](#)
- Terrassa · ESEIAAT · [Show degree](#)
- Vilanova i la Geltrú · EPSEVG · [Show degree](#)

CURRICULUM

Subjects	ECTS credits	Type
FIRST SEMESTER		
Chemistry	6	Compulsory
Environmental Technologies and Sustainability	6	Compulsory
Introduction to Computing	6	Compulsory
Mathematics I	6	Compulsory
Physics I	6	Compulsory
SECOND SEMESTER		
Graphic Expression	6	Compulsory
Materials Science and Technology	6	Compulsory
Mathematics II	6	Compulsory

Subjects	ECTS credits	Type
Physics II	6	Compulsory
Statistics	6	Compulsory
THIRD SEMESTER		
Business	6	Compulsory
Electrical Systems	6	Compulsory
Mathematics III	6	Compulsory
Mechanical Systems	6	Compulsory
Thermodynamics and Fluid Mechanics	6	Compulsory
FOURTH SEMESTER		
Digital Electronics	6	Compulsory
Electronic Systems	6	Compulsory
Engineering Skills	6	Optional
Industrial Control and Automation	6	Compulsory
Operations Management	6	Compulsory
Strength of Materials	6	Compulsory
FIFTH SEMESTER		
Analogue Electronics	6	Compulsory
Automatic Regulation	6	Compulsory
Circuit Analysis	6	Compulsory
Digital Systems	6	Compulsory
Embedded Control Systems	6	Compulsory
SIXTH SEMESTER		
Advanced Automation	6	Compulsory
Electronic Instrumentation	6	Compulsory
Industrial Informatics	6	Compulsory
Power Electronics	6	Compulsory
Project Methodology, Management and Orientation	6	Compulsory
SEVENTH SEMESTER		
Advanced Programming	6	Optional
Business English	6	Optional
Communication Systems	6	Optional
Construction Material Factories	6	Optional
Construction Materials	6	Optional
Data Management and Storage	6	Optional
Data Networks and the Internet	6	Optional
Decision Optimisation and Theory	6	Optional
Drillings Applied to Engineering	6	Optional
Electronic Design Analog -Digital	6	Optional

Subjects	ECTS credits	Type
Electronic Design Power Systems	6	Optional
Energy Resources	6	Optional
Fuels and Thermal Processes	6	Optional
Geotechnical Engineering	6	Optional
Graphical User Interfaces	6	Optional
Information Processing and Transmission	6	Optional
Innovation, People Management and Business Start-Up	6	Optional
Low-Level Programming: Industrial Applications of Microcontrollers	6	Optional
Maintenance Management	6	Optional
Nuclear Technology	6	Optional
Operating Systems	6	Optional
Prevention of Occupational Risks	6	Optional
Production Automation	6	Optional
Quality Management and Integrated Quality, Safety and Environmental Management Systems	6	Optional
Robotic Systems	6	Compulsory
Secret and Security in Information Coding	6	Optional
EIGHTH SEMESTER		
Bachelor's Thesis	24	Project