

BACHELOR'S DEGREE IN GEOLOGICAL ENGINEERING

ESCOLA DE CAMINS

Barcelona School of Civil Engineering



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

International Campus of Excellence

BACHELOR'S DEGREE IN GEOLOGICAL ENGINEERING

Knowledge of geology and land behaviour is essential to mineral resource exploitation, surface and underground infrastructure construction, geologic hazard analysis and groundwater protection.

The potential impact of tunnel construction on existing structures, the environmental impacts of mining, the foundations of a landmark structure, slope stabilisation and the spread of pollutants in rocks and soil are some of the areas in which geological engineers work, because they are experts on ground, natural resources and construction techniques.

This interuniversity degree will provide you with the basic science training you need to become a generalist engineer who has a broad overview of geological engineering. This overview will enable you to apply your knowledge in different fields of work.

The analysis and evaluation of the ground, the use of new construction techniques, the careful and sustainable management of geological resources and the prediction and amelioration of environmental problems are some of the professions that graduates may go on to practise.

Which subjects will you choose?

The bachelor's degree consists of four academic years.

240
ECTS

First year (initial stage)

You will receive training in basic and applied sciences.

Mathematic Fundamentals	6
Physics	6
Chemistry	6
General Geology	6
Mineralogy	9
Algebra	6
Geomatics, Topography and Graphic Expression	6
Mechanics	7.5
Calculus	7.5

Basic sciences

Science for engineering

Second year

You will take subjects in geology, basic technologies and engineering tools.

Structural Geology	6
Differential Equations	7.5
Petrology	7.5
Structures	9
Stratigraphy	6
Geomorphology	7.5
Numerical Methods	6
Materials Science and Technology	4.5
Continuum Mechanics	6

Engineering tools

Basic technologies

Your bachelor's degree

If you like Earth sciences and have a solid grounding in maths and physics, this bachelor's degree will allow you to put your knowledge in the service of progress and contribute to preserving and improving our environment with advanced engineering tools and techniques.

Professional opportunities

The areas of work of the geological engineer are those that require knowledge and study of the ground and natural resources, their characteristics and behaviour. You will be qualified for employment in infrastructure, mining and prospecting companies, engineering and design firms, consultancy firms and laboratories, and public administration, and for self-employment.

Complementary activities

You will have the opportunity to participate in conferences and seminars

by leading specialists and to present your work for awards promoted jointly with leading international companies.

Languages

You will take subjects taught entirely in English, which will, together with the B2 English level that you will have attained by the end of the bachelor's degree, help you to perform effectively in an international context.

Go international!

We offer more than 120 mobility places in over 20 countries from the third year of study onwards. You can choose to spend a semester or a full academic year abroad, whether taking subjects or carrying out your bachelor's thesis.

Double degrees

As a student of the bachelor's degree in Geological Engineering, you may choose to take a double degree, which a top international institutions. You will graduate with a degree from the Universitat Politècnica de Catalunya and a degree from the partner university.

Supervision

We offer academic supervision and tutoring for all bachelor's degrees, which involves continuous monitoring of students' academic records.

Work placement

You will go on work placement at national and international companies and institutions to gain work experience.

International recognition

Every year, the School's teaching staff receive national and international prizes and awards for their teaching and research.

In both the QS World University Rankings and the National Taiwan University (NTU) Ranking, the UPC is the top Spanish university in the field of Civil Engineering and 39th and 50th in the world, respectively.

Third and fourth years

The subjects focus on geotechnical and environmental engineering.

Thermodynamics of Natural Processes	4.5
Geographic Information Systems	4.5
Probability and Statistics	4.5
Geophysical Prospection, Geochemistry and Seismology	9
Construction Management and Electrotechnics	4.5
Hydraulics and Hydrology	9
Geological Mapping	6
Geology for Public Works	4.5
Numerical Modelling	4.5
Soil Mechanics	9

Environmental Impact	4.5
Mineral and Energy Resources	4.5
Geotechnical Engineering	4.5
Hydrogeology	6
Structural Technology	6
Projects and Economics	4.5
Geo-Environmental Engineering	6
Rock Mechanics and Underground Excavation	6
Recognised credits	6
Bachelor's Thesis	12

BACHELOR'S DEGREE IN GEOLOGICAL ENGINEERING

It qualifies you to practise
the following regulated professions:

- Technical mining, drilling and prospecting engineer.

Basic subjects in geology

are taught at the University of
Barcelona's Faculty of Geology and
subjects in physics, mathematics and
technology are taught at the UPC's
Barcelona School of Civil Engineering.



Your talent, leading your future

Further information:

www.camins.upc.edu/estudis



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