

# Bachelor's degree in Electrical Engineering Terrassa School of Industrial, Aerospace and Audiovisual Engineering (ESEIAAT)

The **bachelor's degree in Electrical Engineering** covers the technological fundamentals of the generation and distribution of electrical energy and the control and protection of electrical systems. You will acquire the skills needed to supervise and manage engineering projects related to electrical systems, high-, medium- and low-power installations, machine and industrial production line automation, and the generation and distribution of electrical energy. You will also become familiar with emerging fields such as electric traction and the development of renewable energies.

## **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

Terrassa School of Industrial, Aerospace and Audiovisual Engineering (ESEIAAT)

## **Official degree**

Recorded in the Ministry of Education's degree register

# ADMISSION

#### Places

270

## **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 Electrical Engineering / Bachelor's degree in Mechanical Engineering
- Bachelor's degree in Electrical Engineering / Bachelor's degree in Industrial Electronics and Automatic Control Engineering With other universities or centers of higher education in Catalonia
- Bachelor's degree in Electrical Engineering / Master's degree in Industrial Engineering / Degree in Business Administration and Management (UOC).

## **PROFESSIONAL OPPORTUNITIES**

## **Professional opportunities**

- Supervision and management of engineering projects related to the design, analysis, construction, verification and maintenance of systems and equipment for generating, transporting and distributing electrical energy.
- Analysis, design, testing and control of domestic and industrial electrical installations.
- Management of electrical power systems, installations and drives.
- Design, installation and maintenance of electromechanics, automation and industrial production lines.
- Energy and environmental management.
- Energy generation in wind and photovoltaic power systems.
- 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

Terrassa School of Industrial, Aerospace and Audiovisual Engineering (ESEIAAT)

## This bachelor's degree is also taught at

• Barcelona · EEBE · Show degree

CURRICULUM		
Subjects	ECTS credits	Туре
FIRST SEMESTER		
Chemistry	6	Compulsory
Environmental Technologies and Sustainability	6	Compulsory
Graphic Expression in Engineering	6	Compulsory
Mathematical Methods I	6	Compulsory
Physics I	6	Compulsory

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Efficiency and Quality in Electrical Systems   6   Compulsory     Electrical Machines II   6   Compulsory     Electronability and Electrical Aircraft Systems   3   Optional     Embedded Systems Programming   3   Optional     Energy Efficiency Systems   3   Optional     Energy Efficiency Systems   3   Optional     Experimental Design   3   Optional     Fundamentals of Robotics   3   Optional     Fundamentals of Robotics   3   Optional     Indomation and Communication Systems   3   Optional     Information and Communication Technology   3   Optional     Introduction to Big Data   3   Optional     Introduction to Dynamical Systems and Ergodic Theory   3   Optional     Introduction to Reverse Engineering   3   Optional     Introduction to Object-Oriented Programming   3   Optional     Leadership and Professional Development in Engineering   3   Optional     Mothrelites and Communication for Engineering   3   Optional     Motorbites Design and Secrets   3   Optional     Motorbites Design and Secre	Subjects	ECTS credits	Туре
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SEVENTH SEMESTER	Web Applications	3	Optional
	Written Academic Skills for Engineering	3	Optional
Advanced Programming 6 Optional	SEVENTH SEMESTER		
	Advanced Programming	6	Optional

Subjects	ECTS credits	Туре
Calculation and Construction of Electrical Machines	6	Optional
Control Technology for Electromechanical Systems	6	Optional
Energy and Climate Change	6	Optional
Grid Integration of Renewable Energy Systems	6	Optional
Initiation to Paper and Graphic Industrial Tecnologies	6	Optional
Internship	12	Optional
Machine Control and Operation	6	Compulsory
Modelisation, Complexity and Sustainability	6	Optional
Planning, Simulation and Supervision of Industrial Processes	6	Optional
Programming of Mobiles Android	6	Optional
Project Oriented Methodology	6	Compulsory
EIGHTH SEMESTER		
Agrivoltaics: Photovoltaic Solar Energy for Sustainable Development	3	Optional
Application of Python/Matlab/C++ to Thermal Engineering Mechanical and Aeronautical Problems	3	Optional
Applied Research Methods in Engineering Science	3	Optional
Artificial Intelligence for UAV Video Object Recognition	3	Optional
Artificial Intelligence for Video and Audio Generation	3	Optional
Basic Robotics	6	Optional
Building Energy Certification	3	Optional
Design of Solar and Eolic Systems	6	Optional
Digitalization Applied to Energy Systems	3	Optional
Electric Vehicles	6	Optional
Electrical Project Design with Eplan	3	Optional
Experimental Methods for New and Sustainable Materials	3	Optional
Fundamentals of Rams Engineering in the Certification of Aerospace Products	3	Optional
Hydraulic Hybrid Machines	3	Optional
Hydrogen's Future: Technologies and Applications	3	Optional
Introduction to Robotics and Automation	3	Optional
Life Cycle Assessment	3	Optional
Numerical Methods for Engineers	6	Optional
Photonics. Optics Applied to Engineering	6	Optional
Professional Communication for Engineers Through Virtual Reality II	3	Optional
R&D in Engineering	3	Optional
Sports Engineering	3	Optional
Technological Projects I	6	Optional
Technological Projects II	6	Optional
Thermal Analysis Techniques Applied to Engineering Materials	3	Optional
UAV Introduction to Drone Flight (Uas)	3	Optional

Subjects	ECTS credits	Туре
Bachelor's Thesis	24	Project

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