

Bachelor's degree in Chemical Engineering

Barcelona East School of Engineering (EEBE)

On the **bachelor's degree in Chemical Engineering** you will train to be a multidisciplinary professional who can analyse, design, test and operate equipment and processes in which there are changes in the state, internal energy or composition of matter. You will acquire the knowledge and skills needed to design and control chemical plant production and to supervise quality control and environmental management projects. You will understand experimental, testing and process characterisation methods and monitoring, control and product optimisation systems and technologies.

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

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

[Barcelona East School of Engineering \(EEBE\)](#)

Official degree

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

ADMISSION

Places

100

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 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 Chemical Engineering + Bachelor's degree in Industrial electronics and Automatic Control Engineering
- Bachelor's degree in Chemical Engineering + Bachelor's degree in Energy Engineering

PROFESSIONAL OPPORTUNITIES

Professional opportunities

- Design, operation, management, commercial organisation and installation and equipment supervision in chemical, pharmaceutical, agrifood, biotechnology, energy, petrochemical and service industries.
- Design and control of production and quality in chemical plants.
- Energy auditing and environmental management.
- Chemical analysis, testing and process and product characterisation in laboratories.
- Development of research, development and innovation projects.
- Drafting of technical, advisory and feasibility reports.
- Public administration.
- 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](#)

Barcelona East School of Engineering (EEBE)

This bachelor’s degree is also taught at

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

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
Aqueous Solution Chemistry	6	Compulsory

Subjects	ECTS credits	Type
Materials Science and Technology	6	Compulsory
Numerical Calculus. Differential Equations	6	Compulsory
Physics II: Fundamentals of Electromagnetism	6	Compulsory
THIRD SEMESTER		
Analytical Chemistry	6	Compulsory
Electrical Systems	6	Compulsory
Mechanical Systems	6	Compulsory
Statistics	6	Compulsory
Thermodynamics	6	Compulsory
FOURTH SEMESTER		
Business	6	Compulsory
Electronic Systems	6	Compulsory
Fluid Mechanics	6	Compulsory
Industrial Control and Automation	6	Compulsory
Organic Chemistry	6	Compulsory
FIFTH SEMESTER		
Chemical Experimentation	6	Optional
Environmental Technologies and Sustainability	6	Compulsory
Physical Chemistry	6	Optional
Transport Phenomena	6	Optional
Unit Operations I	6	Compulsory
SIXTH SEMESTER		
Chemical Reaction Engineering	6	Compulsory
Engineering Design	6	Compulsory
Experimentation in Chemical Engineering I	6	Compulsory
Simulation and Optimisation of Chemical Processes	6	Compulsory
Unit Operations II	6	Compulsory
SEVENTH SEMESTER		
Academic and Professional Communication for the Engineering	6	Optional
Additive Manufacturing 1	3	Optional
Additive Manufacturing 2	3	Optional
Advanced Chemical Thecnologies	6	Compulsory
Advanced Computer-Aided Design	6	Optional
Advanced Simulation of Materials for Engineering and Bioengineering	6	Optional
Advanced Statistics and Applications in Engineering	6	Optional
Applied Photonics	6	Optional
Artificial Intelligence for Engineering	6	Optional
Biochemistry	6	Optional

Subjects	ECTS credits	Type
Chemical Process Engineering	6	Compulsory
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 a Business Analytics	6	Optional
Design and Implementation of Electronics Prototypes	6	Optional
Design Validation	6	Optional
Digital Microelectronic Design	6	Optional
Experimentation in Chemical Engineering II	6	Compulsory
Facilities Projects	6	Optional
Fire Engineering	6	Optional
Fundamentals of Functional Materials	6	Optional
Implementation of Automatic Control System	6	Optional
Industrial Equipments and Installations	6	Optional
Innovation Management	6	Optional
Leadership and Management	6	Optional
Mobile Devices Programming	6	Optional
Numerical Simulation Applied to Engineering	6	Optional
Planning and Scheduling of Chemical Processes	6	Optional
Production Organisation	6	Compulsory
Professional Skills for the Engineering	6	Optional
Programming for Engineers	6	Optional
Project Development I	6	Optional
Project Development II	6	Optional
Project Engineering & Management	6	Optional
Resources Recovery and Circular Economy	6	Optional
Technology and Sciences in Ancient Times: Egypt and Mesopotamia	6	Optional
EIGHTH SEMESTER		
Bachelor's Thesis	24	Project