

Master's degree in Natural Resources Engineering

MANRESA SCHOOL OF ENGINEERING (EPSEM)

The main aim of the **master's degree in Natural Resources Engineering** ([master's degree website](#)) is to provide advanced scientific training in the environmentally sound exploitation and management of natural resources. Based on theory and mostly practical training, this course takes a multidisciplinary approach and teaches students applied research techniques.

GENERAL DETAILS

Duration and start date

1 academic year, 60 ECTS credits. Starting September and February

Timetable and delivery

Afternoons. Face-to-face and blended learning

Fees and grants

Approximate fees for the master's degree, **excluding other costs** (does not include non-teaching academic fees and issuing of the degree certificate):

€1,162 (€2,700 for non-EU residents).

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

[More information about grants and loans](#)

Language of instruction

Spanish

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

Location

[Manresa School of Engineering \(EPSEM\)](#)

Official degree

[Recorded in the Ministry of Science, Innovation and Universities](#)

ADMISSION

General requirements

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

Admission criteria

- Academic record
- Experience in the field of research
- Knowledge of languages

New intake places

Face-to-face (15) / Blended learning (10)

Pre-enrolment

Pre-enrolment period open.

Expected deadline: 13/12/2026.

[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](#).

CURRICULUM

Subjects	ECTS credits	Type
FIRST SEMESTER		
Geographic Information Systems and Remote Sensing for Natural Resource Use	5	Compulsory
Methodological Tools for Research on Natural Resources	5	Compulsory
Statistical Data Analysis Techniques and Experimental Design and Planning	5	Compulsory
Bioresource Engineering for Waste Treatment	5	Optional
Energy Resources	5	Optional
Industrial Raw Materials of Geological Origin	5	Optional
SECOND SEMESTER		
Analytical Methods for Natural Resources and the Environment	5	Compulsory
Waste Management and Treatment	5	Compulsory
Water as a Resource	5	Compulsory
Advanced Seminar on Natural Resources as Raw Materials	5	Optional
Restoration of Spaces Degraded by Mining and Public Works	5	Optional
Master's Thesis	15	Project

PROFESSIONAL OPPORTUNITIES

Professional opportunities

Students who complete the course successfully will be experts with advanced technical knowledge and the ability to form part of technical innovation and research teams in the field of natural resource engineering. Along with the logical opportunity to work in public and private research institutions, they can also find work in government agencies, construction waste handling companies, extractive industries in general, general waste handling companies, environmental engineering firms, and teaching.

Competencies

Generic competencies

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

Specific skills

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

- Analyse field and laboratory data and design experiments, using computerised methods.
- Know the analytical techniques applied to inorganic natural resources and their waste, how to use them and the interpretation of results.
- Use the scientific and technical information to respond effectively to any demand for the preparation of an analytical

method for the characterisation of a natural or anthropogenic material.

- Know remote sensing techniques and satellite image interpretation applied to the characterisation and management of geological natural resources.
- Use geological materials in industrial processes of high added value.
- Identify processes of pollutant accumulation in the air, water and soil compartments of the environment.
- Design a process to minimise a pollutant, waste or, in general, any type of pollution.
- Identify the presence of metals mostly in mining, industrial and agricultural wastes.
- Minimise the pollution by dust, noise and vibrations that is common in mining, using the most advanced techniques.
- Restore areas degraded by the exploitation of natural resources, using the most up-to-date restoration techniques.
- Design natural biotechnological processes to remove pollutants from solid, liquid and gaseous media.

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](#)

ACADEMIC ORGANISATION

UPC school

[Manresa School of Engineering \(EPSEM\)](#)

Academic coordinator

[Toni Dorado](#)

Academic calendar

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

Academic regulations

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

MASTER'S DEGREE WEBSITE

October 2026. [UPC](#). Universitat Politècnica de Catalunya · BarcelonaTech