Bachelor's degree in Telecommunications Systems Engineering

Bachelor's degree in Telecommunications Systems provides the cross-disciplinary training needed to conceive, design, implement and operate telecommunications systems based on generating, transmitting, receiving and processing electrical, acoustic and optical signals across the frequency spectrum, and the processing of associated information. You will learn the fundamentals and applications that will qualify you to design, implement and operate any telecommunications product, infrastructure or service based on radio systems – whether fixed or mobile, terrestrial or satellite – or on optical communications.

GENERAL DETAILS

Duration
4 years

Study load
240 ECTS credits (including the bachelor's thesis). One credit is equivalent to a study load of 25-30 hours.

Delivery
Face-to-face

Language of instruction

Check the language of instruction for each subject (and timetable) in the course guide in the curriculum.

Information on language use in the classroom and students' language rights.

Fees and grants
Approximate fees per academic year: €1,107 (€2,553 for non-EU residents). Consult the public fees system based on income (grants and payment options).

Location
Castelldefels School of Telecommunications and Aerospace Engineering (EETAC)

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

ADMISSION

Places
80 (20 February)

Registration and enrolment
What are the requirements to enrol in a bachelor's degree course?

Legalisation of foreign documents
All documents issued in non-EU countries must be legalised and bear the corresponding apostille.

DOUBLE-DEGREE AGREEMENTS

Double-degree pathways at the UPC

You have the possibility of complementing this bachelor's degree with a specific pathway towards a double degree by taking an additional number of credits from one of the other degrees taught at the School. Generally, this involves an additional year

of study. To gain admission to a double degree of this kind you must have taken a minimum number of credits on one of the bachelor's degrees. The number of places is limited.

- Bachelor’s degree in Telecommunications Systems Engineering / Bachelor’s degree in Network Engineering

PROFESSIONAL OPPORTUNITIES

Professional opportunities

- Design and development of telecommunications, telematic, audiovisual and electronic systems.
- Design and implementation of ICT systems and applications.
- Administration and operation of telecommunications and hardware.
- Programming and development of telecommunications applications.
- Project supervision and management in ICT companies.
- Freelance work: consultancy and advisory services.
- Calculations, valuations, appraisals, assessments, studies and reports in the field of telecommunications.
- Project supervision and management in technology companies and centres.
- Product research, design and innovation.

ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

Academic calendar

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

Academic regulations

Academic regulations for bachelor’s degree courses at the UPC

Language certification and credit recognition

Queries about language courses and certification

Castelldefels School of Telecommunications and Aerospace Engineering (EETAC)

CURRICULUM

Subjects	ECTS credits	Type
FIRST SEMESTER		
Business, Telecommunications and Sustainability	6	Compulsory
Calculus	6	Compulsory
Electronics for Telecommunications	6	Compulsory
Introduction to Computers	6	Compulsory
Physics	6	Compulsory
SECOND SEMESTER		
Fundamentals of Telematics	6	Compulsory
Linear Algebra and Applications	6	Compulsory
Linear Circuits and Systems	6	Compulsory
Mathematics for Telecommunications	6	Compulsory
Programming Project	6	Compulsory
THIRD SEMESTER		
Digital Circuits and Systems	6	Compulsory

Subjects	ECTS credits	Type
Digital Signal Processing	6	Compulsory
Fundamentals of Communications	6	Compulsory
Network Interconnection	6	Compulsory
Probability and Statistics	6	Compulsory
FOURTH SEMESTER		
Electromagnetic Waves in Communication Systems	7.5	Compulsory
Electronic Circuits and Power Supply Systems	6	Compulsory
Internet Architecture and Protocols	6	Compulsory
Operating Systems	6	Compulsory
Transmitters and Receivers	4.5	Compulsory
FIFTH SEMESTER		
Electronic Circuits for Telecommunications	4.5	Compulsory
Optical Communications	6	Compulsory
RF Engineering	10.5	Compulsory
Software Engineering Project	3	Compulsory
Wireless Communications	6	Compulsory
SIXTH SEMESTER		
Audiovisual Communication	6	Compulsory
Radio Software Engineering	6	Compulsory
RF Systems	6	Compulsory
Telecommunications Infrastructure and Operation	6	Compulsory
Wireless Communications Laboratory	6	Compulsory
SEVENTH SEMESTER		
Applied Engineering Projects	6	Optional
Drone Design Project	6	Optional
Electroacoustic Devices for Communications and Sensors	6	Optional
Electronic Instrumentation and Systems for Applications in Smart Cities	6	Optional
Engineering Projects	6	Optional
Fibre Optic Sensors: Technologies and Applications	3	Optional
Introduction to Technology Asset Management	3	Optional
Quantum Information Technology	6	Compulsory
Radiolocation	6	Optional
Service and Application Design	10	Optional
Smart Cities: Cybersecurity and Big Data	6	Optional
Smart Cities: Internet of Things and Augmented Reality	6	Optional
Social Impact	6	Optional
Space Systems	6	Optional
Systems and Technologies for Communications in Smart Cities	6	Optional

Subjects	ECTS credits	Type
Technical and Corporate Communication	6	Optional
Telecommunications Regulation and Policy	6	Optional
Work Placement	12	Compulsory
EIGHTH SEMESTER		
Bachelor's Thesis	24	Project