



MASTER'S DEGREE IN SUSTAINABILITY SCIENCE AND TECHNOLOGY



ISST UPC

University Research Institute for Sustainability
Science and Technology



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

96%

of graduates of UPC master's degrees are in work

Source: 2023 graduate employment survey of Catalan universities by the Catalan University Quality Assurance Agency (AQU Catalunya)

MASTER'S DEGREE IN SUSTAINABILITY SCIENCE AND TECHNOLOGY

The master's degree in Sustainability Science and Technology is an academic programme taught by the University Research Institute for Sustainability Science and Technology that is committed to the United Nations Sustainable Development Goals.

The aim is to provide students with advanced interdisciplinary training for understanding interactions between society, the economy and the environment, as well as scientific and technical strategies for tackling the key challenges faced by current socio-environmental systems.

As a student you will be trained to become entrepreneurial and an agent of change towards sustainability. Whether you end up working in biodiversity and the environment, the built environment and services or the production system and information management, you will be able to design, implement and assess sustainable solutions in a range of engineering and technology fields. The knowledge you acquire on the master's degree will equip you for scientifically and technically rigorous transdisciplinary work in a variety of cultural and professional contexts.

Curriculum

This information may be subject to change. Up-to-date information is available at upc.edu

120 ECTS credits

1st year

1st semester

Fundamentals of Applied Statistics and Sustainability and Development Measurement	5
Fundamentals of Economics, Environmental Economics and Ecological Economics	5
Fundamentals of Engineering, Sustainability and Development	5
Fundamentals of Geosciences and Geographic Information Systems	5
Fundamentals of Mathematical and Systemic Sustainability Modelling	5
Fundamentals of Social Sciences and Approaches to Socio-Environmental Conflicts	5

2nd semester

Fundamentals of Ethics, Business and Innovation	5
Fundamentals of Sustainable Management and Environmental Management Systems	5
Social and Transdisciplinary Research	5
Biodiversity and Socio-Ecological Systems	5
Climate Change Mitigation Policies	5
Socio-Environmental Data Processing	5
Sustainable Design of Products and Development	5
Sustainable Management of Energy Resources and the Need for a New Energy Model	5
Integral Management of Urban and Ecological Water Cycles	5
Urban Metabolism and Ecological Urbanism	5

Compulsory subjects

60%

of students are international students

7

areas of knowledge

Why this master's degree?

Current challenges such as climate change, loss of biodiversity, resource crises, conflicts, inequality, etc. are systemic in origin and have an impact on the natural environment and on socioeconomic systems. Collective action must be taken that considers planetary limits and technological solutions for the sustainable use of natural resources in an ethical, responsible and fair manner. A global perspective, cultural sensitivity, scientific rigour and knowledge of economics and the socioeconomic realities of each territory are essential. In this context, the master's degree provides advanced, high-quality interdisciplinary training that helps to understand the interaction between society, economics and the natural environment, as well as scientific and technical options and tendencies that enable the challenges of current socio-environmental systems to be tackled.

Access

Holders of a bachelor's or master's degree in the following may gain access to the master's degree:

- Any area of engineering or an equivalent qualification.
- Architecture, building construction or an equivalent qualification.
- Natural sciences, mathematics or an equivalent qualification.

- Social sciences, economics, geography or an equivalent qualification, taking the bridging courses specified in each case.

Professional opportunities

The master's degree prepares students to take up positions related to the design and management of sustainable processes and projects; socio-environmental management, consulting and engineering; and the formulation and evaluation of sustainability policies and strategies. You may work in public and private research centres, non-governmental organisations and national and international companies and public institutions dealing with regional development, the environment and sustainable development. The master's degree also equips you to start an academic research career in sustainability science and technology by taking the doctoral degree in Sustainability.

Teaching

The master's degree is taught over two academic years from September on the North Campus of the Universitat Politècnica de Catalunya (UPC). The master's degree is taught face-to-face in the morning and/or afternoon. The languages of instruction are Spanish and English. The master's degree has three concentrations: Sustainability Modelling

and Data Science, Engineering and Sustainable Technology and Sustainable Urban and Regional Development.

Internationalisation

You can take international extracurricular training in the various editions of summer schools and blended intensive programmes that are promoted. You can take part of your master's degree at foreign universities with which the University Research Institute for Sustainability Science and Technology (ISUPC) has mobility agreements: Chalmers University of Technology and the Royal Institute of Technology, in Sweden; TH Köln - University of Applied Sciences, in Germany; NHL Stenden University of Applied Sciences, in the Netherlands; the Norwegian University of Science and Technology, in Norway; and the Pontificia Universidad Católica del Perú, in Peru.

Master's thesis

You will have the opportunity to write your master's thesis under an international mobility agreement or in an external organisation such as the Barcelona Supercomputing Center-Centro Nacional de Supercomputación (BSC-CNS), the Sustainability Observatory of Andorra (OBSA), the Debt in Globalisation Observatory (ODG) or the Association for the Promotion of Public Transport (PTP).

2nd year

1st semester

Complex and Socio-Ecological Networks	5
Intelligent Decision Support Systems for Sustainability	5
International Cooperation and Development	5
Research-Action Workshop on Sustainability Science and Technologies	5
Construction and Building Construction Engineering and Technologies	5
Energy Economics and Sustainable Energy Systems	5
Industrial Ecology	5
Information and Communication Technologies	5
Regional and Transport Infrastructure Metabolism	5
Urban and Regional Development	5

2nd semester

Master's Thesis	30
-----------------	----

■ Optional subjects in Sustainability Modelling and Data Science	■ Optional subjects in Engineering and Sustainable Technology
■ Optional subjects in Sustainable Urban and Regional Development	■ Common optional subject

MASTER'S DEGREE IN SUSTAINABILITY SCIENCE AND TECHNOLOGY

Provides access

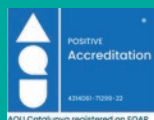
to the doctoral programme
in Sustainability at the UPC.

Double degrees may be taken with:

- Master's degree in Sustainable Intervention in the Built Environment, at the UPC.

The **University Research Institute for Sustainability Science and Technology** of the **Universitat Politècnica de Catalunya - BarcelonaTech (UPC)** is a scientific and technical support unit of the **Universit**. Through research, technology transfer and education, the Institute generates the technical and conceptual tools needed for sustainability in fields of competence pertaining to architecture, sciences and engineering.

The **UPC** is a renowned public institution of research and higher education in engineering, architecture, sciences and technology. With 50 years of history and more than 30,000 students, the UPC has the greatest concentration of research and technological innovation in southern Europe. It is the best Catalan university in Engineering and Technology, according to the 2024 QS World University Rankings by Subject.



Further information:
cts.masters.upc.edu
mcts.is.upc@upc.edu



UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH

University Research Institute
for Sustainability Science and Technology