The master's degree in Applied Telecommunications and Engineering Management (MASTEAM) offers students a wide range of optional courses and prepares them for research or professional practice as engineers in cutting-edge information and communications technology (ICT) fields. The topics include Smart Cities, Internet of things, 5th generation of mobile communications, sensor networks, optical communications in the cloud, network management, massive data processing (Big Data) and signal processing, software-defined networking and radio (SDR and SDN), smart objects, network security, business models and management in the ICT sector. The master has mobility agreements with more than 30 European universities as well as internship agreements with more than 100 companies in the telecommunications sector.

Graduates of an official bachelor's degree (240 ECTS credits) and this master's degree may seek admission to a doctoral programme in telecommunications engineering or another ICT-related field.

**GENERAL DETAILS**

**Duration and start date**
One academic year, 60 ECTS credits. Starting September and February

**Timetable and delivery**
Mornings and afternoons. For students starting in the autumn, the first semester is taught in the afternoons and the second semester in the mornings. For students starting in the spring, the first semester is taught in the mornings and the second semester in the afternoons. Face-to-face

**Fees and grants**
Approximate fees for the master's degree, excluding degree certificate fee, €3,267 (€4,900 for non-EU residents).

**Grants for the degree**
- This master's degree was selected in the Masters of Excellence grant programme of the Catalunya-La Pedrera Foundation. More information is available at the Foundation's website.

**Language of instruction**
English

**Location**
Castelldefels School of Telecommunications and Aerospace Engineering (EETAC)

**Official degree**
Recorded in the Ministry of Education's degree register

As this is an official master's degree of the European Higher Education Area (EHEA), graduates who hold an official bachelor’s degree of at least 240 ECTS credits (4 years) and this master’s degree of 60 ECTS credits fulfill the requirement of having at least 300 ECTS in official programmes and may therefore seek admission to a doctoral programme to pursue an official doctoral degree.

**What is the difference between a master's degree and a professional master's degree?**
General requirements

Academic requirements for admission to master's degrees

Specific requirements

- An official bachelor’s degree OR pre-EHEA diploma in telecommunications or ICT engineering, specialising in telecommunications systems, telematics (computer networks), electronic systems, audiovisual systems or telecommunications science and technology, or an official master’s degree in telecommunications or ICT engineering. Any of the aforementioned degrees must have been obtained in an educational institution in a country belonging to the European Higher Education Area (EHEA).
- With complementary coursework, another engineering degree from the EHEA or a telecommunications/ICT engineering degree from outside the EHEA. A validation committee will review these applications and may propose complementary coursework.
- Language requirements: English language certificate at Level B2 or above.

Admission criteria

All applications will be evaluated according to the following criteria:

- Suitability of the student’s prior qualifications and learning in relation to the content of the master’s degree.
- Academic record.
- Curriculum vitae.
- Motivation letter and two letters of recommendation.
- Certificate of English language skills at a level above B2.

Places

25 in September and 10 in February

Pre-enrolment

Pre-enrolment closed (consult the new pre-enrolment periods in the academic calendar).

Enrolment

How to enrol

Legalisation of foreign documents

All documents issued in non-EU countries must be legalised and bear the corresponding apostille.
Professional opportunities

Graduates of this master’s degree will be experts in designing, developing and managing telecommunications projects. They may work in the creation of innovative products, systems and procedures in accordance with regulations and environmental guidelines. They will also be able to pursue advanced research careers in international R&D divisions.

Graduates of this master’s degree may work in the following industries:
- Network operation
- Provision of added-value telecommunications services
- Smart cities, Internet of Things
- Data centres
- Big data
- Companies in sectors that are currently being transformed by ICTs (automotive, audiovisual, food, logistics, energy, finance, etc.)
- Mobile applications
- Aeronautics and aerospace
- E-health
- Transport
- Research, development and innovation
- Universities
- Public administration
- E-education
- Digital entertainment
- Technical consulting
- Business consulting
- Electronic components
- Telecommunications regulators
- Computer science

Graduates of an official bachelor’s degree (240 ECTS credits) and this master’s degree may seek admission to a doctoral programme in telecommunications engineering or other ICT-related fields.

Competencies

**Generic competencies**

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

**Generic competencies**

On completion of the course, students will be able to:
- Manage and plan, at technical and management levels, ICT-based developments, research projects and innovations.
- Plan, design, develop and manage technologically feasible telecommunications projects and applications based on the need to create or update a product or process in accordance with regulatory, environmental and economic guidelines.
- Prepare or evaluate a feasibility plan for the development of a product or service for a company.
- Keep up with trends in the telecommunications market, laws and guidelines set by various organisations, existing standards and recommendations, and current ICT trends and their impact on social, economic and cultural development.
- Carry out advanced research in telecommunications in the R&D departments of companies, research centres and universities.
- Direct and lead research groups.

**Specific competencies**
On completion of the course, students will be able to:

- Design, implement and evaluate 5G and next-generation mobile communications networks.
- Design, implement and evaluate high-density heterogeneous networks using virtualisation techniques in the access network.
- Design, implement and evaluate cooperative mobile networks (Internet of Things) for various types of terminals (vehicles, home automation components, infrastructure, body sensors, etc.).
- Analyse, model and design large-scale communications networks.
- Solve optimisation problems in the field of communications networks.
- Design and implement wireless sensor networks for any application.
- Define the elements that characterise a business model for innovative ICT-based products.

ORGANISATION

UPC school
  
  Castelldefels School of Telecommunications and Aerospace Engineering (EETAC)

Academic coordinator
  
  David Rincón

Academic calendar
  
  General academic calendar for bachelor’s, master’s and doctoral degrees courses

Academic regulations
  
  Academic regulations for master’s degree courses at the UPC

CURRICULUM

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