@font-face{ font-family:'Glyphicons Halflings'; src:url("/content/assets/fonts/bootstrap/glyphicons-halflings-regular.eot"); src: url("/content/assets/fonts/bootstrap/glyphicons-halflings-regular.eot?#iefix") format("embedded-opentype"), url("/content/assets/fonts/bootstrap/glyphicons-halflings-regular.woff2") format("woff2"), url("/content/assets/fonts/bootstrap/glyphicons-halflings-regular.woff") format("woff"), url("/content/assets/fonts/bootstrap/glyphicons-halflings-regular.ttf") format("truetype"), url("/content/assets/fonts/bootstrap/glyphicons-halflings-regular.svg#glyphicons_halflingsregular") format("svg") }

UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

Bachelor's degree in Mechanical Engineering

MANRESA SCHOOL OF ENGINEERING (EPSEM)

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 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 2025-2026 academic year
7,958

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
Manresa School of Engineering (EPSEM)

Official degree
Recorded in the Ministry of Education's degree register

ADMISSION

Places
180

Pre-enrolment code
31104

Places via a change of degree
4

Admission mark 2025-2026 academic year

7,958. Admission mark

Weighting. University entrance examinations (PAU)

Weighting. University entrance examinations (PAU)

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		
Chemistry	6	Compulsory
Environmental Technologies and Sustainability	6	Compulsory
Informatics	6	Compulsory
Mathematics I	6	Compulsory
Physics I	6	Compulsory
SECOND SEMESTER		
Graphic Expression	6	Compulsory
Materials Science and Technology	6	Compulsory
Mathematics II	6	Compulsory
Physics II	6	Compulsory
Statistics	6	Compulsory
THIRD SEMESTER		
Business	6	Compulsory
Electrical Systems	6	Compulsory
Electronic Systems	6	Compulsory
Mathematics III	6	Compulsory
Mechanical Systems	6	Compulsory
FOURTH SEMESTER		
Industrial Control and Automation	6	Compulsory
Mechanics Technology	6	Compulsory
Operations Management	6	Compulsory
Strength of Materials	6	Compulsory
Thermodynamics and Fluid Mechanics	6	Compulsory
Engineering Skills	6	Optional
FIFTH SEMESTER		
Engineering Graphics	6	Compulsory

Subjects	ECTS credits	Type
Fluid Dynamics Engineering	6	Compulsory
Materials Engineering	6	Compulsory
Mechanics and Mechanism Theory	6	Compulsory
Mechanics of Deformable Solids	6	Compulsory
SIXTH SEMESTER		
Kinematics and Machine Dynamics	6	Compulsory
Machine Design	6	Compulsory
Project Methodology, Management and Orientation	6	Compulsory
Structural Theory and Industrial Construction	6	Compulsory
Thermal Engineering	6	Compulsory
SEVENTH SEMESTER		
Mechanical Components and Vibrations	6	Compulsory
Advanced Graphic Representation for Design	6	Optional
Advanced Programming	6	Optional
Business English	6	Optional
CAD/CAE Technologies	6	Optional
Computer-Aided Design	6	Optional
Computer-Aided Manufacturing	6	Optional
Construction Material Factories	6	Optional
Construction Materials	6	Optional
Data Management and Storage	6	Optional
Decision Optimisation and Theory	6	Optional
Design and Calculation of Structures	6	Optional
Design Methodology	6	Optional
Drilling Applied to Engineering	6	Optional
Dynamic Systems	6	Optional
Energy Resources	6	Optional
Fuels and Thermal Processes	6	Optional
Geotechnical Engineering	6	Optional
Graphical User Interfaces	6	Optional
Industrial Construction and Architecture	6	Optional
Industrial Cutting Processes	6	Optional
Industrial Installations	6	Optional
Industrial Joining Processes	6	Optional
Innovation, People Management and Business Start-Up	6	Optional
Maintenance Management	6	Optional
Mathematical Tools for Structural Design	6	Optional
Metallic Materials	6	Optional

Subjects	ECTS credits	Type
Modelling and Simulation of Dynamical Systems	6	Optional
Nuclear Technology	6	Optional
Occupational Health and Safety	6	Optional
Polymers, Ceramics and Composites	6	Optional
Quality Management and Integrated Quality, Safety and Environmental Systems Management	6	Optional
Selection of Materials	6	Optional
Structural Modelling, Analysis and Design	6	Optional
Surveying	6	Optional
Urbanism and Urban Services	6	Optional
EIGHTH SEMESTER		
Bachelor's Thesis	24	Project

PROFESSIONAL OPPORTUNITIES

Regulated profession

- Technical industrial engineer.
- Industrial engineer (after obtaining the master's degree in Industrial Engineering).

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.

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 Mechanical Engineering + Bachelor's degree in Industrial Electronics and Automatic Control Engineering
- Bachelor's degree in Mechanical 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

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

This bachelor's degree is also taught at

- Barcelona · EEBE · Show degree
- Terrassa · ESEIAAT · Show degree
- Vilanova i la Geltrú · EPSEVG · Show degree

January 2026. UPC. Universitat Politècnica de Catalunya · BarcelonaTech