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 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
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 a single school
• Bachelor’s degree in Electrical Engineering / Bachelor’s degree in Mechanical Engineering
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
- Vilanova i la Geltrú · EPSEVG · Show degree

CURRICULUM

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<td>Chemistry</td>
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<td>Graphic Expression in Engineering</td>
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<td>Mathematical Methods I</td>
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<td>SECOND SEMESTER</td>
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<td>Foundations of Computing</td>
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<td>Materials Science and Technology</td>
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<td>Production Organisation</td>
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<td><strong>FOURTH SEMESTER</strong></td>
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<td>Advanced Circuits</td>
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<td>Advanced Control Systems</td>
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<td>Electronic Systems</td>
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<td>Industrial Automation and Control</td>
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<td>Probability and Statistics</td>
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<td>Uav Research &amp; Development</td>
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<td><strong>FIFTH SEMESTER</strong></td>
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<td>Advanced Industrial Control and Automation</td>
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<td>Electrical Machines I</td>
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<td>Power Electronics Processing</td>
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<td>Power Plants and Renewable Energies</td>
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<td>Advanced Programming Oriented Towards Goals</td>
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<td>Applied UAV Control</td>
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<td>Big Data and Smart Grids</td>
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<td>Big Data Tools and Applications</td>
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<td>Calculus and Design of High Voltage Power Lines</td>
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<td>Characterization Techniques for Metallic Alloys</td>
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<td>Creative Lab</td>
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<td>Creative Programming with Processing</td>
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<td>Critical Thinking for 3D Printing</td>
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<td>Decision Criteria - Engineer as Employee or Engineer as Entrepreneur</td>
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<td>Efficiency and Quality in Electrical Systems</td>
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<td>Electromobility and Electrical Aircraft Systems</td>
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<td>Embedded Systems Programming</td>
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<td>Energy Storage and Conversion Application</td>
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<td>Experimental Design</td>
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<td>Hospital Engineering</td>
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<td>Introduction to Dynamical Systems and Ergodic Theory</td>
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<td>Introduction to Forensic Expert for Technique Dispute Resolution</td>
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<td>Introduction to Object-Oriented Programming</td>
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<td>Introduction to Reverse Engineering</td>
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<td>Leadership and Professional Development in Engineering</td>
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<td>Mobile Programming</td>
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<td>Motorbikes Design and Secrets</td>
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<td>Professional Communication for Engineers Through Virtual Reality</td>
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<td>Real-Time Programming and Database Systems</td>
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<td>Supervision of Electrical Systems</td>
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<td>Technology, Society and Globalization: the Sustainability Challenge in the XXIth Century</td>
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<td>Validating and Communicating Innovative Ideas</td>
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<td>Vibroacoustics</td>
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<td>Web Applications</td>
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<td>Written Academic Skills for Engineering</td>
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**SEVENTH SEMESTER**

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<td>Control Technology for Electromechanical Systems</td>
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<td>Energy and Climate Change</td>
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<td>Initiation to Paper and Graphic Industrial Technologies</td>
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<td>Machine Control and Operation</td>
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<tr>
<td>Modelisation, Complexity and Sustainability</td>
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<td>Planning, Simulation and Supervision of Industrial Processes</td>
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<td>Programming of Mobiles Android</td>
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**EIGHTH SEMESTER**

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<td>Basic Robotics</td>
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<td>Building Energy Certification</td>
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<td>Design of Solar and Eolic Systems</td>
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<td>Digitalization Applied to Energy Systems</td>
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<td>Electric Vehicles</td>
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<td>Electrical Project Design with Eplan</td>
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<td>Hydrogen’S Future: Technologies and Applications</td>
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<td>Introduction to Robotics and Automation</td>
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<td>Numerical Methods for Engineers</td>
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<td>Photonics. Optics Applied to Engineering</td>
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December 2023. [UPC](https://www.upc.edu) - Universitat Politècnica de Catalunya · BarcelonaTech