

BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING

At the Manresa School of Engineering you will find:

- teaching staff who are committed to students' learning and well-being,
- cutting-edge research,
- degrees that integrate theoretical and practical education through work on real projects,
- many options to extend your CV, such as international mobility programmes, work placements and a job bank.

This bachelor's degree qualifies you to officially practise as:

- A technical industrial engineer.
- An industrial engineer (by taking the master's degree in Industrial Engineering).



Training the engineers of the future



Further information:
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UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH
Manresa School of Engineering

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UPC studies



BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING

UPC MANRESA
Manresa School of Engineering



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
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International Campus of Excellence

BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING

This bachelor's degree brings together industrial automatic control and electronics. With informatics and communications, they drive important changes in economic activity, which in turn leads to a bigger role played by automation and artificial intelligence in processes and products. Today, a production line cannot be conceived without a certain degree of automation; therefore, running a company involves the computerisation and integration of processes such as production, maintenance, administration and management. With regard to products and systems, the tendency is to give them greater functionality and accuracy by integrating computer components, including embedded sensors and processors.

The bachelor's degree in Industrial Electronics and Automatic Control Engineering offers you comprehensive training that is both specific and multi- and cross-disciplinary, which will allow you to adapt easily to significantly diverse work environments. It will also allow you to develop skills in fields such as instrumentation, automation, industrial inspection, process control, industrial informatics, systems integration and systemic approaches to problems.

Curriculum

This information may be subject to change.
Up-to-date information is available at upc.edu

240 ECTS

1st year

1st semester

Mathematics I	6
Physics I	6
Informatics	6
Chemistry	6
Environmental Technologies and Sustainability	6

2nd semester

Mathematics II	6
Physics II	6
Graphic Expression	6
Statistics	6
Materials Science and Technology	6

2nd year

1st semester

Mathematics III	6
Business	6
Mechanical Systems	6
Electrical Systems	6
Thermodynamics and Fluid Mechanics	6

2nd semester

Strength of Materials	6
Electronic Systems	6
Industrial Control and Automation	6
Operations Management	6
Digital Electronics	6

Basic training

Subjects shared with the industrial engineering branch of knowledge

Specific training

27

educational cooperation agreements with foreign universities

Close interaction between professors and students

Practical training in companies in the sector

97%

of graduates are in work*

*Source: Graduate employment survey of Catalan universities by the Catalan University Quality Assurance Agency (AQU Catalunya) 2020.

What will I learn?

- To apply technology-based electronic and automated solutions involving a range of industrial technologies to problems.
- To solve real problems in a way that takes into account context and restrictions, such as the economic costs, time factors, the regulatory framework, the environment and strategic factors.
- To approach problem solving with a cooperative and innovative spirit that takes into account the importance of communication, with a view to providing competitive solutions.

Open laboratory

You will have access to the open laboratory, a facility in which you can study, work in a group, interact with fellow students and do your individual assignments.

Professional opportunities

Some of the professional areas in which you can apply the skills you have acquired are:

- Design, analysis and maintenance of electronic and microelectronic systems.
- Commercial management and organisation of electronic products and systems.
- Control of electrical machines and drives.
- Formulation, design, development and maintenance of instrumentation, automatic control and robotic systems.

Go international!

International experience is an important part of your training. That's why we offer international mobility from the third year onwards. We have agreements with several universities, all of them renowned in the bachelor's degree's areas of knowledge.

Teaching

For the professors, students are engineers in training from the very first day and this attitude permeates many aspects of day-to-day functioning:

- Learning based on practical training.
- Close contact with professors, who provide academic guidance and tutoring.
- A collaborative, but also demanding, work atmosphere that fosters autonomy, initiative and responsibility.
- Optional work placement in companies in the sector.
- Optional international mobility stays from the third year onwards.

3rd year

1st semester

Circuit Analysis	6
Analogue Electronics	6
Digital Systems	6
Embedded Control Systems	6
Automatic Regulation	6

2nd semester

Power Electronics	6
Electronic Instrumentation	6
Advanced Automation	6
Industrial Informatics	6
Project Methodology, Management and Orientation	6

4th year

1st semester

Optional Subjects*	24
Robotic Systems	6

2nd semester

Optional Subject	6
Bachelor's Thesis	24

* **Optional Subjects**
Electronic Design: Power Systems / Prevention of Occupational Risks / Industrial Applications of Microcontrollers / Maintenance Management / Business English / Quality Management and Integrated Quality, Safety and Environmental Management System / Secret and Security in Information Coding / Energy Resources