



**DOUBLE BACHELOR'S DEGREE IN
ENVIRONMENTAL
ENGINEERING**

**MARINE SCIENCE &
TECNOLOGIES**

ESCOLA DE CAMINS

Barcelona School of Civil Engineering



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

DOUBLE BACHELOR'S DEGREE IN ENVIRONMENTAL ENGINEERING MARINE SCIENCES & TECHNOLOGIES

Sustainable development is no longer an option; it is an urgency that connects the economy, society and the environment. This new double degree is born from the natural need to combine Environmental Engineering with Marine Technologies to address climate and environmental challenges from a comprehensive perspective.

You will train as a hybrid professional capable of facing the climate emergency by uniting two worlds: science, to understand the dynamics of our ecosystems (oceans, land and atmosphere) and engineering, to design the technological solutions that will protect them. You will be able to lead projects in marine renewable energy, circular economy and efficient management of natural resources. Don't choose between being a scientist or an engineer. Be both!

Which courses will you take?

348 ECTS

This information is subject to change. See the detailed curriculum at camins.upc.edu/en/Studies.

1st year

Fall semester

Environmental Physics	6
Environmental Chemistry	6
Environmental Biology	6
Fundamentals of Geology	6
Fundamentals of Mathematics for Environmental Science	6

Spring semester

Environmental Thermodynamics & Kinetics	6
Chemistry II	6
Environmental Economy & Sustainability	6
Geology & Edaphology	6
Mathematics I	6

2nd year

Fall semester

Marine Physical-Chemical Processes	6
Environmental Statistics	6
Marine Environmental Impact	6
Fundamentals of Mathematics for Environmental Science	6
Coastal Water Cycle & Continental Transfer to the Sea	6

Spring semester

Geographic Informations Systems	6
Geomechanics	6
Marine Environment Physics	6
Marine Environment Biology	6
Geology & Coastal Geomorphology	6

3rd year

Fall semester

Planetary Scale Circulation of the Atmosphere and Ocean	6
Bio-Geo-Chemical Global Cycles	6
Ocean Biological Processes	6
Ecotoxicology Principles & Environmental Analysis	6
Environmental Microbiology & Biotechnology	6
Fluid Mechanics	6

Spring semester

Hydraulics	6
Environmental Hydrogeology & Geochemistry	6
Integral Modelling of Marine Systems	6
Mathematics in Marine Science	6
Marine Pollution. Sources, Transport & Impacts	6
Marine Ecology, Ecosystems & Productive Processes	6

2

official degrees:
double the opportunities

1

chance to combine
science and engineering

Learning objectives

The main objective of this dual degree is to train professionals with a comprehensive and multidisciplinary vision, capable of addressing the challenges of the climate emergency and global sustainability from a dual perspective: scientific and technological. The program aims to provide students the tools to understand the dynamics of natural systems (oceans, atmosphere, land) and, at the same time, design the engineering solutions necessary to protect them, such as marine renewable energies, efficient resource management, and circular economy. Ultimately, the goal is to create a hybrid and versatile profile, highly sought after in sectors such as the Blue Economy, prepared to lead projects that integrate the preservation of the marine environment with sustainable human development.

Accés

To access this double degree at Barcelona School of Civil Engineering, you must obtain a place through the university pre-enrolment procedure of the Generalitat de Catalunya.

Profile of the graduate

This degree is for you if...

- You have an environmental calling and are looking for technical and scientific tools to apply real solutions.
- You are passionate about applied science ("how the world works") and engineering ("how we fix the world").
- You want a profession with purpose: working to reverse the climate emergency and protect marine and terrestrial ecosystems.

Career opportunities

This double degree makes you a versatile professional, capable of working in both terrestrial engineering and maritime economics.

The main areas of expertise are:

- Blue Economy & Coastal Management
- Water Cycle & Sustainability
- Circular Economy & Waste
- Climate Emergency & Renewable Energies
- Smart Technologies & Data Management

Technology applied to the planet

You will not only learn theory; you will master the tools of the future. Your training will include the use of advanced sensors, remote sensing, Big Data applied to the marine environment and numerical modeling. Technology at the service of sustainability.

Teaching

Teaching is provided in an international environment, thus preparing students for a globalized job market.

Final Thesis

To obtain the double degree you will need to complete either 2 final theses (12 ECTS + 18 ECTS) or a single one (30 ECTS) where you will integrate all the knowledge acquired in both bachelor's degrees.

International recognition

You can spend one semester or an entire academic year abroad to attend courses or do your final thesis thanks to the mobility agreements and networks in which Barcelona School of Civil Engineering participates, such as ERASMUS+, KA107, CINDA, Smile Magalhães or TIME, among others.

4th year

Fall semester

Instrumentation, Remote Sensing & Big Data	6
Computational Analyses & Smart Solutions Tools	6
Marine Geodynamics	6
Structures	6
Water Treatment	6
Decontamination of Soils & Aquiphera	6

Spring semester

Sustainable Transportation	6
Experimental Techniques in Laboratory & Field	6
Waste Water & Reuse	6
Solid Waste	6
Live, Renewable & Non-Renewable Marine Resources	6
Remote Sensing & Sensors	6

5th year

Fall semester

Atmospheric & Acoustic Pollution	6
Specialty in Marine Sciences & Engineering (5 elective courses) or in Marine Technologies (5 elective courses)	30

Spring semester

Decision Making Systems	6
Project Management & Environmental ILgislation	6
Construction Procedures & Materials	6
Final Thesis (18 +12 ECTS)	30

Mandatory courses

Elective courses

Final thesis

DOUBLE BACHELOR'S DEGREE IN ENVIRONMENTAL ENGINEERING MARINE SCIENCE & TECHNOLOGIES

Double degree, double opportunities. We combine the technical solidity of engineering (geology, hydraulics, waste treatment and decontamination) with cutting-edge marine science (biological processes, oceanography and coastal dynamics). You will obtain two official degrees in 5 years.

High-value professional opportunities. Prepare yourself for increasingly growing fields and where cross-disciplinary profiles are on demand to lead projects regarding:

- Renewable energies and offshore platforms
- Sustainable port management and desalination plants
- Beach regeneration and coastal protection
- Climate and environmental consulting

Barcelona School of Civil Engineering (Escuela de Caminos) is an internationally renowned center of higher education in civil, geological, and environmental engineering, recognized for both the quality of its teaching and the high-level research it conducts. It is the only center in Catalonia that offers a degree in civil engineering.

Barcelona School of Civil Engineering is a center of the Polytechnic University of Catalonia - BarcelonaTech (UPC), a renowned public institution of research and higher education in the fields of engineering, architecture, science, and technology. With 50 years of history and more than 30,000 students, the UPC has the largest concentration of research and technological innovation in Southern Europe. It is the best university in Spain in the field of Civil and Structural Engineering, according to the QS World Universities Rankings by Subject, 2022.



Your talent, leading your future

Further information:

camins.upc.edu/en/Studies

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www.upc.edu/sri/en/students

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