

Master's degree in Environmental Engineering

The **master's degree in Environmental Engineering** looks closely at the fundamental concepts and criteria that help us understand the relationship between human action and the environment. Students acquire advanced knowledge of technologies for identifying, preventing, managing and treating pollution vectors and fundamental quality assurance, environmental management and sustainable development tools.

GENERAL DETAILS

Duration and start date

Two academic years, 120 ECTS credits. Starting September and February

Timetable and delivery

Mornings and afternoons. Face-to-face

Fees and grants

Approximate fees for the master's degree, excluding other costs, €5,533 (€8,300 for non-EU residents).

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

[More information about grants and loans](#)

Language of instruction

Spanish

Location

[School of Civil Engineering of Barcelona \(ETSECCPB\).](#)

[School of Industrial and Aeronautic Engineering of Terrassa \(ETSEIAT\).](#)

Official degree

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

ADMISSION

General requirements

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

Specific requirements

Access qualifications

The following qualifications provide access to the master's degree in Environmental Engineering:

- A bachelor's degree in architecture or engineering in the areas of civil engineering, industrial engineering, chemistry, the environment, forestry, mining, physics, biology or agriculture.
- A bachelor's degree in environmental, chemical, physical, biological or geological sciences.
- A pre-EHEA Spanish degree in architecture or engineering in the areas of civil engineering, industrial engineering, chemistry, the environment, forestry, mining, physics, biology or agriculture.
- A pre-EHEA Spanish diploma in environmental, chemical, physical, biological or geological sciences.
- A pre-EHEA Spanish degree in environmental, chemical, physical, biological or geological sciences.

Other qualifications

The academic records of candidates seeking admission who have qualifications other than those mentioned above will be reviewed by the master's degree committee with the aim of establishing the bridging courses that the candidates must take.

Places

30

Pre-enrolment

Pre-enrolment period open.

Expected deadline: 06/07/2021.

[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](#).

PROFESSIONAL OPPORTUNITIES

Professional opportunities

The **master's degree in Environmental Engineering** is a strategic, high-level master's programme aimed at training environmental engineers and providing them with the skills needed to take decisions and lead teams. Graduates will have the scientific and technical knowledge required to identify, measure, prevent and correct environmental problems, and the skills needed to define, select and develop appropriate solutions and technologies, technological and management tools, and related action programmes. The master's degree combines advanced scientific content and applied engineering methods in a balanced way to produce graduates who are able to solve complex problems involving different aspects of environmental engineering or successfully undertake doctoral studies in these areas. Graduates are hired mainly by engineering and environmental consulting firms, construction companies, government agencies (local, provincial, regional and state-level), universities (doctoral-level teaching) and research institutes.

Competencies

Generic competencies

Generic competencies are the skills that graduates acquire regardless of the specific course or field of study. The generic competencies established by the UPC are capacity for innovation and entrepreneurship, sustainability and social commitment, knowledge of a foreign language (preferably English), teamwork and proper use of information resources.

Specific competencies

On completing this master's degree, students will be able to:

- Conceptualise engineering within the framework of sustainable development.
- Know and familiarise themselves with legislation applicable in the sector and become involved by making proposals.
- Direct, coordinate and develop complete projects in all areas of environmental engineering.
- Identify and design solutions for environmental problems within an ethical, social and economic framework.
- Understand the interaction of their work with society and the environment, locally and globally, in order to identify possible challenges, risks and impacts and to design appropriate solutions.
- Design and use infrastructures and installations for purifying and treating water, correctly managing waste, maintaining air quality and the treating polluted sites, taking the regulatory and legal framework into account.
- Come up with systems for monitoring the quality of air, water and soil.
- Define, coordinate and implement environmental management systems and environmental impact studies.
- Be involved in the design of processes and products through the use of appropriate techniques (cleaner technologies, life cycle analysis, etc).
- Identify, design, construct, operate and deconstruct the systems of modern society, taking into account the legal, economic and social framework, which involves the management and the optimum use of natural resources.
- Develop new systems to protect people and the environment from existing environmental damage, while progressing towards sustainable development.
- Understand the contribution and the effect of their work in different cultural, social and political contexts.

UPC school[Barcelona School of Civil Engineering \(ETSECCPB\)](#)**Academic coordinator**[Daniel Fernández García](#)**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		
Characterization, Management and Treatment of Air Pollution	5	Compulsory
Characterization, Management and Treatment of Waste	5	Compulsory
Climate and Climate Change	5	Compulsory
Environmental Economics, Legislation and Policy	5	Compulsory
Environmental Systems	5	Compulsory
Introduction to Environmental Biotechnology	5	Compulsory
SECOND SEMESTER		
Characterization, Management and Treatment of Soil and Groundwater Contamination	5	Compulsory
Energy and Environment	5	Compulsory
Geochemical Processes	5	Compulsory
Life-Cycle Analysis and Sustainability Assessment	5	Compulsory
Modeling of Environmental Systems	5	Compulsory
Systems and Tools of Environmental Management	5	Compulsory
THIRD SEMESTER		
Advanced Treatment of Industrial Wastewater	5	Optional
Biogas and Biofuels	5	Optional
Characterization, Management and Treatment of Water Pollution	5	Compulsory
Ecomaterials and Sustainable Construction	5	Optional
Environmental and Ecological Economics	5	Optional
Environmental Geology	5	Optional
Environmental Oceanography	5	Optional
Food Industry and Environment	5	Optional
Industrial Ecology	5	Optional
Integrated Environmental Assessment of Building Materials	5	Optional
Laboratory of Environmental Engineering	5	Optional

Subjects	ECTS credits	Type
Management of Environmental Projects	5	Compulsory
Management of Infrastructures of Waste Treatment	5	Optional
Noise Pollution	5	Optional
Organic Contaminants in Aquatic Ecosystems and Their Environmental Risk	5	Optional
Socio-Environmental Statistics and Decision-Making	5	Optional
Urban Metabolism and Ecological Urbanism	5	Optional
Water of Provision	5	Optional
FOURTH SEMESTER		
Master's Thesis	30	Project

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