

# Bachelor's degree in Energy Engineering

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.

This bachelor's degree is taught at [Barcelona East School of Engineering. EEBE](#)

---

## 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

### Fees and grants

Approximate fees per academic year: €2,551 (€3,826 for non-EU residents). [Consult the public fees system based on income \(grants and payment options\)](#).

### Official degree

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

---

## ADMISSION

---

### Places

65

### 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](#).

---

## 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.

---

## ORGANISATION

---

### 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)

---

## 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>		
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
Energy Resources	6	Compulsory
Fluid Mechanics	6	Compulsory
Mechanical Systems	6	Compulsory
Statistics	6	Compulsory
<b>FOURTH SEMESTER</b>		
Business	6	Compulsory
Electrical Energy Generation	6	Compulsory
Electronic Systems	6	Compulsory
Industrial Control and Automation	6	Compulsory
Thermodynamics and Heat Transfer	6	Compulsory
<b>FIFTH SEMESTER</b>		

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
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
<b>SIXTH SEMESTER</b>		
Control of Energy Systems	6	Compulsory
Electrical Energy Transmission and Distribution	6	Compulsory
Energy Storage	6	Compulsory
Power Station Technology	6	Compulsory
Static Energy Converters	6	Compulsory
<b>SEVENTH SEMESTER</b>		
Additive Manufacturing 1	3	Optional
Additive Manufacturing 2	3	Optional
Advanced Control	6	Optional
Analysis of Electrical Power Systems	6	Optional
Applied Photonics	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
Design and Implementation of Electronics Prototypes	6	Optional
Design Validation	6	Optional
Energy Management with Electronic Equipment	6	Optional
Facilities Projects	6	Optional
Implementation of Applications Based on Arduino Platforms	6	Optional
Innovation Management	6	Optional
Integration and Management of Energy Systems	6	Compulsory
Leadership and Management	6	Optional
Management Skills	6	Optional
Physical Chemistry	6	Optional
Production Organisation	6	Compulsory
Programming for Engineers	6	Optional
Project Engineering & Management	6	Optional
Renewable Energies	6	Compulsory
Smart Grids	6	Optional
Telecommunications and Internet	6	Optional
Transport Phenomena	6	Optional

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Wind Energy Generation for Energy Engineering	6	Optional
<b>EIGHTH SEMESTER</b>		
Bachelor's Thesis	24	Project

---

November 2019. [UPC](#). Universitat Politècnica de Catalunya · BarcelonaTech