

# Bachelor's degree in Mechanical Engineering

## Vilanova i la Geltrú School of Engineering (EPSEVG)

The **bachelor's degree in Mechanical Engineering**, provides a solid grounding in the design, development and use of machinery; mechanical processes and systems; criteria for the selection of materials; and the structural design of production systems and processes. You will acquire the knowledge needed to analyse, calculate, design and test machines, industrial installations, hydraulic and thermal engines, industrial structures and constructions, and production systems. You will also receive multidisciplinary training in fluid mechanics, thermal technology, electricity, automation, the design and construction of industrial HVAC systems, and graphic engineering techniques.

---

### 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 (€2,553 for non-EU residents). [Consult the public fees system based on income \(grants and payment options\)](#).

#### Location

[Vilanova i la Geltrú School of Engineering \(EPSEVG\)](#)

#### Official degree

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

---

### ADMISSION

---

#### Places

200

#### 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

- Planning, management, execution and assessment of engineering projects related to mechanical engineering.
- Management, design, assembly and maintenance of industrial and production systems and installations in the fields of mechanical, electromechanical and thermal engineering and fluid mechanics.
- Calculation and design of hydraulic and thermal engines.
- Projects in the industrial HVAC sector and the processing and transport of fluids.
- Design, management and maintenance of equipment and industrial installations, structures and constructions.
- Drafting of technical, advisory and feasibility reports.

---

## 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](#)

Vilanova i la Geltrú School of Engineering (EPSEVG)

### This bachelor's degree is also taught at

- Barcelona · EEBE · [Show degree](#)
- Manresa · EPSEM · [Show degree](#)
- Terrassa · ESEIAAT · [Show degree](#)

---

## CURRICULUM

---

Subjects	ECTS credits	Type
<b>FIRST SEMESTER</b>		
Chemistry	6	Compulsory
Fundamentals of Mathematics	6	Compulsory
Informatics	6	Compulsory
Physics I	6	Compulsory
Sustainability and Accessibility	6	Compulsory
<b>SECOND SEMESTER</b>		
Advanced Calculus	6	Compulsory
Differential Equations	6	Compulsory
Graphic Expression	6	Compulsory
Materials Science	6	Compulsory
Physics II	6	Compulsory
<b>THIRD SEMESTER</b>		
Business	6	Compulsory
Electrical Systems	6	Compulsory
Fluid Mechanics	6	Compulsory

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Fundamentals of Termical Engineering	6	Compulsory
Statistics	6	Compulsory
<b>FOURTH SEMESTER</b>		
Electronic Systems	6	Compulsory
Fundamentals of Automatic Control	6	Compulsory
Manufacturing Processes	6	Compulsory
Mechanical Systems	6	Compulsory
Strength of Materials I	6	Compulsory
<b>FIFTH SEMESTER</b>		
Academic and Professional Communication Techniques	6	Optional
Agile	6	Optional
Emobility	6	Optional
Graphic Expression II	6	Compulsory
Machine Theory	6	Compulsory
Production Organisation	6	Compulsory
Strength of Materials II	6	Compulsory
Structural Materials	6	Compulsory
Writing Techniques for Engineering	6	Optional
<b>SIXTH SEMESTER</b>		
Academic Skills for Project Development	6	Optional
Computer-Assisted Design and Simulation	6	Compulsory
Emobility Lab	6	Optional
Fluid Engineering	6	Compulsory
Industrial Structures and Constructions	6	Compulsory
Machine Design	6	Compulsory
Thermal Engineering	6	Compulsory
<b>SEVENTH SEMESTER</b>		
3D Advanced Manufacturing	6	Optional
Aesthetics	6	Optional
Analogue Electronics	6	Optional
Automatic Regulation	6	Optional
Automatic Regulation	6	Optional
Battery Management Systems	6	Optional
Computer Aided Machine Theory	6	Optional
Computer-Aided Machines Design	6	Optional
Computer-Assisted Structure Calculation	6	Optional
Control Engineering	6	Optional
Cross-Platform and Distributed Programming	6	Optional

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Design Methodology	6	Optional
Design Workshop I	6	Optional
Design Workshop II	6	Optional
Digital Electronics	6	Optional
Digital Systems	6	Optional
Electric and Hybrid Vehicles	6	Optional
Electric Drives	6	Optional
Electrical Circuits	6	Optional
Electrical Installations and Energy Efficiency	6	Optional
Electrical Installations and Industrial Automation	6	Optional
Electrical Machines I	6	Optional
Electrical Machines II	6	Optional
Electrical Power Lines	6	Optional
Electrical Power Systems	6	Optional
Electronic Instrumentation	6	Optional
Electronics in Renewable Energy Systems	6	Optional
Electrotechnics	6	Optional
Experimental and Simulation Techniques for Stress Analysis	6	Optional
Forensic Engineering and Industrial Reliability	6	Optional
Heat and Hydraulic Engines I	6	Optional
Industrial Automation	6	Optional
Industrial Informatics	6	Optional
Internet	6	Optional
Low, Medium and High Voltage Electrical Installations	6	Optional
Management and Saving of Electrical Energy	6	Optional
Mathematics for Design	6	Optional
Motors and Electric Mobility	6	Optional
Operation and Programming of Machining Centers	6	Optional
Power Electronics	6	Optional
Power Electronics	6	Optional
Power Plants and Renewable Energies	6	Optional
Project Management	6	Compulsory
Renewable Energy Sources and Systems	6	Optional
Robotic Systems	6	Optional
Surface Engineering	6	Optional
<b>EIGHTH SEMESTER</b>		
Accessibility Applied	6	Optional
Language Practice	3	Optional

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Social Robotics Workshop	6	Optional
Sustainability Applied	6	Optional
Bachelor's Thesis	24	Project

---

February 2024. [UPC](#). Universitat Politècnica de Catalunya · BarcelonaTech