UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

Bachelor's degree in Energy Engineering

BARCELONA EAST SCHOOL OF ENGINEERING (EEBE)

The **bachelor's degree in Energy Engineering** will gain a clear vision of the energy field, focusing on aspects such as efficiency, saving, management, generation, elements and the energy market. You will be trained in energy resources; energy storage; energy management; energy sector planning; energy integration; the generation, transport and distribution of energy; and the control of energy systems. You will learn to analyse the criteria of sustainability, general efficiency and professional ethics that enable individuals, businesses and institutions to implement energy saving policies. In addition to studying conventional energies, you will also gain in-depth knowledge of renewable energies such as wind, solar, thermal, photovoltaic, biomass, geothermal, microhydro, biogas, biofuel, hydrogen and fuel cells.

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

Admission mark 2026-2027 academic year
8,692

Language of instruction

Check the language of instruction for each subject (and timetable) in the course sheet in the curriculum.

Information on language use in the classroom and students' language rights.

Fees and grants
Approximate fees per academic year: €1,061 (€1,800 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 Science, Innovation and Universities

ADMISSION

New intake places
70

Pre-enrolment code
31052

New intake places via a change of degree
5

Admission mark 2026-2027 academic year
8,692. Admission mark

Weighting. University entrance examinations (PAU)
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Registration and enrolment

What are the requirements to enrol in a bachelor's degree course?

CFGS credit transfer

Consult the university studies search engine of the Universities Channel of the Generalitat de Catalunya

Legalisation of foreign documents

All documents issued in non-EU countries must be legalised and bear the corresponding apostille.

CURRICULUM

Subjects	ECTS credits	Type
FIRST SEMESTER		
Calculus	6	Compulsory
Chemistry	6	Compulsory
Graphic Expression	6	Compulsory
Informatics	6	Compulsory
Physics I: Fundamentals of Mechanics	6	Compulsory
SECOND SEMESTER		
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
THIRD SEMESTER		
Electrical Systems	6	Compulsory
Fluid Mechanics	6	Compulsory
Industrial Control and Automation	6	Compulsory
Mechanical Systems	6	Compulsory
Statistics	6	Compulsory
FOURTH SEMESTER		
Business	6	Compulsory
Electricity Generation	6	Compulsory
Electronic Systems	6	Compulsory
Energy Resources	6	Compulsory
Thermodynamics and Heat Transfer	6	Compulsory
FIFTH SEMESTER		
Efficiency and Energy Audits	6	Compulsory
Energy Fluid Transmission and Distribution	6	Compulsory
Energy Sector Regulation	6	Compulsory
Engineering Design	6	Compulsory
Thermal and Fluid Dynamic Power Generation	6	Compulsory
SIXTH SEMESTER		

Subjects	ECTS credits	Type
Control of Energy Systems	6	Compulsory
Energy Storage	6	Compulsory
Power Station Technology	6	Compulsory
Renewable Energies	6	Compulsory
Transmission and Distribution of Electrical Energy	6	Compulsory
SEVENTH SEMESTER		
Integration and Management of Energy Systems	6	Compulsory
Operations Management	6	Compulsory
Static Converters	6	Compulsory
Academic and Professional Communication for Engineering	6	Optional
Additive Manufacturing	6	Optional
Additive Manufacturing I	3	Optional
Additive Manufacturing II	3	Optional
Advanced Control	6	Optional
Analysis of Electrical Power Systems	6	Optional
Applied Photonics	6	Optional
Applied Sustainability in Engineering	6	Optional
Biostatistical Learning	6	Optional
Climate Change: Science, Energy, Economics, Politics and the Future	3	Optional
Communication in Technical English	9	Optional
Computational Engineering	6	Optional
Computational Fluid Mechanics and Heat Transfer	6	Optional
Data Engineering and Business Analytics	6	Optional
Design and Implementation of Electronic Prototypes	6	Optional
Design Validation	6	Optional
Digital Microelectronic Design	6	Optional
Emerging Science and Technologies for Advanced Materials, Health & Environment	6	Optional
Energy Management with Electronic Equipment	6	Optional
Engineering Project Management	6	Optional
Facilities Projects	6	Optional
Fire Engineering	6	Optional
Foundations of Deep Learning for Engineering	6	Optional
Fundamentals of Functional Materials	6	Optional
Fundamentals of Machine Learning	6	Optional
Implementation of Arduino-Based Acquisition Systems	6	Optional
Implementation of Automatic Control Systems	6	Optional
Industrial Automation and Communications	6	Optional
Innovation Management	6	Optional

Subjects	ECTS credits	Type
Intelligent Robotics	6	Optional
Introduction to Sustainable Materials	6	Optional
Leadership and Management	6	Optional
Physical Chemistry	6	Optional
Professional Tools for Engineering	6	Optional
Programming for Engineers	6	Optional
Programming of Mobile Devices	6	Optional
Project Development I	6	Optional
Project Development II	6	Optional
Renewable Energy Technologies and Applications	6	Optional
Smart Grids	6	Optional
Technology and Science in Ancient Times: Egypt and Mesopotamia	6	Optional
Transport Phenomena	6	Optional
Wind Electricity Generation	6	Optional
EIGHTH SEMESTER		
Bachelor's Thesis	24	Project

PROFESSIONAL OPPORTUNITIES

Professional opportunities

- Supervision and management of engineering projects related to the generation, transport and distribution of energy.
- Supervision and management of energy efficiency and saving projects.
- Design of energy saving, sustainability and rationing policies.
- Engineering firms, companies that make intensive use of energy and companies that produce and resell energy.
- Public administration.
- Teaching and research.

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 Energy Engineering + Bachelor's degree in Electrical Engineering
- Bachelor's degree in Energy Engineering + Bachelor's degree in Chemical Engineering

QUALITY ACCREDITATION

Check the degree’s main quality indicators in the University Studies in Catalonia portal of the Catalan University Quality Assurance Agency. Find information on topics such as degree evaluation results, student satisfaction and graduate employment data.
Further information

ACADEMIC ORGANISATION

Academic calendar

General academic calendar for bachelor's, master's and doctoral degrees

Academic regulations

Academic regulations for bachelor's degree courses at the Universitat Politècnica de Catalunya (UPC).

Language certification and credit recognition

Queries about language courses and certification