

# 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.

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### GENERAL DETAILS

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#### 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

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

#### Official degree

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

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### ADMISSION

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#### 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](#).

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### PROFESSIONAL OPPORTUNITIES

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#### 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.

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## ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

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### 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](#)

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## CURRICULUM

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Subjects	ECTS credits	Type
<b>FIRST SEMESTER</b>		
Chemistry	6	Compulsory
Environmental Technologies and Sustainability	6	Compulsory
Introduction to Computing	6	Compulsory
Mathematics I	6	Compulsory
Physics I	6	Compulsory
<b>SECOND SEMESTER</b>		
Graphic Expression	6	Compulsory
Materials Science and Technology	6	Compulsory
Mathematics II	6	Compulsory
Physics II	6	Compulsory
Statistics	6	Compulsory
<b>THIRD SEMESTER</b>		
Business	6	Compulsory
Electrical Systems	6	Compulsory
Mathematics III	6	Compulsory
Mechanical Systems	6	Compulsory
Thermodynamics and Fluid Mechanics	6	Compulsory
<b>FOURTH SEMESTER</b>		
Chemical Systems	6	Compulsory
Electronic Systems	6	Compulsory

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Engineering Skills	6	Optional
Industrial Control and Automation	6	Compulsory
Operations Management	6	Compulsory
Strength of Materials	6	Compulsory
<b>FIFTH SEMESTER</b>		
Advanced Programming	6	Optional
Analogue Electronics	6	Compulsory
Automatic Regulation	6	Compulsory
Business English	6	Optional
Circuit Analysis	6	Compulsory
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
Digital Electronics	6	Compulsory
Drillings Applied to Engeneering	6	Optional
Electronic Design Analog -Digital	6	Optional
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
Secret and Security in Information Coding	6	Optional
<b>SIXTH SEMESTER</b>		
Advanced Automation	6	Compulsory
Digital Systems	6	Compulsory
Electronic Instrumentation	6	Compulsory

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Microcomputers	6	Compulsory
Power Electronics	6	Compulsory
<b>SEVENTH SEMESTER</b>		
Industrial Informatics	6	Compulsory
Project Methodology, Management and Orientation	6	Compulsory
<b>EIGHTH SEMESTER</b>		
Bachelor's Thesis	24	Project

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September 2021. [UPC](#). Universitat Politècnica de Catalunya · BarcelonaTech