

# Bachelor's degree in Chemical Engineering

## Terrassa School of Industrial, Aerospace and Audiovisual Engineering (ESEIAAT)

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.

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### GENERAL DETAILS

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#### 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 (€1,661 for non-EU residents). [Consult the public fees system based on income \(grants and payment options\)](#).

#### Location

[Terrassa School of Industrial, Aerospace and Audiovisual Engineering \(ESEIAAT\)](#)

#### Official degree

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

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### ADMISSION

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#### Places

270

#### 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](#).

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### DOUBLE-DEGREE AGREEMENTS

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#### Double-degree pathways at a single school

- Bachelor's degree in Chemical Engineering / Bachelor's degree in Mechanical 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](#)

Terrassa School of Industrial, Aerospace and Audiovisual Engineering (ESEIAAT)

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

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

## CURRICULUM

Subjects	ECTS credits	Type
<b>FIRST SEMESTER</b>		
Chemistry	6	Compulsory
Environmental Technologies and Sustainability	6	Compulsory
Graphic Expression in Engineering	6	Compulsory
Mathematical Methods I	6	Compulsory
Physics I	6	Compulsory
<b>SECOND SEMESTER</b>		
Economics and Business Administration	6	Compulsory
Foundations of Computing	6	Compulsory
Materials Science and Technology	6	Compulsory
Mathematical Methods II	6	Compulsory
Physics II	6	Compulsory
<b>THIRD SEMESTER</b>		
Electric Systems	6	Compulsory

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Fluid Mechanics	6	Compulsory
Mathematical Methods III	6	Compulsory
Mechanical Systems	6	Compulsory
Production Organisation	6	Compulsory
<b>FOURTH SEMESTER</b>		
Control and Guidance of Mobile Robots	6	Optional
Electronic Systems	6	Compulsory
Foundations of Chemical Engineering	6	Compulsory
Industrial Automation and Control	6	Compulsory
Industrial Organic Chemistry	3	Optional
Materials Chemistry	3	Optional
Planning, Simulation and Supervision of Industrial Processes	6	Optional
Probability and Statistics	6	Compulsory
Thermal Engineering	6	Compulsory
Uav Research & Development	3	Optional
Uav Research & Development Project	3	Optional
<b>FIFTH SEMESTER</b>		
Basic Operations I	6	Compulsory
Chemical Analysis	6	Compulsory
Chemical Reaction Engineering	6	Compulsory
Experimentation on Chemical Engineering I	6	Compulsory
Organic Chemistry and Applied Biochemistry	6	Compulsory
<b>SIXTH SEMESTER</b>		
Advanced Programming Oriented Towards Goals	3	Optional
Air Pollution and Treatment Technologies	6	Optional
Autonomous Vehicle Programming	3	Optional
Basic Operations II	6	Compulsory
Big Data Tools and Applications	3	Optional
Characterization Techniques for Metallic Alloys	3	Optional
Creative Lab	6	Optional
Creative Programming with Processing	3	Optional
Critical Thinking for 3D Printing	6	Optional
Decision Criteria - Engineer as Employee or Engineer as Entrepreneur	3	Optional
Electromobility and Electrical Aircraft Systems	3	Optional
Energy Efficiency Systems	3	Optional
Energy Storage and Conversion Application	3	Optional
Environmental Risk, Safety and Technology	6	Compulsory
Experimental Design	3	Optional

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Experimentation on Chemical Engineering II	6	Compulsory
Fundamentals of Robotics	3	Optional
Highly Automated Production Systems	3	Optional
Hospital Engineering	6	Optional
Information and Communication Technology	3	Optional
Introduction to Big Data	3	Optional
Introduction to Dynamical Systems and Ergodic Theory	3	Optional
Introduction to Forensic Expert for Technique Dispute Resolution	3	Optional
Introduction to Object-Oriented Programming	3	Optional
Introduction to Reverse Engineering	3	Optional
Leadership and Professional Development in Engineering	3	Optional
Mathematical Models in Engineering	3	Optional
Mathematics and Computing Engineering	3	Optional
Mobile Programming	6	Optional
Motorbikes Design and Secrets	3	Optional
Professional Communication for Engineers Through Virtual Reality	3	Optional
Real-Time Programming and Database Systems	3	Optional
Robotics and Automation	3	Optional
Safety Robotics and Automation for Industry 4.0	3	Optional
Simulation, Optimization and Control of Chemical Processes	6	Compulsory
Surface Chemistry for Industrial Applications Design	3	Optional
Technology, Society and Globalization: the Sustainability Challenge in the XXith Century	6	Optional
Uav Generative Design	6	Optional
Validating and Communicating Innovative Ideas	6	Optional
Vibroacoustics	3	Optional
Web Applications	3	Optional
Written Academic Skills for Engineering	3	Optional
<b>SEVENTH SEMESTER</b>		
Advanced Programming	6	Optional
Chemical and Biotechnological Process Engineering	6	Compulsory
Fabric Quality Evaluation	6	Optional
Initiation to Paper and Graphic Industrial Technologies	6	Optional
Internship	12	Optional
Jacquard Design	6	Optional
Modelisation, Complexity and Sustainability	6	Optional
Polymers in Engineering	6	Optional
Programming of Mobiles Android	6	Optional
Project Oriented Methodology	6	Compulsory

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Wastewater Treatment and Reuse	6	Optional
<b>EIGHTH SEMESTER</b>		
Basic Robotics	6	Optional
Numerical Methods for Engineers	6	Optional
Photonics. Optics Applied to Engineering	6	Optional
Waste Management and Treatment	6	Optional
Bachelor's Thesis	24	Project

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August 2022. [UPC](#). Universitat Politècnica de Catalunya · BarcelonaTech