Bachelor's degree in Telecommunications Systems

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 a single school
- 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

<table>
<thead>
<tr>
<th>Subjects</th>
<th>ECTS credits</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST SEMESTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business, Telecommunications and Sustainability</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Calculus</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Electronics for Telecommunications</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Introduction to Computers</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Physics</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td><strong>SECOND SEMESTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fundamentals of Telematics</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Linear Algebra and Applications</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Linear Circuits and Systems</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Mathematics for Telecommunications</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Programming Project</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td><strong>THIRD SEMESTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Circuits and Systems</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Digital Signal Processing</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Fundamentals of Communications</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Network Interconnection</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Probability and Statistics</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td><strong>FOURTH SEMESTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjects</td>
<td>ECTS credits</td>
<td>Type</td>
</tr>
<tr>
<td>--------------------------------------------------------------</td>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Electromagnetic Waves in Communication Systems</td>
<td>7.5</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Electronic Circuits and Power Supply Systems</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Internet Architecture and Protocols</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Operating Systems</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Transmitters and Receivers</td>
<td>4.5</td>
<td>Compulsory</td>
</tr>
<tr>
<td><strong>FIFTH SEMESTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic Circuits for Telecommunications</td>
<td>4.5</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Optical Communications</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>RF Engineering</td>
<td>10.5</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Software Engineering Project</td>
<td>3</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Wireless Communications</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td><strong>SIXTH SEMESTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audiovisual Communication</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Radio Software Engineering</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>RF Systems</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Telecommunications Infrastructure and Operation</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Wireless Communications Laboratory</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td><strong>SEVENTH SEMESTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applied Engineering Projects</td>
<td>6</td>
<td>Optional</td>
</tr>
<tr>
<td>Drone Design Project</td>
<td>6</td>
<td>Optional</td>
</tr>
<tr>
<td>Electronic Instrumentation and Systems for Applications in Smart Cities</td>
<td>6</td>
<td>Optional</td>
</tr>
<tr>
<td>Engineering Projects</td>
<td>6</td>
<td>Optional</td>
</tr>
<tr>
<td>Fibre Optic Sensors: Technologies and Applications</td>
<td>3</td>
<td>Optional</td>
</tr>
<tr>
<td>Introduction to Technology Asset Management</td>
<td>3</td>
<td>Optional</td>
</tr>
<tr>
<td>Quantum Information Technology</td>
<td>6</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Radiolocation</td>
<td>6</td>
<td>Optional</td>
</tr>
<tr>
<td>Service and Application Design</td>
<td>10</td>
<td>Optional</td>
</tr>
<tr>
<td>Smart Cities: Cybersecurity and Big Data</td>
<td>6</td>
<td>Optional</td>
</tr>
<tr>
<td>Smart Cities: Internet of Things and Augmented Reality</td>
<td>6</td>
<td>Optional</td>
</tr>
<tr>
<td>Social Impact</td>
<td>6</td>
<td>Optional</td>
</tr>
<tr>
<td>Space Systems</td>
<td>6</td>
<td>Optional</td>
</tr>
<tr>
<td>Systems and Technologies for Communications in Smart Cities</td>
<td>6</td>
<td>Optional</td>
</tr>
<tr>
<td>Technical and Corporate Communication</td>
<td>6</td>
<td>Optional</td>
</tr>
<tr>
<td>Telecommunications Regulation and Policy</td>
<td>6</td>
<td>Optional</td>
</tr>
<tr>
<td>Work Placement</td>
<td>12</td>
<td>Compulsory</td>
</tr>
<tr>
<td><strong>EIGHTH SEMESTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor's Thesis</td>
<td>24</td>
<td>Project</td>
</tr>
</tbody>
</table>