

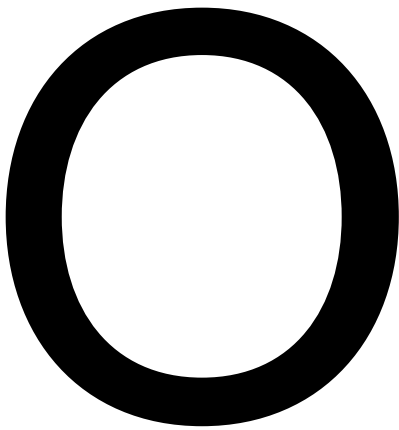
UPC

Universitat
Politécnica
de Catalunya
BarcelonaTech



The Rectorat building of the Universitat Politècnica de Catalunya - BarcelonaTech (UPC), located in the gardens of Torre Girona, on the North Diagonal Campus in Barcelona.

“The talent of the people who work and study at the UPC enriches our community and gives meaning to our mission, vision and values.”



Once again this year, the **Universitat Politècnica de Catalunya - BarcelonaTech (UPC)** distinguishes itself as a leading institution in generating and transmitting knowledge, fostering entrepreneurship and promoting innovation. We work every day to ensure a quality learning experience for our students.

The talent of the people who work and study at the UPC enriches our community and gives meaning to our mission, vision and values. Our graduates are

equipped with critical thinking skills, capable of working in interdisciplinary and diverse teams, adaptable to change and prepared to embrace lifelong learning. All this helps us to evolve and generate knowledge with the aim of improving people's wellbeing.

Our commitment is clear: to be a driving force in building a sustainable and just world through **research, knowledge transfer** and **education**. We promote the use of **innovative practices**, drive development opportunities and create synergies to foster an optimal science and technology ecosystem. We work to support sustainability, international cooperation and social justice to build a fairer and more inclusive society. The UPC is committed to initiatives that advance **gender equality** and **LGBTIQ+ policies**, and we incorporate a gender perspective into teaching, research and administration.

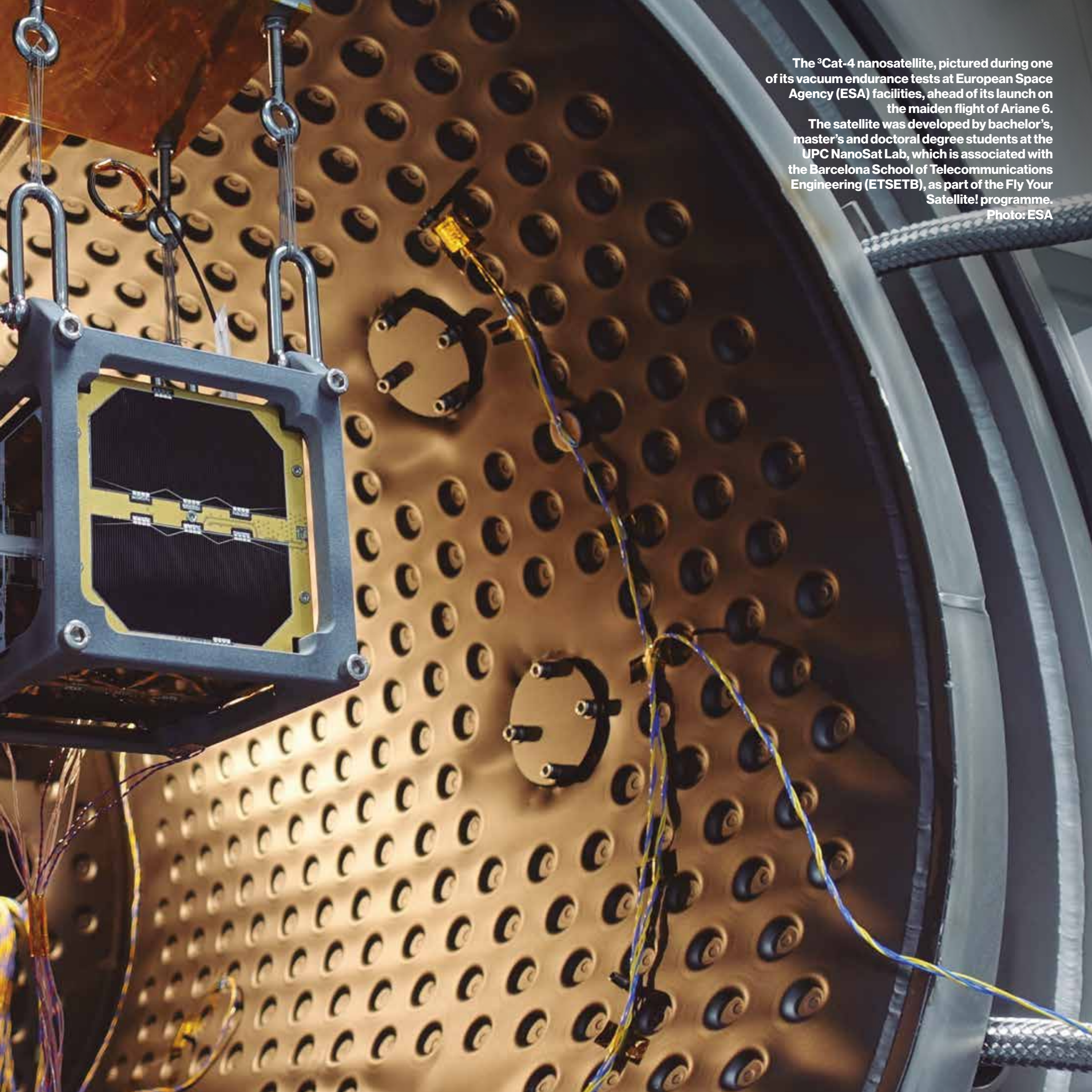
The UPC maintains and strengthens its **partnerships** with educational institutions and businesses, both globally and locally. We maintain a strong **international profile** so that members of the UPC community can participate in a range of mobility programmes and research initiatives and projects. At the same time, we foster synergies in the localities of the **territory** where we are present, enriching our community with new perspectives and opportunities. Nurturing this community not only supports the personal and professional development of its members, but also helps to create meaningful spaces, build strong relationships and foster a collective identity.

Daniel Crespo Artiaga, rector



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The Cat-4 nanosatellite, pictured during one of its vacuum endurance tests at European Space Agency (ESA) facilities, ahead of its launch on the maiden flight of Ariane 6.

The satellite was developed by bachelor's, master's and doctoral degree students at the UPC NanoSat Lab, which is associated with the Barcelona School of Telecommunications Engineering (ETSETB), as part of the Fly Your Satellite! programme.
Photo: ESA

01/ About the UPC

The Universitat Politècnica de Catalunya – BarcelonaTech (UPC) is a public institution specialising in research and higher education in the fields of engineering, architecture, sciences and technology. It is currently one of Europe's leading universities from which approximately 6,500 bachelor's and master's degree students, 300 doctoral candidates and 1,841 participants in continuing education programmes graduate each year. The UPC has a strong presence across Catalonia and maintains close ties with the productive fabric through the academic activities of its nine campuses, which have become true hubs of knowledge.

Diverse, inclusive, sustainable and socially engaged, the UPC offers its students a solid foundational education as part of a well-rounded academic experience. The expertise that students develop is highly valued in the professional world, enabling graduates to enter the workforce quickly and successfully. The University offers not just an academic education but also an experience of life and participation – a sense of belonging to a large, vibrant community.

The quality of the UPC's
graduate employment is one
of its strong points.

A year after graduating, 95%
of its graduates are in work.

The mission, vision and values of the UPC are the result of a participatory process involving the university community, and they guide the institution's actions.

Mission

To contribute to building a sustainable and fair world through research, technology transfer and knowledge dissemination and by producing engineering, architecture, science and technology graduates who are able to think critically, work in interdisciplinary and multicultural teams, adapt to change and keep learning throughout their lives.

Vision

The UPC, a Catalan public university that is both rooted in the territory and an international point of reference, serves society, works for inclusion and instils the vocation to serve, ethical values, intellectual rigour and a commitment to building a sustainable and fair world; it promotes the most appropriate teaching and learning methods for each educational environment and discipline, and transfers and disseminates the knowledge generated through research to society. As UPC students, staff and alumni, we aspire to form a lifelong community that is alive, dynamic, egalitarian and collaborative.

Values

Social engagement.
Cooperative spirit.
Professionalism.
Critical thinking.
Sustainability.
Truthfulness.

Bachelor's
degree students

25,289

Master's degree
students

6,038

Continuing
education
students

2,279

Bachelor's
degrees

67

Master's
degrees

91

Doctoral
programmes

45

Continuing
education
programmes

141

Doctoral
candidates

2,189

Campuses

9

Schools

18

Departments

30

Research
groups

141

Bachelor's and
master's degree
graduates
(2023-2024
academic year)

6,556

Technical, management,
administrative and service staff

2,143

Teaching and
research staff

3,677

UPC alumni

91,278

2024 budget
in million euros

372

Income from
RDI and transfer
projects (2023)
in million euros

121.6

02 / Leading positions in rankings

The UPC is a highly specialised university and, as such, holds a prominent position among Europe's top universities.

The international benchmark rankings for the disciplines taught at the UPC, which analyse the performance of universities in a number of specific fields (such as the QS by Subject and THE rankings), highlight the University's strength in Architecture, Art History, Civil Engineering, Mathematics and Computer Science. The UPC also ranks strongly at the global level in Technology and Instrumental Sciences, Atmospheric Sciences, Nanoscience and Nanotechnology, Energy Engineering and Sciences, and Mechanical Engineering.

The UPC is recognised in international rankings that assess cross-cutting issues of particular importance, such as sustainability (CWTS Leiden Ranking and QS Europe University Rankings) and climate action (THE Impact Rankings). Within Spain, the various rankings place the UPC in a leadership position. Aspects such as knowledge transfer capability, the UPC's contribution to territorial development and its international orientation are highlighted (CYD Ranking). The UPC tops national benchmark rankings, such as the U-Ranking, for its research and innovation performance.



QS World University Rankings by Subject, 2024

Position		Architecture & Built Environment	Art History	Civil & Structural Engineering	Telecommunications, Electrical and Electronic Engineering	Mechanical, Aeronautical & Manufacturing Engineerign	Engineering & Technology
		26	21-40	40	66	72	82
		11	9-18	10	23	28	25
		2	1	1	1	1	2
Position		Computer Science & Information Systems	Matemathics	Petroleum Engineering	Art & Design	Statistics & Operational Research	Materials Science
		88	95	51-100	51-100	101-150	101-150
		28	35	18-34	18-41	36-61	34-52
		1	1	1	1-2	1-2	1-3



THE (Times Higher Education) World University Rankings, 2024

Position					
	Computer Science	Life Sciences	Physical Sciences	Arts and Humanities	Engineering and Technology
	World	301-400	401-500	401-500	401-500
	Europe	124-158	171-218	171-211	211-258
Position					
	Spain	2-5	8-14	5-8	15-57
					4-7

03/ Excellence in teaching

As a public university specialising in engineering, architecture, sciences and technology, the UPC stands out for its academic excellence and focus on practical training. Teaching at the UPC is delivered across 9 campuses, where the university community works closely with companies and research centres. Bachelor's, master's, doctoral and continuing education programmes are embedded in a highly internationalised knowledge ecosystem comprising 18 schools.

Libraries, like this one at the Barcelona East School of Engineering (EEBE), are one of the spaces commonly used for student teamwork, a cross-disciplinary competency fostered in all degrees taught at the UPC.



Sequential academic programmes

The UPC offers a wide range of sequential programmes (PARS) within the framework of engineering studies.

These programmes enable students to pursue a bachelor's and master's degree consecutively, following pathways focused on professional specialisation.

In the 2024-2025 academic year, the UPC is offering a total of 67 bachelor's degrees, 91 master's degrees, 45 doctoral programmes and 141 continuing education programmes.

At the University, students receive the support they need not only to acquire knowledge, but also to explore and develop their interests in a variety of ways. They can do this by participating in associations, clubs and activities of all kinds, specifically designed to complement a strong foundational education. The goal is to provide students with a comprehensive education that is highly valued in the professional world and enables graduates to enter the workforce quickly and successfully.

Quality and competencies

UPC degrees provide students with a rich learning experience, with a strong emphasis on collaborative and face-to-face learning in classrooms and laboratories. Learning is also supported by highly qualified and motivated academic staff, dedicated to both teaching and research, who often bring active professional experience.

UPC curricula deliver a strong foundational education and develop highly valuable competencies. These cross-disciplinary competencies, common to all UPC programmes, include innovation and entrepreneurship, sustainability, ethics and social responsibility, digitalisation, data management and skills in the use of artificial intelligence.

Galàxia Aprenentatge

The UPC is in the process of transforming its teaching model, implementing active learning methodologies to address needs in its environment and the evolving interests and capabilities of students. This process, which began in 2022, is structured around the Galàxia Aprenentatge project and aims above all to deepen the experience of studying at the UPC by giving greater value to social learning, which means being physically present on campus.

The University has gradually introduced teaching methods such as challenge-based learning, service learning, peer mentoring by senior students, and the creation of spaces for multidisciplinary creation and experimentation, pushing to expand the use of these methods in new contexts. These new learning approaches integrate social and business challenges into traditional subjects and challenge students to come up with solutions. The University is also incorporating new tools, such as generative artificial intelligence and microcredentials, to assist and support students.

Creativity and communication skills are key components of challenge-based learning, as students of the Applied Engineering Project subject at the Barcelona School of Informatics (FIB) demonstrate when they present their solutions to address needs identified by companies.







1/

1/ The Dynamics UPC Manresa team makes history by winning the Dutch edition of the Formula Student competition in the summer of 2024. The team is made up of students from the Manresa School of Engineering (EPSEM).

2/ Teaching at the UPC also involves launching rockets. In the photo, a student from the Terrassa School of Industrial, Aerospace and Audiovisual Engineering (ESEIAAT) prepares the Lucid rocket for launch during an international competition.

3/ Hands-on experience with real patients is a vital part of the training offered by the Terrassa School of Optics and Optometry (FOOT). The University Vision Centre is the unit dedicated to providing eye care services.



2/



3/



4/

4/ A group of students from the Barcelona School of Architecture (ETSAB) at the Tongji International Construction Festival in Shanghai. The challenge for this competition was to construct a small building using only polypropylene sheets. The ETSAB team won second prize in this activity, which was organised as part of the Sino-Spanish Campus promoted by the UPC together with the Universidad Politécnica de Madrid, the Universidad de Sevilla, the Instituto Tecnológico de Estudios Superiores de Monterrey and Tongji University in China.

5/ The 1st Catalan Female Mathematics Olympiad brought together around 140 secondary school girls at the School of Mathematics and Statistics (FME) to tackle mathematical problems in a way that is very different from the approach usually taken in secondary school classrooms. In this competition, creativity is just as important as knowing how to perform specific operations.

6/ Nature serves as a classroom for practical work in the fields of the Barcelona School of Agri-Food and Biosystems Engineering (EEABB). The School has 26 plots of land that are allocated to members of the Baix Llobregat Campus community to grow vegetables for their own use.



5/



6/

04/ Research

The UPC is a key player in driving social and economic progress in a world that is changing at an accelerating pace. Excellence in research and innovation in transformative technologies is ingrained in the University's research culture. Well placed in the main rankings that assess research output, the UPC boasts large-scale scientific and technical facilities and is a leader in securing funding in calls for RDI projects. At the same time, the University is committed to promoting an approach to science that is open and ethical and involves citizens in the generation of knowledge.

The UPC coordinates a European consortium comprising 28 partners based in 8 countries, established to promote the adoption of integrated circular solutions in construction value chains. CIRC-BOOST, a project funded by the Horizon Europe programme, is being developed within this framework. The project is linked to the Department of Civil and Environmental Engineering and the Barcelona School of Civil Engineering (ETSECCPB). The consortium will carry out five pilot projects in Barcelona, Paris, Belgrade, Vesterålen and Prague. The goal is to demonstrate, on a large scale, novel and integrated solutions for building demolition, construction waste processing and management and valorisation in new products.







A living lab for sustainable housing

The TO house (shown on the left), designed and built by students of the Vallès School of Architecture (ETSAV), is located on the Diagonal-Besòs Campus. The house has become a living lab where students and researchers can physically experience and observe how homes can be adapted to the comfort needs of occupants according to climatic conditions, while at the same time reducing energy consumption.

Safe interconnected mobility

The multidisciplinary 6G-EWOC project, coordinated by the Advanced Broadband Communications Centre (CCABA), is developing a network that integrates artificial intelligence, 6G technologies, remote sensing systems and optical communications to achieve the highest possible level of safety in interconnected mobility.

Climate change adaptation

The CLIMAAX project of the Centre of Applied Research in Hydrometeorology (CRAHI) is developing tools to help 60 municipalities assess the heightened risks posed by climate change, including floods, heavy rainfall, heatwaves, droughts, forest fires, snowstorms and windstorms. The project brings together 19 partners based in 12 countries.

UPC research serves as a benchmark in various fields and translates into tangible solutions for tackling key social and economic challenges, including climate change adaptation across different scenarios and from different perspectives, the energy transition to advance decarbonisation, the blue economy and the need for more sustainable mobility, agriculture and urbanism. The University also plays a role in shaping future telecommunications networks based on advanced 5G and 6G, technologies related to quantum computing and Europe's drive to build a competitive chip and semiconductor industry – advances that will have a broad impact across all sectors.

The UPC currently has 141 research groups, five research institutes, 22 specific research centres, 15 research centres that are members of the TECNIO network and 12 associated research entities.

UPC teaching and research staff, along with those who focus exclusively on research, form a community of nearly 3,700 people engaged in intensive, high-quality work.

In addition to being well placed in the main international rankings, the UPC has consolidated its position as one of Europe's leading research universities and a magnet for European funding in Spain and Catalonia. In fact, it is

the top Spanish university in terms of attracting funds from the Horizon Europe programme. Under this research and innovation programme, the UPC has been assigned 155 projects.

The UPC is also highly active in the 2021–2023 State Plan for Scientific and Technical Research and Innovation, with around a hundred projects underway, and in calls for Knowledge Generation Projects issued by the State Research Agency (AEI).

At present, the University is participating in over 1,800 national and international research projects.

State-of-the-art facilities

The UPC has world-class research facilities, two of which are listed on the Map of Unique Scientific and Technical Infrastructures: the Maritime Engineering Laboratory (LIM), which is equipped with a large-scale wave flume for studying currents and waves, and the Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC-CNS), home to MareNostrum 5, one of the most powerful supercomputers in the world.

Departments

30

Research
groups

141

University
research
institutes

5

Specific
research
centres

22

Associated
research
entities

12

Theses
read (2023)

318

Articles published
in scientific journals
(2023)

2,308

Income from RDI
and transfer projects (2023)
in million euros

121.6

Following the path of open science

The UPC is making progress in implementing the open science paradigm, a new approach to scientific research. The open science model is based on collaborative work and the transparent, open publication of information linked to every phase of research.

In this regard, the UPC has endorsed the Barcelona Declaration on Open Research Information, signed by over 30 European universities and research centres, and has co-authored the White Paper on Open Science and Innovation, together with the universities in the European Unite! alliance, to help build a global system of open science.

Citizen science: partners in research

Connecting with patients suffering from rare diseases and other conditions and their family members, identifying animals on the sea floor or reporting on air pollution, snow-covered roads, landslides or inaccessible areas are just a few examples of ongoing UPC projects in which citizens play a crucial and active role in advancing knowledge. This is known as citizen science – an approach that the University is committed to promoting because of the valuable contribution it makes to research.

Research projects of this kind empower citizens, who become collaborators in scientific research by asking questions, formulating hypotheses and collecting and analysing data. Citizen science also brings the activities of the University's laboratories, groups and research centres closer to society, often bringing research staff into contact with third sector organisations or social groups with specific and real needs that are identified by the UPC. Information on the University's citizen science initiatives is available in the Citizen Science Portal:

cienciaciudadana.upc.edu/en

An ethics committee to oversee projects

In view of the profound impact of technological progress on people's lives today and the significant dilemmas facing society, the UPC has established an ethics committee composed of both internal and external members.

The role of this committee is to ensure that projects are conducted in line with ethical standards and contribute to the common good. Projects in areas such as artificial intelligence, robotics and human-machine interaction, climate change and sustainability, and nanotechnology merit particular attention.

The Ethics Committee also encourages appropriate consideration of ethical issues in all other activities and in decision making.



The Centre for Research in Multiscale Science and Engineering (CEM) was recently recognised as a María de Maeztu Unit of Excellence.

Doctoral programmes

Expanding the frontiers of knowledge

A doctoral degree is the highest academic degree awarded by the University and involves advanced training in research techniques. Entering a doctoral programme is the start of an exciting journey that culminates in the submission of a doctoral thesis – an original piece of work in a cutting-edge field.

The UPC offers 45 doctoral programmes in architecture, urbanism and building construction, sciences, civil and environmental engineering, ICT engineering and industrial engineering.

The Doctoral School safeguards the academic quality of its programmes, seeks to attract top national and international candidates, and offers a robust research and professional development programme that promotes international mobility. UPC doctoral graduates are almost fully employed, and most find jobs related to their degree subject. There are currently around 2,200 students pursuing doctoral studies, 50 of whom are working on industrial doctorates.

Industrial doctorates: tailor-made talent for companies

The UPC is the leading participant in the Industrial Doctorates Plan launched by the Government of Catalonia ten years ago and has carried out 257 projects – 28 % of the total for Catalan universities. In this case, the key component is a strategic research project for a company or institution, in which the doctoral candidate develops their research skills by carrying out work that forms the basis of their doctoral thesis.

This approach contributes to the competitiveness and internationalisation of Catalonia's industrial fabric and the integration of university-trained talent into companies.

A virtual assistant for industrial processes, the development of digital twins for civil engineering projects and buildings, and the use of algorithms to analyse football patterns are just some of the projects undertaken by doctoral candidates. They also conduct research on cybersecurity tools for companies, systems to drive the decarbonisation of the automotive industry and 6U satellite technologies, among other topics.

05/ Transfer

The UPC's collaboration with the business sector is realised through nearly 2,000 national and international agreements and projects each year, which transform the knowledge generated by its research groups and centres into productive value. While the focus is on emerging sectors, the needs of small and medium-sized enterprises (SMEs) are also addressed through the design of tailor-made solutions.

The UPC transfers knowledge and leading-edge technology through competitive projects, synergies and partnerships with the business fabric and a broad portfolio of marketable patents.

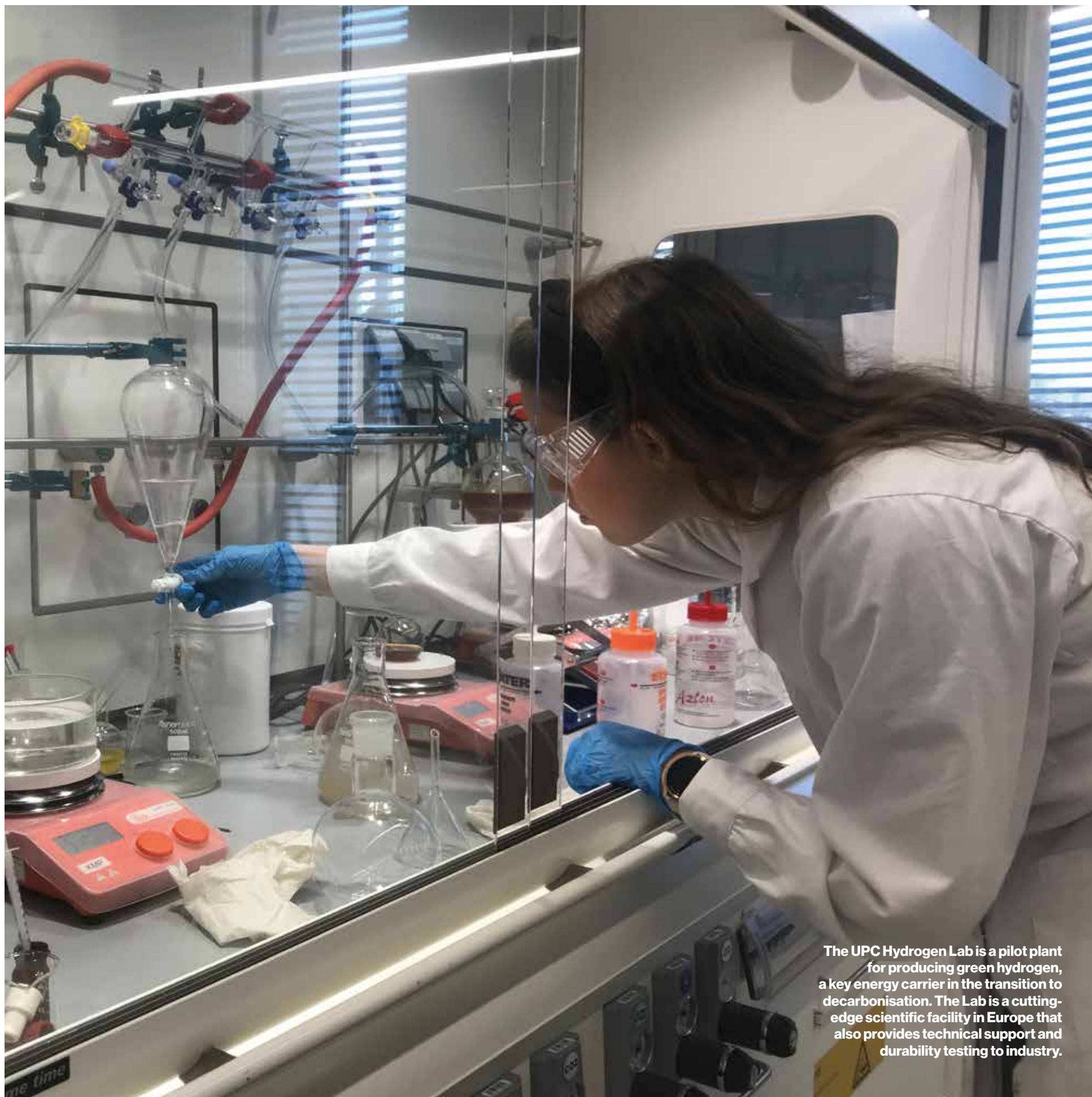
At the same time, the University promotes the creation of new technology-based companies, especially in emerging fields, and fosters entrepreneurship. Indeed, the UPC has positioned itself as a driver of innovation and a preferred technology partner for companies and organisations. It also provides the business community and research groups with a wide range of scientific and technical services, as well as unique, state-of-the-art research infrastructure. It is worth noting that the presence of the University across Catalonia contributes to the identification of the UPC as an agent of transformation for companies, helping, for example, to enable the digitalisation of the industrial fabric. In recent years, the University has contributed to generating approximately 0.3% of Catalonia's GDP (for every €100 of public funding it receives, it returns €601.50 to society), while maintaining relationships with around 3,000 companies.

This transfer enables the industrial sector to adapt and apply advanced manufacturing technologies, industrial robotics and nanotechnology, to find new solutions in areas such as cybersecurity and new materials and to address issues related to telecommunications, logistics, construction, transport, health and food, among others. The process of knowledge transfer is carried out using various approaches that channel the relationship with each company in the most appropriate way.

Leading RDI networks and strategic partnerships

The UPC participates in 7 prominent RDI networks, 3 of which it leads: BlueNetCat, focused on the blue economy; Xartec Salut, dedicated to health technologies; and XaRFA, which specialises in additive manufacturing. Established by the Government of Catalonia, these networks leverage interdisciplinary research from various institutions in specific fields. UPC research groups also collaborate in the AccessCat, TECSAM, H2CAT, i4KIDS, RDI-IA and X_Agritech networks, which focus on accessibility, mental health, renewable hydrogen, paediatrics, artificial intelligence (AI) and agriculture and livestock, respectively. Knowledge transfer is also coordinated through groups with other universities and entities that try to converge on a common objective. This is the case with technological partnerships established with public and private entities to accelerate innovation and explore new possibilities in areas such as 3D printing, next-generation computers, the Internet of Things (IoT), low-power processors, fusion energy and quantum computing, including BASE3D, DRAC, FEM-IoT, FusionCAT and QuantumCAT.

Promoting entrepreneurship and supporting the creation of technology-based companies has always been a key pillar of the UPC's knowledge transfer activity, resulting in the creation of over 400 companies in recent years. Of these new enterprises, more than a hundred are spin-offs, 41 of which are partially owned by the UPC.



The UPC Hydrogen Lab is a pilot plant for producing green hydrogen, a key energy carrier in the transition to decarbonisation. The Lab is a cutting-edge scientific facility in Europe that also provides technical support and durability testing to industry.

Patents and technology portfolio

The UPC is a leading university in terms of patent generation and has a wide range of commercially viable technologies that provide business opportunities for technological investment.

Innovation hubs and new approaches to knowledge transfer

Synergies between the UPC and the business sector are also harnessed through the University's innovation hubs – an ideal platform for collaboration in developing new products and services. Companies participating in these hubs include SEAT and Volkswagen Group Innovation, Huawei, Damm, the Port of Barcelona and the Innomads Proptech Hub. Advances are being made in the automotive industry, sustainable mobility, 5G, digital manufacturing, quantum technologies and other areas.

The UPC also participates in the Digital Innovation Hub of Catalonia (DIH-4CAT), a regional non-profit ecosystem formed by the main actors supporting digitalisation in Catalonia. The aim is to drive the technological transformation of SMEs, technology start-ups and public institutions. The University is one of the founders of the Digital Impulse Hub (DIH), an alliance of chambers of commerce, universities and municipal bodies that supports the digitalisation of SMEs and local government.

Accelerators also play a key role in driving innovation in this ecosystem. A notable example is ESA BIC Barcelona, located on the Baix Llobregat Campus, where the European Space Agency, in collaboration with the UPC, has accelerated 11 start-ups based on the innovative use of space technologies. Another model for concentrating knowledge and transferring it to the market is Agrotech, a research centre associated with the Barcelona School of Agri-Food and Biosystems Engineering (EEABB), which develops technology for the agri-food sector.

European innovation communities

The UPC participates in several European communities supported by the European Institute of Innovation and Technology (EIT) that bring together key stakeholders from higher education, research and the business sector to foster innovation and learning in areas deemed to have a significant impact on society. The University participates in EIT Urban Mobility, EIT InnoEnergy, EIT RawMaterials and EIT Health.



The Elasticity and Strength of Materials Laboratory (LERMA) at the Barcelona School of Industrial Engineering (ETSEIB) is one of the scientific and technical services offered by the UPC. The Laboratory's expertise spans a variety of sectors, including metallurgy, construction, the automotive industry, transport, logistics, biomedicine and additive manufacturing.



Scientific and technical services

The Scientific and Technical Services portal offers businesses a single point of access to the University's extensive network of laboratories and facilities, offering customised solutions:
serveiscientificotecnics.upc.edu/en

Connèxia UPC

The value of the 360° partnership

One of the most innovative initiatives in terms of connecting the University with the business sector is the Connèxia UPC programme, which establishes strategic partnerships to provide high-value services to companies. Conceived as a unique working framework, the programme is based on an in-house method that builds an environment of trust. Once an agreement is in place, a specialist with in-depth knowledge of the University's capabilities explores the needs of the client company, addresses its requirements and identifies new opportunities for collaboration.

This starting point leads to a comprehensive project where talent, research, innovation and corporate social responsibility come together to define a wide range of services for the company.

Cetaqua, Fractus (via the Fractus-UPC Deep Tech Hub), Mecalux and Schneider Electric have established partnerships of this kind with the UPC.

Partnering with Connèxia UPC means forging a strong link that gives preferential access to initiatives that only a technical university that is a leader in knowledge transfer can offer. These partnerships open the door to new ideas, business creation, patents and recruitment of the most suitable talent, and enable companies to connect with cutting-edge research and training programmes.

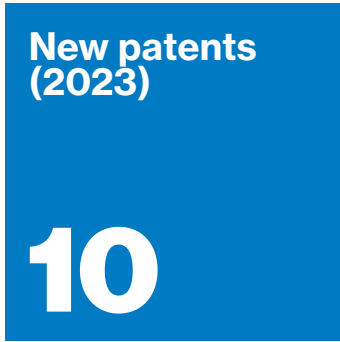
connexia.upc.edu/en

AI for Catalan police force vehicles

An agreement between inLab FIB and the Catalan police force has led to the development of an AI-powered tool to help police respond more effectively to everyday incidents. The tool was presented at the 2024 Mobile World Congress.

Regenerating Barcelona: industrialised construction for the Besòs area

Knowledge transfer also takes place in architecture. The Regenerating Barcelona project, coordinated by the Architectural Rehabilitation and Restoration (REARQ) research group and the Interdisciplinary Group on Building Science and Technology (GICITED) – both based at the Barcelona School of Architecture (ETSAB) in collaboration with the company Constraula, is one of the industrialised construction prototypes selected by the Barcelona City Council for application to older homes in neighbourhoods in the Besòs district.



The deep tech map: high-impact technologies

The Analysis, Mapping and Identification of Deep Tech Areas and Technologies study, carried out as part of the Fractus-UPC Deep Tech Hub and the Connèxia UPC programme, uses an in-house method to determine which technologies can be considered deep or transformative based on their social impact or industrial scalability. Half of the UPC's research groups are working on 16 deep technologies, primarily in areas such as AI, 5G/6G, big data, robotics, cybersecurity, IoT networks and protocols, and 3D and 4D printing.

An international facility for semiconductors

Semiconductors are a key area of research at the UPC and an example of the successful transfer of research results to the productive sector. The US multinational Qorvo has been working with the Components and Systems for Communications (CSC) research group (associated with the Castelldefels School of Telecommunications and Aerospace Engineering, EETAC), for over a decade and has a facility in the K2M building on the North Diagonal Campus.

Enterprise chairs

The UPC currently has 18 enterprise chairs that transfer technology and knowledge. In 2023, they generated more than 1.1 million euros.

AMES Group-UPC Chair in Design and Innovation of New Biomaterials

Barcelona Chair of Housing Studies

Battleiroig Chair

CIMSA White Concrete Chair

Telefónica Móviles España **Cognitive IoT Chair**,

Universitat Politècnica de Catalunya, Universitat Pompeu Fabra

Urban Regeneration Chair

EIC-UPC Engineering and Business Chair

Endesa Red-UPC Chair in Energy Innovation

Estabanell-UPC Chair

Galimplant UPC Chair

UPC-Construcía Group Chair,

Circular Economy Hub for Construction and Industry

JG Ingenieros Group-UPC Chair for Sustainability Studies of Buildings

HP-UPC Digital Manufacturing Innovation Hub Chair

Jujol Chair

Klockner-UPC Chair in Dental Implants and Prostheses

Syngenta Chair

TÚV SÜD-UPC Chair

Vanderlande Industries Spain Chair

06/ International



Internationalisation is one of the fundamental pillars of the UPC. With a strategy that embraces both physical mobility and internationalisation at home, the University is moving forward to establish itself as a global benchmark in education, research and technology transfer.



The Internationalisation Plan spans all areas of activity within the UPC community, embedding the international dimension into the institution and fostering a global corporate culture among its members.

The University's commitment to the European Unite! alliance, its participation in international teaching and research networks, and its focus on promoting the internationalisation of its community are lines of action that enable the UPC to tackle the major challenges of the 21st century.

The UPC has a strong international focus and is committed to building a more open, inclusive, digital and sustainable world. Long-standing relationships with other universities and academic and scientific institutions around the world enable the University to act as a global hub of knowledge that has a positive impact on society. Internationalisation is not limited to the physical mobility of students, academic and research staff, and administrative and technical staff, it permeates every aspect of academic life, from teaching and research to technology transfer and university life.

In recent years, the UPC has consolidated an extensive network of international collaborations, establishing itself as a key player in global education and research ecosystems. These collaborations allow the University to facilitate mobility within its community, promote international projects, attract talent and provide teaching and research opportunities.

The goal is to make the UPC a vibrant community of citizens with a deep understanding of the world and the tools to make an active contribution. Internationalisation is thus a cross-cutting element that fosters the development of skills and values that make people more open, tolerant and better equipped to tackle 21st century challenges such as sustainability, digitalisation and entrepreneurship. This approach aligns with the Sustainable Development Goals (SDGs) set by the United Nations.

Being present in the world in this way enables the UPC to attract talent and foster cooperation with individuals who are harnessing knowledge to tackle major global challenges, from energy to artificial intelligence.

The UPC is committed to an inclusive approach to internationalisation that does not leave anyone behind. This means that the international dimension should not be a privilege for the few but an opportunity accessible to the entire university community. To achieve this goal, the UPC is implementing strategies that promote the digitalisation of its international activities. As well as facilitating participation, this approach contributes to sustainability by reducing international travel and the carbon footprint that mobility entails.

Internationalising people

The UPC fosters an international culture within its community, both among those who participate in mobility programmes and those who do not. The idea is to promote cultural diversity and international understanding through physical mobility, but also through internationalisation at home, a key concept that ensures that the entire university community has access to global education without the need to travel. Internationalisation at home is one of the key initiatives to ensure that everyone benefits from the international dimension, whether or not they have the opportunity to participate in physical mobility programmes. This approach brings cultural diversity and global experience directly to the classrooms and campuses of the UPC, fostering a rich exchange of knowledge and perspectives within the University.

54

international double
degree agreements
with 11 countries

234

educational cooperation
agreements with institutions
in over 40 countries

1,555

student exchange
agreements
with 695 universities

1,390

UPC students
on mobility
programmes

1,786

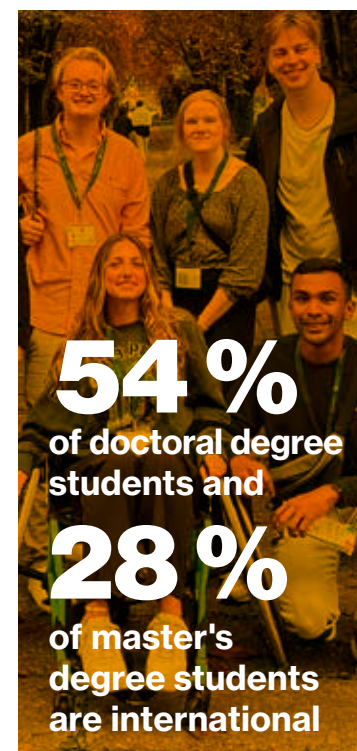
international
exchange
students
at the UPC

54 %

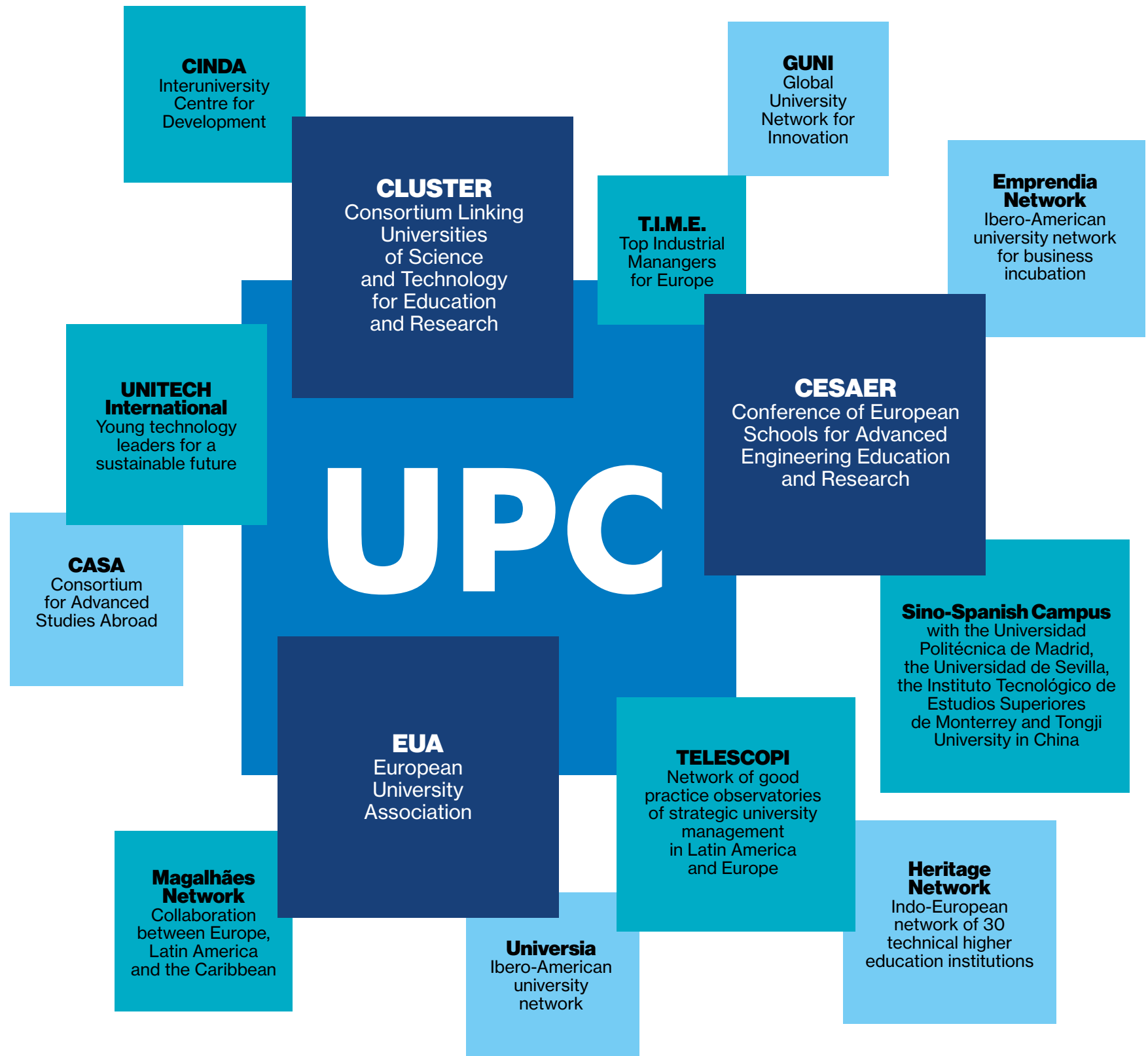
of doctoral degree
students and

28 %

of master's
degree students
are international



The UPC in international networks





Students, professors and staff of the nine universities that make up the European Unite! alliance at the Unite! Dialogue in Graz, Austria, where they gathered to work on collaborative and innovative projects. These meetings are key to fostering collaboration and sharing ideas between institutions and strengthening academic links.



unite!

University Network for Innovation,
Technology and Engineering

A strategic alliance to transform the future

Unite! (University Network for Innovation, Technology and Engineering) is an alliance of nine European technical universities that aims to build the future European Higher Education Area. With the support of the European Commission, Unite! has created a large community of 280,000 students and 80,000 graduates. The alliance fosters knowledge sharing and develops new tools to address major societal and technological challenges. Unite! is a fundamental pillar of the UPC's internationalisation, enabling it to create new digital, hybrid and face-to-face learning models and giving students access to joint bachelor's and doctoral degrees. The network carries out actions aimed at the entire university community, offering opportunities for participation in international projects and training for teaching and research staff, as well as for technical, management, administrative and service staff, and in particular for young researchers.

Unite! is not just a platform for education, it also drives a shared research agenda that promotes open science and collaboration with productive and innovation ecosystems throughout Europe. These initiatives contribute to the consolidation of a university that is not only connected to global realities but also attuned to regional and local challenges. One notable initiative is the creation of the Unite! Seed Fund, which supports collaborative teaching and research projects.

Unite! has become one of the most ambitious projects in the construction of the European Higher Education Area, and the UPC is playing a central role in this transformation.

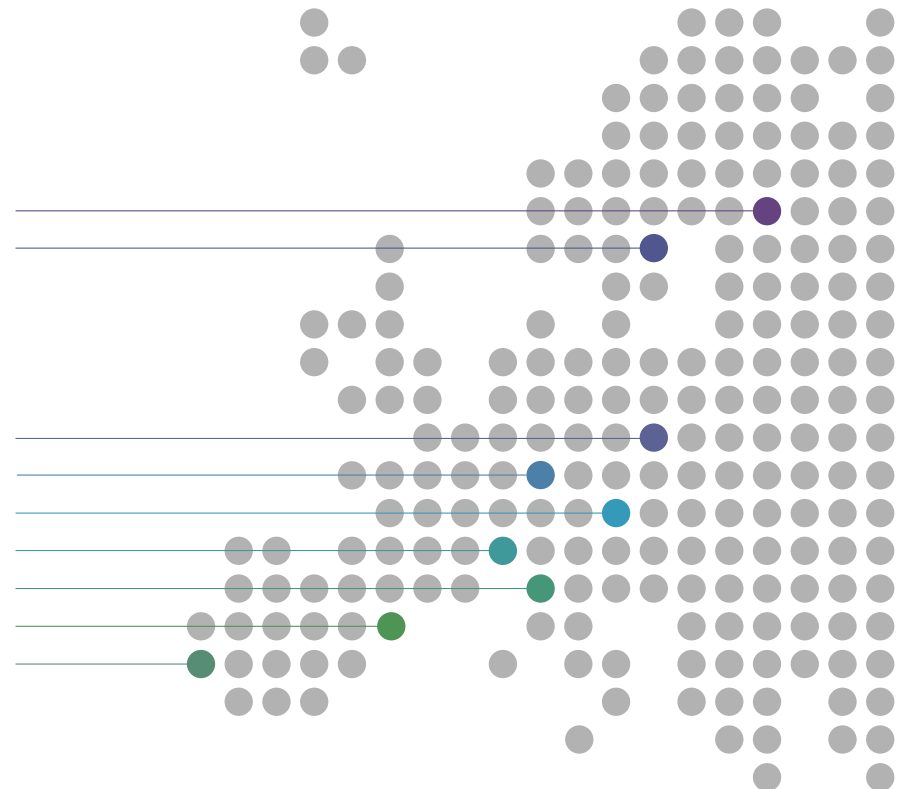
The European project GreenChips-EDU

Building a Digitally-Supported Education Ecosystem for Next Generation Microelectronics Experts in Sustainable Chips and Applications for a Green and Circular Economy is a project involving six member universities of the Unite! alliance (TU Graz, PoliTo, TUDa, UPC, Grenoble INP-UGA and ULisboa) and eight industry and research partners.

The Barcelona School of Telecommunications Engineering (ETSETB) leads the UPC's participation in the project. The goal is to accelerate the training of qualified professionals in the field of microelectronics through the introduction of new bachelor's and master's degrees that address sustainability and energy efficiency, as well as developing microcredentials and MBA programmes for industry professionals. The European Commission is funding the project with 7.15 million euros.

Aalto University, Espoo/Helsinki
KTH Royal Institute of Technology, Stockholm

Wrocław Tech
Technical University of Darmstadt
Graz University of Technology
Grenoble INP-UGA
Politecnico di Torino
Universitat Politècnica de Catalunya • BarcelonaTech
Universidade de Lisboa



07/ Much more than studying

The UPC is a campus-based university that promotes experiential learning as a vital part of the educational process. University life offers students the chance to participate in university sports competitions, join a *colla casteller* (human tower group), design a racing motorcycle, organise a hackathon, create an association based on their personal interests or take part in the institution's governance. These activities help to foster friendships and human interaction and, in a cross-cutting but equally important way, contribute to personal development beyond the academic curriculum. UPCArts brings together the UPC's cultural community and offers a wide range of cultural and artistic programmes and activities on its campuses, where culture and technology engage in an ongoing dialogue throughout

the academic year. The programme includes a reading club and a philosophy club, which reflect the UPC community's interest in thinking about how technology is changing human relationships. Data analysis, artificial intelligence, sustainability and urbanism are the subjects explored in the latter club, where ethics and philosophy help to interpret the present and envision a future that UPC graduates will help to shape.

Another example of how the University is experimenting with new approaches to learning while enriching university life is CampusLAB, a programme that links students' learning, professors' knowledge and guidance, and technical management staff's experience to improve the sustainability of UPC campuses.

Emprèn UPC spaces provide the perfect environment for students to develop their business ideas. The UPC offers support and mentoring services.

The Student Council is the representative, advisory and advocacy body for the interests of the student body as a whole.

M2m is a UPC Alumni programme that aims to promote female leadership by sharing insights about the experience of being a woman in the professional world. To date, 36 mentor-student pairs have been formed.



1/



2/

1 / *Castells* (human towers) are part of everyday life at the UPC. The photo shows a “pillar” erected in the library of the Baix Llobregat Campus, in Castelldefels.

2 / Sant Jordi's Day is a major celebration in Catalonia and, at the UPC, a good excuse for the university community to reconnect with culture each year. The image shows the poster for the 2024 edition.

3 / Institutional reception at the Rector's Office for students who won medals in university sports championships during the last academic year and UPC athletes who took part in the 2024 Paris Olympics.



3/

08/ A university for everyone

One of the pillars of the UPC's social engagement is to ensure inclusivity, providing equitable access to services and resources and supporting members of the university community with special needs.

To contribute to a fairer society, the UPC has developed tools to offer high-quality, inclusive academic education. The University has an equity plan that provides targeted grants for students who face financial difficulties in accessing studies or who have to interrupt their studies due to unforeseen circumstances. In addition, the University has implemented inclusion and equality plans, which provide mechanisms to ensure equal treatment and non-discrimination, and that services, spaces and technologies are accessible to all.

Mechanisms in place include teaching adaptations for students with disabilities or special educational needs, support from academic tutors and collaborating students, and assistance provided by the Inclusion Office.

Gender equality is a priority, both in terms of access to the University and throughout the course of study. For this reason, STEAM (science, technology, engineering, arts and mathematics) careers are promoted among younger girls with the support of primary and secondary schools, as well as UPC professors who, in addition to organising various activities, serve as role models – women who have achieved professional prominence in these fields. At the same time, the University incorporates a gender perspective across all areas of its activity.

In addition to promoting gender equality policies, the UPC enforces a zero-tolerance policy against violent behaviour, harassment and discrimination. The University also has a grant programme to help people who have been forced to flee their countries because of armed conflict, other emergencies or persecution. To adequately address these situations, annual enrolment grants are available for official bachelor's, master's and doctoral degrees.

The Psychological Counselling Service assists students with issues such as adjusting to university life, anxiety, social relationships, phobias and grief.

Mapathons are collaborative citizen science initiatives. One example is Fora Barreres!, an accessibility initiative that identifies urban and architectural barriers on UPC campuses, allowing the University to take action to solve these problems.

Members of the transgender community can request a change of preferred name (without legal implications) or a change of legal name.

1/ Dani Anglada Pich, a master's degree student at the Barcelona School of Nautical Studies (FNB), sailing the first Catalan boat adapted for people with visual impairments. The boat, named Lady, which he built himself, is participating in one of the categories of the 37th edition of the America's Cup sailing competition held in Barcelona.

2/ A group of students starred in and co-produced a short virtual reality film to put viewers in the shoes of a person experiencing LGBTI-phobic aggression.

3/ The Aquí STEAM UPC initiative attracts female talent to technology, science and engineering studies, reorienting established gender roles and giving visibility to new female role models. To date, 72 schools and more than 6,900 girls and boys aged nine to 14 have participated in the programme. Pictured here are a group of students from the Joaquina Pla i Farreras secondary school in Sant Cugat del Vallès.



09/ The power of solidarity

Since 1992, the Centre for Development Cooperation (CCD) has supported more than 2,300 projects involving hundreds of members of the university community.

At the UPC, initiatives born out of personal and collective concern for improving the world are translated into cooperation, mentoring and volunteering projects. These initiatives also serve as joint strategies for addressing urgent issues, such as the climate crisis, which require a collective response in daily actions. Projects of this kind involve collaboration with various local, national and developing-country groups and organisations. They provide valuable experiential learning, rooted in social engagement, which significantly enhances graduates' professional expertise in their respective fields.

Participation in these activities is awarded academic credits, as they are regarded as part of students' education as individuals engaged with social reality. They may also form the basis for bachelor's, master's or doctoral theses for participating students.

Through the various programmes offered by the University, students can choose to participate in social transformation projects in collaboration with local organisations, helping to address specific needs or contributing, for example, to the development of ICT solutions through more specialised volunteer work. Another option is to act as a mentor, serving as a university

role model for children, adolescents or university students in vulnerable situations.

It is also worth mentioning cooperation projects with countries all over the world, which include awareness-raising and social action initiatives in Catalan municipalities, organised through the Centre for Development Cooperation (CCD). Since 1992, this UPC unit has supported more than 2,300 projects involving hundreds of members of the university community.

Sustainability: everyone's responsibility

The importance of collective effort is also reflected in the response to the ongoing climate emergency. To address this challenge, the UPC has implemented a programme, designed and carried out in collaboration with the university community, to reduce the energy consumption of its activities. The goal is to achieve carbon neutrality for its direct emissions by 2030 through initiatives such as promoting self-supply of energy, recycling IT equipment and reducing the use of single-use plastics.



A fragment of the photograph *Alebrije* by Professor Bruno Seve of the Barcelona School of Architecture (ETSAB). Taken in Oaxaca, Mexico, the photograph won the 2024 edition of the Images of the Global South competition, organised by the Centre for Development Cooperation (CCD), in the Projects category. It is part of a project that gave Mexican children an opportunity to reimagine their neighbourhood.

10/ The UPC world

The UPC is a university with a widespread presence across Catalonia, with nine campuses located in 9 municipalities: Barcelona, Castelldefels, Manresa, Martorell, Sant Adrià de Besòs, Sant Cugat del Vallès, Terrassa, Viladecans and Vilanova i la Geltrú. A total of 18 schools form the foundation of the UPC's academic structure, which is further supported by departments, institutes and research centres.



Barcelona North Diagonal Campus

ETSECCPB.

**Barcelona School
of Civil Engineering**

camins.upc.edu/en

ETSETB.

**Barcelona School of
Telecommunications
Engineering**

telecos.upc.edu/en

FIB.

**Barcelona School
of Informatics**

fib.upc.edu/en

Located in the northern part of Barcelona's Zona Universitària, the Campus is home to three schools (ETSECCPB, ETSETB and FIB) along with numerous laboratories and research centres, including the Structures Laboratory, the Clean Room and InLab. Also on the Campus are the Rector Gabriel Ferraté Library, a sports centre, a hall of residence, spaces for student entrepreneurship and the Omega, Nexus I and II and K2M buildings. The K2M building houses university-business projects, technology-based companies and institutes such as the University Research Institute for Sustainability Science and Technology. The Campus is located next to the Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC-CNS), situated within the gardens of Torre Girona, which currently houses the UPC Rector's Office. The Campus also includes the Vèrtex building, which houses most of the University's general services.



Barcelona South Diagonal Campus

EPSEB.

**Barcelona School
of Building
Construction**

epseb.upc.edu/en

ETSAB.

**Barcelona School
of Architecture**

etsab.upc.edu/en

ETSEIB.

**Barcelona School
of Industrial
Engineering**

etseib.upc.edu/en

FME.

**School
of Mathematics
and Statistics**

fme.upc.edu/en

CFIS.

**Interdisciplinary
Higher Education
Centre**

cfis.upc.edu

Located in the southern part of the Barcelona's Zona Universitària, the Diagonal South Campus is a vibrant hub that is home to the EPSEB, ETSAB, ETSEIB, FME and CFIS, along with numerous research centres and laboratories, such as the Centre for Technological Innovation in Static Converters and Drives (CITCEA), the Urbanism Laboratory and the Fire Lab. Enriched by its proximity to other schools of the University of Barcelona, the Campus offers a wide range of possibilities for university life, as well as specialised libraries, study rooms, recreational areas and spaces for associations. It is also home to the University Vision Centre in Barcelona. CIM UPC facilities, the Institute of Robotics and Industrial Informatics (IRI) and the Institute of Energy Technologies (INTE) are also located on the Campus.



Barcelona Nautical Campus

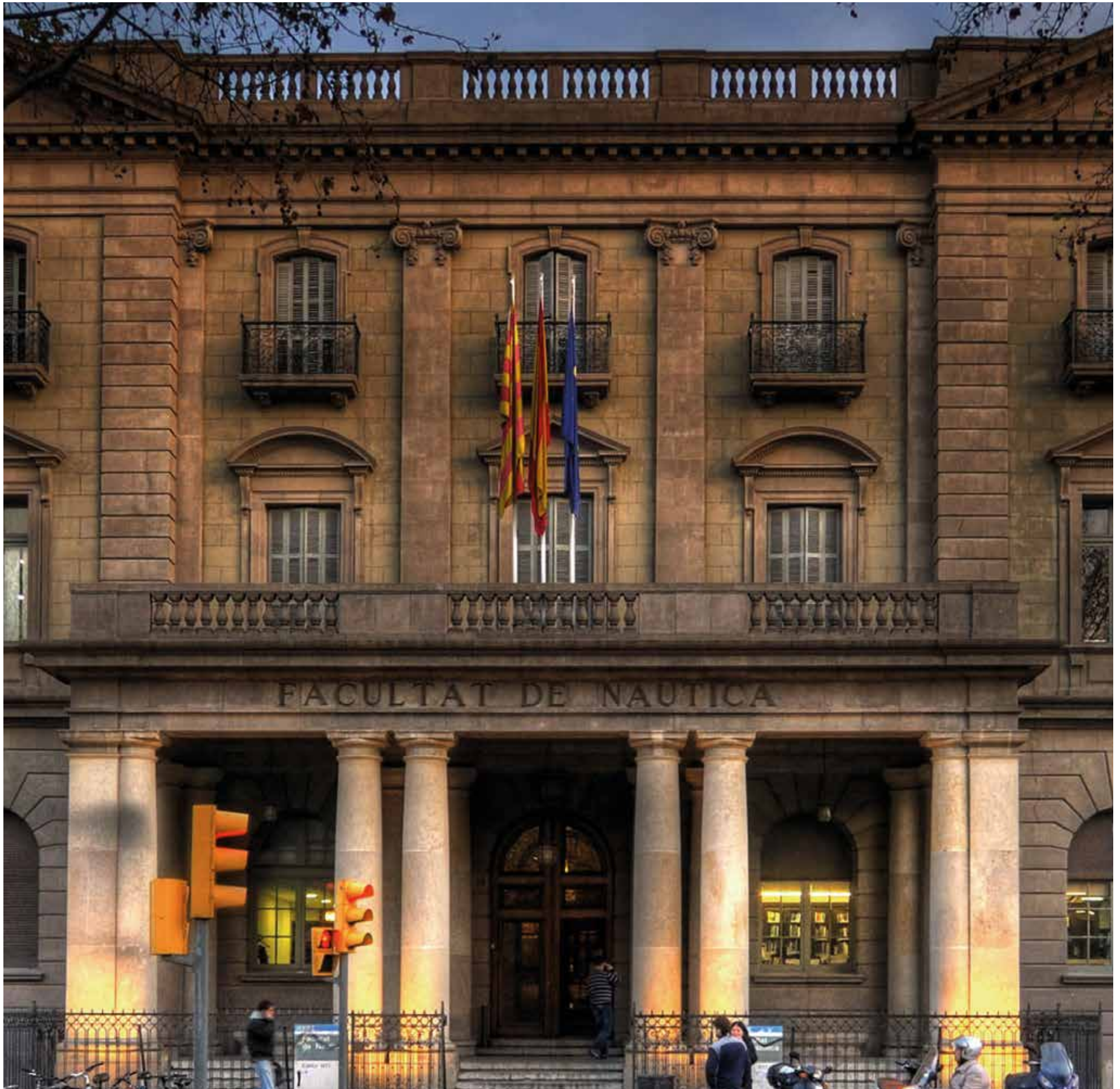
FNB.

**Barcelona School
of Nautical Studies**

fnb.upc.edu

With an academic history dating back to 1769, the historic FNB building is the epicentre of this fully urban campus, which has always been closely linked to Barcelona's port area. Home to intense teaching and research activity, in addition to the Pla de Palau building, the Nautical Campus includes two other facilities: NT3 and the Vela. The latter, located at the New Mouth of the Port of Barcelona, offers direct access to the sea.

The School is equipped with 3D control and visualisation simulators, and also features a specialised library and the Karl Zeiss Planetarium, along with its own sailing vessel for hands-on training.



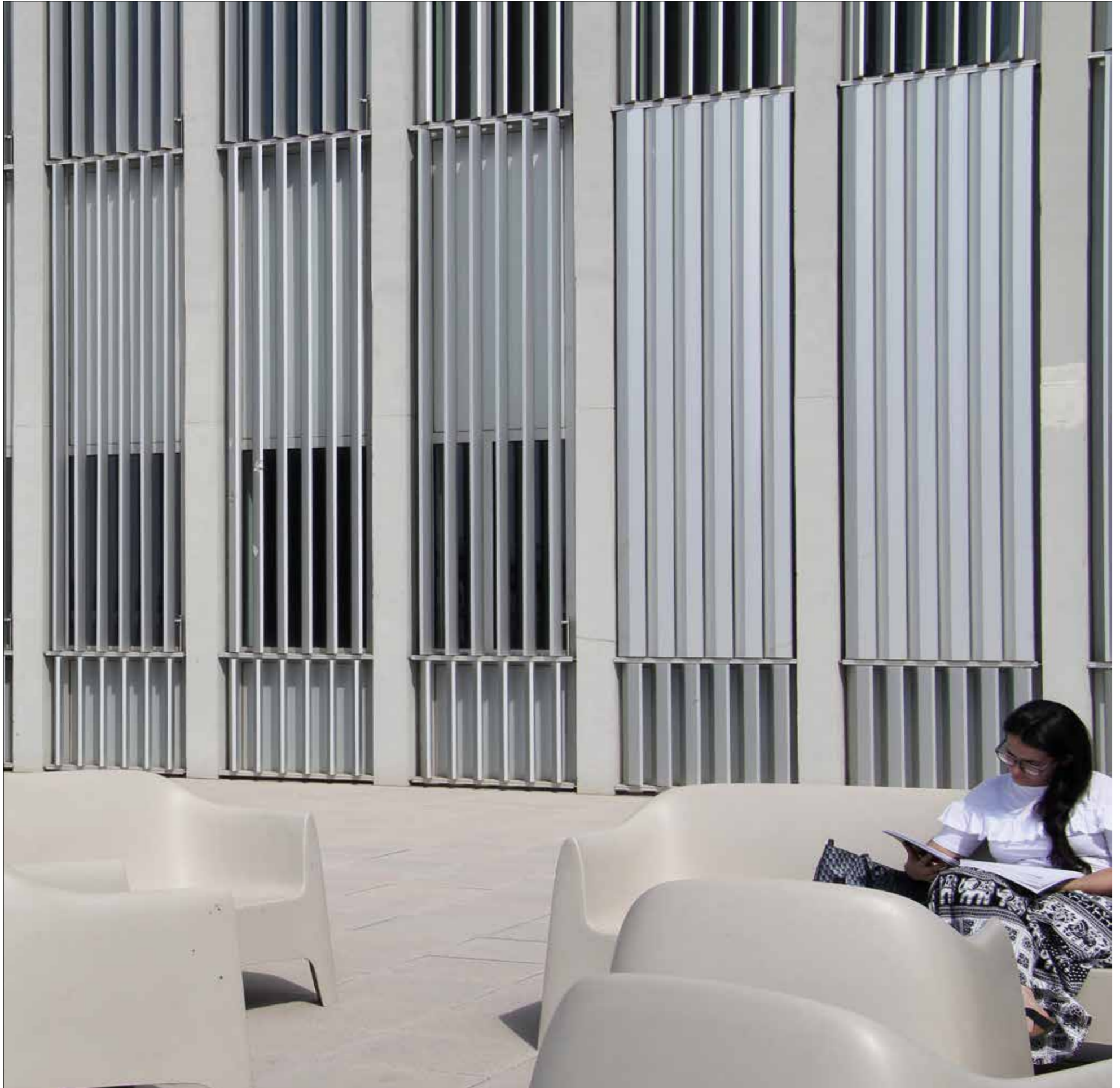
Sant Adrià de Besòs/ Barcelona **Diagonal-Besòs Campus**

EEBE.

**Barcelona East School
of Engineering**

eebe.upc.edu/en

Straddling the boundary between Barcelona and Sant Adrià de Besòs, the Campus is home to a school (EEBE) and various buildings that house laboratories and spaces for training, research and innovation, including the UPC Hydrogen Lab. Covering 38,000 m² near the Mediterranean coast, the Campus was inaugurated in 2016 and is still expanding.
It was designed according to strict sustainability criteria. Surrounded by over 20,000 m² of green space, the Campus also includes a library and a residence for both students and professors. It also features an Emprèn space to foster the creation of technology-based companies among students.
Nearby, in Barcelona's 22@ district, the Tech Talent Center houses the School of Professional & Executive Development, offering continuing education master's degrees, postgraduate courses and continuing education programmes.



Castelldefels/Viladecans

Baix Llobregat

Campus

EEABB.

**Barcelona School
of Agri-Food
and Biosystems
Engineering**

eeabb.upc.edu/en

EETAC.

**Castelldefels
School of
Telecommunications
and Aerospace
Engineering**

eetac.upc.edu/en

Located in Castelldefels, the Baix Llobregat Campus is home to two schools (EEABB and EETAC), a library, an Emprèn space for entrepreneurial projects, university accommodation, and research units and companies that form part of the Mediterranean Technology Park. The RDIT building, which houses companies linked to the UPC and the ESA BIC accelerator of the European Space Agency, is also located on the Campus. The Institute of Photonic Sciences (ICFO) and the Telecommunications Technology Centre of Catalonia (CTTC), both associated with the University, are also based here. The Campus also features specially designed agricultural fields for practical training and is home to the DroneLab. The Campus's influence extends to the municipality of Viladecans, where Agròpolis — a centre dedicated to teaching, research and innovation in the agri-food sector — covers more than nine hectares



Manresa Manresa Campus

EPSEM.

**Manresa School
of Engineering**

epsem.upc.edu/en

The Manresa Campus has grown into a hub of knowledge, evolving from its origins as the Manresa School for Mine Foremen (1942) into the modern-day EPSEM. In addition to the academic activity of the EPSEM and its research and innovation units, this UPC space has come to play a key role in training professionals and transferring knowledge to the industrial and business sector in Central Catalonia and Bages. Committed to public education, the Manresa Campus hosts the Valentí Masachs Geology Museum and, from 2024, the new TechLab Manresa, a space designed to make technology more accessible to the public. The Campus is also home to the Manresa University Campus Library, and a project is planned for the historic site of the Fàbrica Nova, a former factory.



Sant Cugat del Vallès

Sant Cugat del Vallès Campus

ETSAV.

**Vallès School
of Architecture**

etsav.upc.edu/en

Centred around the academic activity of the ETSAV, the Sant Cugat campus for architecture, urbanism and building construction is situated in the heart of Barcelona's metropolitan region. This location has made it a hub for contemporary debate on the transformation of the built environment, forms of land use and their adaptation to the growing social demand for sustainability. The Campus, structured to ensure that teaching benefits from the synergies between the School and its Research and Technology Transfer Centre (CRITT), features iconic spaces such as the Model Workshop. It includes a university housing building and a highly specialised library, set in a garden that often serves as the ideal site for installing sustainable housing or construction prototypes to showcase the viability of certain materials.



Terrassa Terrassa Campus

ESEIAAT.

**Terrassa School
of Industrial,
Aerospace
and Audiovisual
Engineering**
eseiaat.upc.edu/en

FOOT.

**Terrassa School
of Optics
and Optometry**
foot.upc.edu/en

CITM.

**Image Processing
and Multimedia
Technology Centre**
www.citm.upc.edu/ing

The Campus is integrated into the urban fabric of the city of Terrassa and contributes to its dynamism through the academic activities of the three schools located there (ESEIAAT, FOOT and CITM). It is also home to a large number of research units, including the Terrassa Institute of Textile Research and Industrial Cooperation (INTEXTER) and the Heat and Mass Transfer Technological Centre. Facilities include the library, a services building, sports facilities, two university accommodation buildings and the Gaia research building, which houses the Emprèn space for pre-incubation of student projects. The Campus is also home to the University Vision Centre.



Vilanova i la Geltrú Vilanova i la Geltrú Campus

EPSEVG.

**Vilanova i la Geltrú
School of Engineering**
epsevg.upc.edu/en

Conceived as an urban campus in one of the city's most dynamic areas, the Vilanova i la Geltrú Campus is home to several research units and the EPSEVG, a school with a tradition spanning over a century, which evolved from the former School of Arts and Crafts (1881). Today, the Campus maintains strong ties with both the city and the industrial environment and includes an Emprèn space to help students bring their business ideas to life. It also incorporates facilities in nearby buildings, including a library, a hall of residence and a large classroom building. Located close to the seashore are the facilities of the Laboratory of Applied Bioacoustics, and four kilometres offshore, the OBSEA underwater laboratory.



Departments, institutes and specific research centres

Departments

CEM. Materials Science and Engineering
CEN. Nautical Science and Engineering
CS. Computer Science
DAC. Computer Architecture
DEAB. Agri-Food Engineering and Biotechnology
DECA. Civil and Environmental Engineering
DEE. Electrical Engineering
EEL. Electronic Engineering
EGD. Engineering Graphics and Design
EIO. Statistics and Operations Research
EM. Mechanical Engineering
EMIT. Mining, Industrial and ICT Engineering
ENTEL. Network Engineering
EPC. Project and Construction Engineering
EQ. Chemical Engineering
ESAIL. Systems Engineering, Automatic Control and Industrial Informatics
ESSI. Service and Information System Engineering
FIS. Physics
MAT. Mathematics
MF. Fluid Mechanics
MMT. Machines and Heat Engines
OE. Business Administration
OO. Optics and Optometry
PA. Architectural Design
RA. Architectural Representation
RMEE. Strength of Materials and Structural Engineering
TA. Architectural Technology
THATC. Theory and History of Architecture and Communication Techniques
TSC. Signal Theory and Communications
UTP. Urbanism, Territory and Landscape

Institutes

FLUMEN. River Dynamics and Hydrological Engineering Institute (UPC-CIMNE joint ownership)
IBEI. Barcelona Institute of International Studies (interuniversity institute)
ICE. Institute of Education Sciences
ICFO. Institute of Photonic Sciences (associated entity and affiliated institute)
IIEDG. Interuniversity Women's and Gender Studies Institute (interuniversity institute)
IMTech. Institute of Mathematics of the UPC-BarcelonaTech
INTE. Institute of Energy Technologies
INTEXTER. Terrassa Institute of Textile Research and Industrial Cooperation
IOC. Institute of Industrial and Control Engineering
IRI. Institute of Robotics and Industrial Informatics (UPC-CSIC joint ownership)
ISSTUPC. University Research Institute for Sustainability Science and Technology

TECNIO research centres*

CATMech. Centre for Advanced Technologies in Mechanics
CCP. Catalan Plastics Centre
CD6. Centre for Sensors, Instruments and Systems Development
CITCEA-UPC. Centre for Technological Innovation in Static Converters and Drives
CREB. Biomedical Engineering Research Centre
CTTC. Heat Transfer Technology Centre
DigiFACT. Centres for Advanced Digital Factories
IMEM CIEFMA-UPC. Innovation in Materials and Molecular Engineering. Centre for Structural Integrity, Micromechanics and Reliability of Materials
inLab FIB
INTEXTER. Terrassa Institute of Textile Research and Industrial Cooperation
IRI. Institute of Robotics and Industrial Informatics, CSIC-UPC
MCIA. Motion Control and Industrial Applications Research Group
SARTI. Technological Development Centre for Remote Acquisition and Data Processing Systems
SEER. Renewable Electrical Energy Systems
SSR-UPC. Smart Sustainable Resources

* Research centres that belong to the Network of Technological Innovation Support Centres (TECNIO)

Specific research centres

AGROTECH-UPC. Agri-Food Technology Specific Research Centre
CER-H2. Specific Centre for Hydrogen Research of the UPC
CATMech. Centre for Advanced Technologies in Mechanics
CCABA. Advanced Broadband Communications Centre
CD6. Centre for Sensors, Instruments and Systems Development
CDPAC. Architectural Design Documentation Centre of Catalonia
CEBIM. Molecular Biotechnology Centre
CERpIE. Research and Development Centre for Business Improvement and Innovation
CETpD. Technical Research Centre for Dependency Care and Autonomous Living
CommSensLab-UPC. Remote Sensing, Antennas, Microwaves and Superconductivity Group
CPSV. Centre for Land Valuation Policy (CER)
CRAL. Centre for Research and Services for the Local Administration
CREB. Biomedical Engineering Research Centre
CREMIT. Center for Engines and Heat Installations
CS2AC-UPC. Supervision, Safety and Automatic Control
IDEAI-UPC. Intelligent Data Science and Artificial Intelligence Research Center
LaCàN. Numerical Methods for Applied Sciences and Engineering
LIM/UPC. Maritime Engineering Laboratory
(MC)2-UPC. Continuum and Computational Mechanics
PERC-UPC. Power Electronics Research Centre
SSR-UPC. Smart Sustainable Resources
TALP. Centre for Language and Speech Technologies and Applications

Associated research entities

BSC-CNS. Barcelona Supercomputing Center - Centro Nacional de Supercomputación (MareNostrum)

CIIRC. International Centre for Coastal Resources Research*

CIMNE. International Centre for Numerical Methods in Engineering*

CREDA. Centre for Agrifood Economics and Development

CTTC. Telecommunications Technology Centre of Catalonia*

EURECAT. Catalonia Technology Centre

FMA. Miquel Agustí Foundation

i2CAT. i2Cat Foundation*

IBEC. Institute for Bioengineering of Catalonia*

ICFO. Institute of Photonic Sciences*

IEEC. Institute of Space Studies of Catalonia*

IREC. Catalonia Institute for Energy Research*

* Entity that is a member of the Research Centres of Catalonia (CERCA) programme

The MareNostrum 5 supercomputer is one of the most complete and versatile machines in the world at the service of the scientific community. Inaugurated in December 2023, it is installed at the Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC-CNS), a public consortium of which the UPC, the Ministry of Science, Innovation and Universities and the Government of Catalonia are part. This supercomputer is among the 20 most powerful on the planet and represents the largest investment that Europe has made in a scientific infrastructure in Spain.



11/ The UPC Group

The UPC Group consists of entities in which the UPC has a direct or indirect controlling interest. All of them aim to make the University's mission a reality by making a variety of contributions.

FPCAT-UPC Sustainable Mobility Campus (Martorell)

This is a new hub for training, in this case initial vocational and continuing education, in the areas of automotive engineering, sustainable mobility and advanced industry.

CIM UPC

CIM UPC is an innovation and technology centre specialised in advanced production technologies. It helps companies and professionals to increase technological capacity and innovation by offering technology services in the industrial sector and specific training programmes.

b_TEC Foundation

The b_TEC Foundation promotes the UPC's Diagonal-Besòs Campus, contributes to connecting the public administration, universities and the business world, and drives territorial transformation.

Innovation and Technology Centre Foundation (CIT UPC)

CIT UPC puts the University's research capacity at the service of business innovation. The knowledge and results of the UPC's research and technology transfer centres are the tools it works with.

Fundació Politècnica de Catalunya (FPC)

The Fundació Politècnica de Catalunya (FPC) is an institution created by the UPC to foster and promote continuing education activities. The UPC School coordinates this offering.

IThinkUPC

IThinkUPC is the consultancy and advanced software services company of the Universitat Politècnica de Catalunya. It helps companies by creating solutions and advanced services.

Mediterranean Technology Park (PMT)

A science and technology park promoted by the Government of Catalonia, the Baix Llobregat Provincial Council, Castelldefels City Council and the UPC. It promotes a multidisciplinary space in which research, innovation and knowledge transfer are a driver of development.

UPCnet

UPCnet is a UPC Group company created to provide services in the areas of information and communication technologies. These services are designed for the units of the UPC and other companies in the UPC Group.

The continuing education programmes offered by the UPC School include master's and postgraduate degrees, specialisation and technical courses and CPD courses on team and project management and leadership.



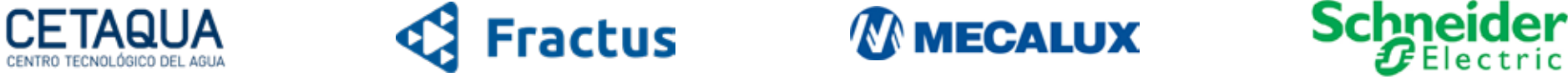
12/

Collaborating companies and organisations and sponsors

Almost 3,000 companies have some kind of link with the University. The most common form university corporate relations take is knowledge and technology transfer agreements and work placement programmes that allow corporations to recruit new talent from the UPC, including through industrial doctorates.

Every day, more large, medium-sized and small companies establish institutional ties with the UPC that make projects with shared interests possible. Enterprise chairs, sponsorship and patronage provide solutions to challenges and enable projects, which are often complex and ambitious, to be carried out. Without the trust of collaborating companies, these could never be undertaken.

Partner companies of the Connèxia UPC programme



Excellence sponsors



Sponsors

Adevinta	ENDESA	QUALCOMM
Aigües de Barcelona	Estabanell i Pahisa SA	Semidynamics Technology Services SL
Ames	Fundació Caixa d'Enginyers	SOADCO (Klockner Implant System)
BATEMO	Fundación ONCE	Syngenta España SAU
Batlle i Roig Arquitectura SLP	HP Printing and Computing Solutions SLU	TAIGUA
CIMSA Cementos de España SAU	JG Ingenieros	Telefónica
Col·legi Oficial d'Enginyers Industrials de Catalunya	Naturgy Energy Group SA	TÜV SÜD Iberia SAU
Construcía	Nueva Galimplant SLU	Vanderlande

Collaborating companies

Accenture SL	Fundació Gestamp
AILYLABS	Fundación hna
Allianz Compañía de Seguros y Reaseguros SA	G-RESEARCH
Allianz Technology	IDEADED, S.L.
BCN3D Barcelona Three Dimensional Printers	INECO SA
Between Technology	La Mútua dels Enginyers
BSM Barcelona de Serveis Municipals SA	LG Electronics España SAU
Col·legi d'Enginyers Graduats i Enginyers Tècnics Industrials de Barcelona	MOLINS
COMSA SAU	NTT DATA
Constructora Cardoner	Port de Barcelona
COPCISA	Rubau
COPISA	Siresa Campus SL
DENSO	Sorigué
Draxton Europe & Asia SL	Spirax-Sarco Engineering
Esperanto Technologies	TYLin Europe LATAM SA
Ferrovial Construcción SA	

13/ UPC degrees

The UPC is a university that puts the student at the centre of the learning process. The University proposes solid theoretical training combined with work placements, experiences and projects that transform vocations into professions.

The course offerings for the 2024-2025 academic year are 67 bachelor's degrees, 91 master's degrees and 45 doctoral programmes, as well as specific pathways to double degrees and continuing education programmes:
www.talent.upc.edu/ing

Practicals in technically equipped laboratories are a distinctive feature of the degrees that are taught at the University's schools.



Bachelor's degrees 2024/25

www.upc.edu/en/bachelors

The oceanographer Sylvia A. Earle gave a lecture on the bachelor's degree in Marine Sciences and Technologies that is taught at the Vilanova i la Geltrú School of Engineering (EPSEVG), on the occasion of being awarded an honorary doctoral degree by the UPC.



Architecture, Urbanism and Building Construction

Architectural Technology and Building Construction. EPSEB

Architecture Studies. ETSAB, ETSAB

Landscape Architecture. EEABB-ETSAB

Applied Sciences

Data Science and Engineering. FIB-ETSETB-FME

Marine Sciences and Technologies, majors in: Marine Sciences and Engineering / Marine Technologies.

ETSECCPB-EEABB-EPSEVG

Engineering Physics. ETSETB

Mathematics. FME

Statistics. FME (interuniversity UB-UPC degree)

Economics and Statistics. FME (interuniversity UB-UPC double degree)

Health Sciences and Technology

Bioinformatics. FIB-ETSETB (interuniversitari UPC-UB-UAB-UPF)

Enginyeria Biomèdica. EEBE

Òptica i Optometria. FOOT

Multimedia Design and Technology

Design, Animation and Digital Art. CITM

Video Game Design and Development. CITM

Video Game Design and Development (teaching in English). CITM

Digital Design and Multimedia Technologies. CITM

Aerospace Engineering

Satellite Engineering. EETAC

Aerospace Systems Engineering, majors in: Air Navigation / Airports. EETAC

Aerospace Systems Engineering + Telecommunications Systems Engineering / Network Engineering. EETAC (double degree)

Aerospace Technology Engineering. ESEIAAT

Aerospace Vehicle Engineering. ESEIAAT

Biosystems and Agri-Food Engineering

Food Engineering. EEABB

Agronomic Science Engineering, majors in: Horticulture and Gardening / Crop and Livestock Production. EEABB

Biosystems Engineering. EEABB

Landscape Architecture. EEABB-ETSAB

Civil Engineering

Environmental Engineering.

ETSECCPB-EEABB

Civil Engineering. ETSECCPB

Geoinformation and Geomatics Engineering. EPSEB

Mineral Resource Engineering and Recycling. EPSEM

Industrial Engineering

Automotive Engineering. EPSEM

Biomedical Engineering. EEBE

Industrial Design and Product Development Engineering.

EPSEVG, ESEIAAT

Electrical Engineering.

EEBE, ESEIAAT

Electrical Engineering and Railway Systems. EPSEVG

Industrial Electronics and Automatic Control Engineering.

EEBE, EPSEM, EPSEVG, ESEIAAT

Energy Engineering. EEBE

Materials Engineering. EEBE

Mechanical Engineering.

EEBE, EPSEM, EPSEVG, ESEIAAT

Chemical Engineering.

EEBE, EPSEM, ESEIAAT

Textile Technology and Design Engineering. ESEIAAT

Industrial Technology Engineering. ESEIAAT, ETSEIB

Industrial Technologies and Economic Analysis. ETSEIB (interuniversity UPC-UPF degree)

Informatics Engineering

Data Science and Engineering.

FIB-ETSETB-FME

Geoinformation and Geomatics Engineering. EPSEB

Informatics Engineering, majors in: Computing / Computer Engineering / Software Engineering / Information Systems. FIB / Information Technologies. EPSEVG, FIB

ICT Systems Engineering. EPSEM

Artificial Intelligence. FIB

Bioinformatics. FIB-ETSETB (interuniversity UPC-UB-UAB-UPF degree)

Naval, Marine and Nautical Engineering

Naval Systems and Technology Engineering. FNB

Nautical Engineering and Maritime Transport. FNB

Marine Technologies. FNB

Telecommunications Engineering

Data Science and Engineering. FIB-ETSETB-FME

Satellite Engineering. EETAC

Electronic Engineering and Telecommunications. ETSETB

Geoinformation and Geomatics Engineering. EPSEB

Audiovisual Systems Engineering. ESEIAAT

Telecommunications Systems Engineering. EETAC

Telecommunications Systems Engineering / Network Engineering + Aerospace Systems Engineering. EETAC (double degree)

ICT Systems Engineering. EPSEM

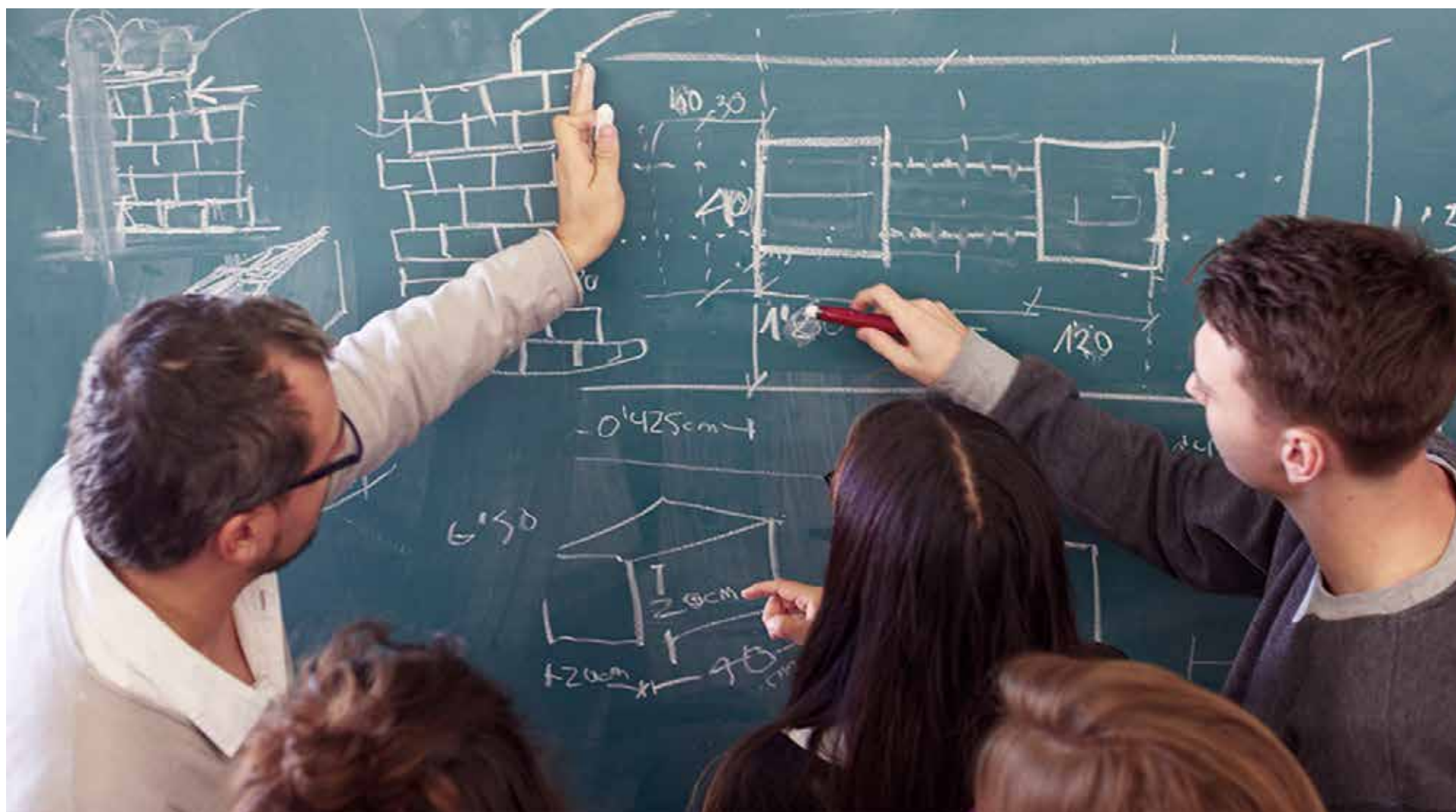
Telecommunications Technologies and Services Engineering, majors in: Audiovisual Systems / Telecommunications Systems / Network Systems. ETSETB

Network Engineering. EETAC

Master's degrees 2024/25

www.upc.edu/en/masters

Collaborative problem solving
is a common practice in classrooms,
as shown in this image from the
Barcelona School of Building
Construction (EPSEB).



Architecture, Urbanism and Building Construction

Architecture

Advanced Building Construction

Real Estate Development and Management

Diagnosis and Intervention

Techniques in Building Construction

Advanced Studies in Architecture-Barcelona (MBArch)

Advanced Studies in Design-Barcelona (MBDesign)

Building Construction Management

Sustainable Intervention in the Built Environment (MISMeC)

Landscape Architecture (MBLandArch)

Applied Sciences

Advanced Mathematics and Mathematical Engineering (MAMME)

Computer Vision

Engineering Physics

Statistics and Operations Research

Atomistic and Multiscale Computational Modelling in Physics, Chemistry and Biochemistry

Photonics

Pure and Applied Logic

Quantum Science and Technology

Occupational Health and Safety

Erasmus Mundus / Bio and Pharmaceutical Materials Science (BIOPHAM)

Erasmus Mundus / Photonics Engineering, Nanophotonics and Biophotonics (EUROPHOTONICS)

Health Sciences and Technology

Health Data Science

Biomedical Engineering

Neural Engineering and Rehabilitation

Optometry and Vision Sciences

Erasmus Mundus / Bio and Pharmaceutical Materials Science (BIOPHAM)

Aerospace Engineering

Aerospace Science and Technology (MAST)

Applications and Technologies for Unmanned Aircraft Systems (Drones)

Aerospace Engineering

Space and Aeronautical Engineering

Biosystems and Agri-Food Engineering

Aquaculture

Agronomic Engineering

Enabling Technologies for the Food and Bioprocessing Industry (TECH4AGRI+FOOD)

Civil Engineering

Civil Engineering

Structural and Construction Engineering

Mining Engineering

Geotechnical Engineering

Numerical Methods in Engineering

Oceanography and Marine Management

Structural Analysis of Monuments and Historical Constructions (SAHC)

Urban Mobility

Erasmus Mundus / Coastal and Marine Engineering and Management (CoMEM)

Erasmus Mundus / Flood Risk Management

Erasmus Mundus / Risk Assessment and Management of Civil Infrastructures (NORISK)

Industrial Engineering

Automatic Control and Robotics

Chemical Engineering

Materials Science and Advanced Materials Engineering

Textile Design and Technology

Electric Power Systems and Drives

Automotive Engineering

Biomedical Engineering

Industrial Engineering

Energy Engineering (linked to the InnoEnergy programme)

Industrial Engineering

Management Engineering

Automatic Systems Engineering and Industrial Electronics

Advanced Studies in Design-Barcelona (MBDesign)

Interdisciplinary and Innovative Engineering

Neural Engineering and Rehabilitation

Nuclear Engineering (linked to the InnoEnergy programme)

Polymers and Bioplastics

Research in Mechanical Engineering

Technology and Engineering Management

Mechanical Technologies

Paper and Graphics Technology

Thermal Engineering

Urban Mobility

Erasmus Mundus / Advanced Materials Science and Engineering (AMASE)

Erasmus Mundus / Decentralised Smart Energy Systems (DENSYS)

Erasmus Mundus / Dynamics of Renewables-based Power Systems

Erasmus Mundus / Hydrogen Systems and Enabling Technologies (HySET)

Erasmus Mundus / Science in Fire Safety Engineering (IMFSE)

Erasmus Mundus / Sustainable Systems Engineering (EMSSE)

Informatics Engineering

Artificial Intelligence

Cybersecurity

Data Science

Informatics Engineering

Innovation and Research in Informatics (MIRI)

Machine Learning and Cybersecurity for Internet-Connected Systems

Erasmus Mundus / Big Data Management and Analytics (BDMA)

Erasmus Mundus / Communications, Engineering and Data Science (CoDas)

Naval, Marine and Nautical Engineering

Naval Architecture

and Ocean Engineering

Management and Operation of Marine Energy Facilities

Nautical Science and Maritime Transport Management

Telecommunications Engineering

Advanced Telecommunication Technologies

Applications and Technologies for Unmanned Aircraft Systems (Drones)

Applied Telecommunications and Engineering Management (MASTEAM)

Cybersecurity

Electronic Engineering (MEE)

Machine Learning and Cybersecurity for Internet-Connected Systems

Quantum Science and Technology

Semiconductor Engineering and Microelectronic Design

Telecommunications Engineering (MET)

Erasmus Mundus / Communications, Engineering and Data Science (CoDas)

Teacher Training and Gender Studies

Women's, Gender and Citizenship Studies

Secondary Education, Vocational Training and Foreign Language Teaching. Specialisations in: Technology / Industrial Technology / Mathematics

Environment, Sustainability and Natural Resources

Sustainability Science and Technology

Environmental Engineering

Natural Resource Engineering

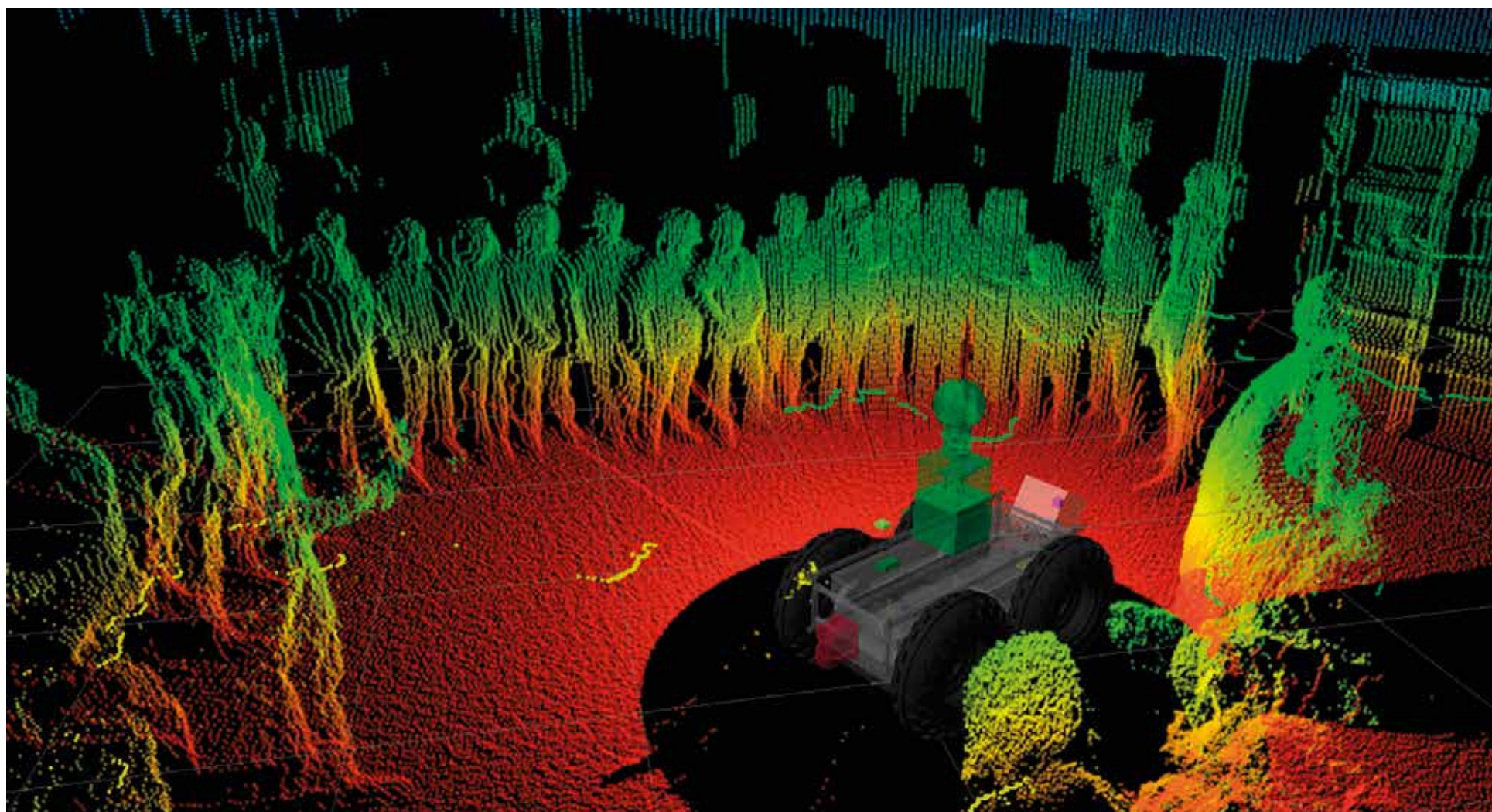
Sustainable Intervention in the Built Environment (MISMeC)

Doctoral programmes

2024/25

doctorat.upc.edu/en/programmes

Specialised research, often in the most experimental fields of knowledge, is the motivation for doctoral studies, the highest step in the teaching pathway, which culminates with the defence of a doctoral thesis.



**Architecture,
Urbanism and
Building Construction**

Architecture, Energy
and the Environment

Urban and Architectural
Management and Valuation

Architectural, Civil and Urban
Heritage and Refurbishment of
Existing Buildings

Architectural Design

Architectural, Building
Construction and Urbanism
Technology

Theory and History of Architecture

Urbanism

Sciences

Aerospace Science and Technology

Engineering, Sciences and
Technology Education

Optical Engineering

Statistics and Operations Research

Computational and Applied
Physics

Photonics

Applied Mathematics

Agri-Food Technology and
Biotechnology

**Civil and
Environmental
Engineering**

Structural Analysis

Marine Sciences

Environmental Engineering

Civil Engineering

Construction Engineering

Nautical and Marine Engineering
and Naval Radio-Electronics

Earthquake Engineering and
Structural Dynamics

Geotechnical Engineering

Sustainability

Industrial Engineering

Business Administration
and Management
(interuniversity degree)

Automatic Control, Robotics
and Vision

Supply Chain and Operations
Management

Materials Science
and Engineering

Biomedical Engineering

Electrical Engineering

Mechanical, Fluids
and Aerospace Engineering

Nuclear and Ionising Radiation
Engineering

Chemical Process Engineering

Thermal Engineering

Textile and Paper Engineering

Polymers and Biopolymers

Natural Resources
and Environment

Electric Energy Systems

ICT Engineering

Computer Architecture

Bioinformatics

Computing

Electronic Engineering

Network Engineering

Artificial Intelligence

Signal Theory
and Communications



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

Engineering
Architecture
Sciences
Technology