Master's degree in Advanced Telecommunication Technologies

The master's degree in Advanced Telecommunications Technologies is a joint project of the Barcelona School of Telecommunications Engineering (ETSETB) and the Castelldefels School of Telecommunications and Aerospace Engineering (EETAC). The programme offers a broad selection of optional credits that are organised by concentration but also provide enough flexibility for students to create their own profile. On this master’s degree, you can choose one of the concentrations proposed by the schools (technical and technological specialisation at the ETSETB or cross-disciplinary courses at the EETAC) or build your own specific profile by selecting the optional subjects you are interested in at each school.

GENERAL DETAILS

Duration and start date
1 academic year, 60 ECTS credits. Starting September

Timetable and delivery
Mornings and afternoons. Face-to-face

Language of instruction
English

Location
Barcelona School of Telecommunications Engineering (ETSETB)
Castelldefels School of Telecommunications and Aerospace Engineering (EETAC)

ADMISSION

General requirements
Academic requirements for admission to master's degrees

Places
30

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

Enrolment
How to enrol

PROFESSIONAL OPPORTUNITIES

Professional opportunities
Designing, managing and executing projects in the field of telecommunications engineering, including projects related to:
- Radio, fibre-optic and copper-cable communications systems.
- Computer networks, the internet, local area networks (Ethernet, Wi-Fi).
- Audiovisual content distribution systems: voice networks, video and television distribution networks, and streaming and peer-to-peer (P2P) networks.
- Mobile phone networks.
- Radionavigation, positioning systems (GNSS).
• Artificial intelligence systems based on structured data (textual information) and unstructured data (video, speech).
• Security in communication networks: cryptography, user authentication, digital signatures.
• Electronic circuits and components: microprocessors, devices (routers, switches, etc.), sensors, actuators, transducers.
• Analogue and digital electronic technology: electronic instrumentation, medical electronics, consumer electronics, control systems, robotics, automation, etc.
• Microtechnology and nanotechnology.
• Applications in bioengineering, telemedicine, e-commerce platforms, smart cities, sensor networks, smart homes, green computing, cloud computing, etc.
• Management and administration of telecommunications companies, including both firms oriented towards planning and design and those involved primarily in the execution of engineering projects.
• Freelance work as an adviser and consultant in the field of telecommunications engineering.
• Sales engineering.
• Public administration: as a member of the statutory or contractual staff of a technical unit of any public administration (in the European Union, Spain, autonomous communities and cities) in the areas of telecommunications and ICT innovation.
• Research, development and innovation: research at public or private centres, or in the RDI departments of large companies.
• Teaching at public and private universities.

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.

Specific competencies:

• Select and use—in telecommunications applications and services such as monitoring and management of network operations, analysis and interpretation of audiovisual data, and design and verification of microelectronic circuits—a variety of automatic learning techniques and build systems that use such techniques for decision making (including autonomous decision making).
• Analyse software-managed complex systems in the area of telecommunications and its applications, such as software-defined radio systems, coding and decoding standards for audiovisual content, and firmware for embedded electronic systems.
• Design and build applications and services in the area of telecommunications based on object-oriented software, in both static and iterative development frameworks, such as software-defined radio systems, coding and decoding standards for audiovisual content, and firmware for embedded electronic systems.
• Design and implement, in the area of telecommunications and its applications, projects that are economically viable, socially acceptable and environmentally friendly.
• Integrate telecommunications engineering technologies and systems of a general nature in broader, more multidisciplinary contexts, such as automobiles and mobility, bioengineering, telemedicine and smart cities.
• Individually produce, and present and defend before an examination committee, an original work consisting of an engineering project of a professional nature in the field of information and communication technologies that draws on and demonstrates the competencies acquired on the master’s degree.

ORGANISATION

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

Academic coordinator
Jordi Casademont
## Subjects

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