

# Bachelor's degree in Industrial Electronics and Automatic Control Engineering

## Barcelona East School of Engineering (EEBE)

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 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 (€2,253 for non-EU residents). [Consult the public fees system based on income \(grants and payment options\)](#).

#### Location

[Barcelona East School of Engineering \(EEBE\)](#)

#### Official degree

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

### ADMISSION

#### Places

135

#### 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

### With universities around the world

- Bachelor's degree in Industrial Electronics and Automatic Control Engineering + Master's degree in Materials Science and Advanced Materials + *Diplôme Ingénieur* (École Centrale Lille, École Centrale de Lyon, École Centrale de Marseille, École Centrale de Nantes, CentraleSupélec, Groupe des Écoles Centrales (GEC), France)
- Bachelor's degree in Industrial Electronics and Automatic Control Engineering + Master in Interdisciplinary and Innovative Engineering + *Diplôme Ingénieur* (École Centrale Lille, École Centrale de Lyon, École Centrale de Marseille, École Centrale de Nantes, CentraleSupélec, Groupe des Écoles Centrales (GEC), France)
- Bachelor's degree in Industrial Electronics and Automatic Control Engineering + Master in Chemical Engineering + *Diplôme Ingénieur* (École Centrale Lille, École Centrale de Lyon, École Centrale de Marseille, École Centrale de Nantes, CentraleSupélec, Groupe des Écoles Centrales (GEC), France)

## 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](#)

Barcelona East School of Engineering (EEBE)

### This bachelor's degree is also taught at

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

## CURRICULUM

Subjects	ECTS credits	Type
<b>FIRST SEMESTER</b>		
Calculus	6	Compulsory
Chemistry	6	Compulsory
Graphic Expression	6	Compulsory
Informatics	6	Compulsory
Physics I: Fundamentals of Mechanics	6	Compulsory
<b>SECOND SEMESTER</b>		

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Algebra and Multivariable Calculus	6	Compulsory
Environmental Technologies and Sustainability	6	Compulsory
Materials Science and Technology	6	Compulsory
Numerical Calculus. Differential Equations	6	Compulsory
Physics II: Fundamentals of Electromagnetism	6	Compulsory
<b>THIRD SEMESTER</b>		
Electrical Systems	6	Compulsory
Fluid Mechanics	6	Compulsory
Industrial Control and Automation	6	Compulsory
Mechanical Systems	6	Compulsory
Statistics	6	Compulsory
<b>FOURTH SEMESTER</b>		
Business	6	Compulsory
Circuit Theory and Electrical Machines	6	Compulsory
Electronic Systems	6	Compulsory
Information Systems and Industrial Communication	6	Compulsory
Thermodynamics and Heat Transfer	6	Compulsory
<b>FIFTH SEMESTER</b>		
Automatic Regulation	6	Compulsory
Digital Electronics	6	Compulsory
Electronic Technology	6	Compulsory
Engineering Design	6	Compulsory
Industrial Robotics and Computer Vision	6	Compulsory
<b>SIXTH SEMESTER</b>		
Analogue Electronics	6	Compulsory
Control Techniques	6	Compulsory
Electronic Instrumentation	6	Compulsory
Industrial Computer Science	6	Compulsory
Power Electronics	6	Compulsory
<b>SEVENTH SEMESTER</b>		
Additive Manufacturing 1	3	Optional
Additive Manufacturing 2	3	Optional
Advanced Computer-Aided Design	6	Optional
Advanced Control	6	Optional
Advanced Statistics and Applications in Engineering	6	Optional
Applied Photonics	6	Optional
Artificial Intelligence for Engineering	6	Optional
Audio and Video Electronics	6	Optional

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Climate Change: Science, Energy, Economics, Politics and the Future	3	Optional
Communication in Technical English	9	Optional
Computational Engineering	6	Optional
Data Engineering and a Business Analytics	6	Optional
Design and Implementation of Electronics Prototypes	6	Optional
Design Validation	6	Optional
Digital Microelectronic Design	6	Optional
Electronic Equipement	6	Optional
Facilities Projects	6	Optional
Fire Engineering	6	Optional
Geometry for Design	6	Optional
Green Functions and Linear Differential Equations: Diffusive Problems, Static Inverters	6	Optional
Implementation of Arduino-Based Acquisition Systems	6	Optional
Implementation of Automatic Control System	6	Optional
Industrial Automation and Communications	6	Optional
Industrial Equipments and Installations	6	Optional
Innovation Management	6	Optional
Integration of Automatic Systems	6	Optional
Leadership and Management	6	Optional
Management Skills	6	Optional
Mobile Devices Programming	6	Optional
Numerical Simulation Applied to Engineering	6	Optional
Physical Chemistry	6	Optional
Process Control Systems Design	6	Optional
Production Organisation	6	Compulsory
Programming for Engineers	6	Optional
Project Development I	6	Optional
Project Development II	6	Optional
Project Engineering & Management	6	Optional
Resources Recovery and Circular Economy	6	Optional
Technology and Sciences in Ancient Times: Egypt and Mesopotamia	6	Optional
Telecommunications and Internet	6	Optional
Transport Phenomena	6	Optional
<b>EIGHTH SEMESTER</b>		
Bachelor's Thesis	24	Project