

Master's degree in Chemical Engineering

Chemical engineering is directly concerned with obtaining various products (fuels, solvents, medicines, paints, plastics, detergents, etc.) and services (water and energy supply, waste management and valorisation, etc.) that ensure our quality of life and without which modern life as we know it would be impossible. In addition, society demands that the most innovative technologies be used in these processes to ensure that they are efficient, sustainable, economically viable, safe and environmentally friendly.

The global demand for these products and services and, as a result, for experts in this sector grows year on year. The **master's degree in Chemical Engineering** ([master's degree website](#)): Smart Chemical Factories aims to produce engineers with the high-level competencies that will allow them to deal with current challenges in chemical engineering (sustainability, circular economy, climate change, etc.) and to take advantage of the opportunities that Industry 4.0 technology can afford.

The master's degree provides advanced training for chemical engineers who will easily adapt to positions of responsibility in companies, research centres, universities and public administrations.

Specialisations

- Smart Polymer Engineering
- Green Chemical Process Engineering

GENERAL DETAILS

Duration and start date

Two academic years, 120 ECTS credits. Starting September

Timetable and delivery

Afternoons. Face-to-face

Fees and grants

Approximate fees for the master's degree, excluding other costs, €3,320 (€4,980 for non-EU residents).

[More information about fees and payment options](#)

[More information about grants and loans](#)

Language of instruction

English

Information on [language use in the classroom and students' language rights](#).

Location

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

Official degree

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

ADMISSION

General requirements

[Academic requirements for admission to master's degrees](#)

Specific requirements

Candidates must be in possession of a bachelor's degree in Chemistry (with bridging courses), Chemical Engineering, Biotechnology (with bridging courses) or Environmental Sciences (with bridging courses).

English level B2 are required. Proof must be submitted on enrolment.

Admission criteria

- Academic record.
- First degree and university of origin.
- Professional experience.

Places

60

Pre-enrolment

Pre-enrolment closed (consult the new pre-enrolment periods in the [academic calendar](#)).

[How to pre-enrol](#)

Enrolment

[How to enrol](#)

Legalisation of foreign documents

All documents issued in non-EU countries must be [legalised and bear the corresponding apostille](#).

ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

UPC school

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

Academic coordinator

[Elsa Pastor](#)

Academic calendar

[General academic calendar for bachelor's, master's and doctoral degrees courses](#)

Academic regulations

[Academic regulations for master's degree courses at the UPC](#)

CURRICULUM

Subjects	ECTS credits	Type	
FIRST SEMESTER			
Biotech Processes and Polymer Industry	6	Compulsory	
Chemical and Catalytic Reaction Engineering	6	Compulsory	
Data Analysis & Pattern Recognition	6	Compulsory	
Sustainability & Circular Economy	6	Compulsory	
Technology Innovation	6	Compulsory	
Specialisation in Specialisation in Green Chemical Process Engineering	Biotech Processes and Polymer Industry	6	Compulsory
	Chemical and Catalytic Reaction Engineering	6	Compulsory
	Data Analysis & Pattern Recognition	6	Compulsory
	Sustainability & Circular Economy	6	Compulsory
	Technology Innovation	6	Compulsory

Subjects		ECTS credits	Type
Specialisation in Specialisation in Smart Polymer Engineering	Biotech Processes and Polymer Industry	6	Compulsory
	Chemical and Catalytic Reaction Engineering	6	Compulsory
	Data Analysis & Pattern Recognition	6	Compulsory
	Sustainability & Circular Economy	6	Compulsory
	Technology Innovation	6	Compulsory
SECOND SEMESTER			
	Management and Organization	6	Compulsory
	Polymer Physics	6	Compulsory
	Process Control	6	Compulsory
Specialisation in Specialisation in Green Chemical Process Engineering	Industrial Water Technologies	6	Compulsory
	Membrane Processes and Technologies	6	Compulsory
	Management and Organization	6	Compulsory
	Polymer Physics	6	Compulsory
	Process Control	6	Compulsory
Specialisation in Specialisation in Smart Polymer Engineering	Experimentation and Instrumentation	6	Compulsory
	Polymer Transformation Processes	6	Compulsory
	Management and Organization	6	Compulsory
	Polymer Physics	6	Compulsory
	Process Control	6	Compulsory
THIRD SEMESTER			
	Nanotechnology	6	Compulsory
	Risk and Safety at the Chemical Industry	6	Compulsory
	Waste Resource Technologies	6	Compulsory
Specialisation in Specialisation in Green Chemical Process Engineering	Advanced Catalytic Reactors	6	Compulsory
	Process Integration	6	Compulsory
	Nanotechnology	6	Compulsory
	Risk and Safety at the Chemical Industry	6	Compulsory
	Waste Resource Technologies	6	Compulsory
Specialisation in Specialisation in Smart Polymer Engineering	Biopolymers and Bioplastics	6	Compulsory
	Chemistry of Polymerization	6	Compulsory
	Nanotechnology	6	Compulsory
	Risk and Safety at the Chemical Industry	6	Compulsory
	Waste Resource Technologies	6	Compulsory
FOURTH SEMESTER			
Specialisation in Specialisation in Green Chemical Process Engineering	Circular Process Engineering	6	Compulsory
	Computational Fluid Dynamics	6	Compulsory
	Master's Thesis	18	Project

Subjects		ECTS credits	Type
Specialisation in Specialisation in Smart Polymer Engineering	Advanced Materials	6	Compulsory
	Design of Equipment Coating Technologies	6	Compulsory
	Master's Thesis	18	Project
Master's Thesis		18	Project

December 2021. [UPC](#). Universitat Politècnica de Catalunya · BarcelonaTech