

Bachelor's degree in Engineering Physics

The **bachelor's degree in Engineering Physics**, the first of its kind in Spain, is aimed at students with a strong aptitude for physics and mathematics who wish to apply the principles of these basic sciences to technological problems in a multidisciplinary environment, and who accept the challenge of inventing the technology of the future and pursuing research that will transform the world. You will learn about fundamental concepts of physics as they are applied in various branches of engineering, gaining knowledge that will enable you to understand basic scientific principles and their application in the key emerging technologies that will drive development in the years ahead: photonics, nanotechnology, micro- and nanoelectronics, advanced materials and biotechnology. With this grounding, you will be able to pursue any master's degree offered worldwide that is related to physics and new technologies, as well as others master's degrees in engineering disciplines such as telecommunications engineering, electronic engineering, industrial engineering and bioengineering. Graduates may be employed in industry, technology companies, research and development centres and laboratories, universities and public administrations, where they may occupy posts of greater or lesser responsibility depending on their experience, aptitudes and personal interests, or they may become entrepreneurs.

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

[Barcelona School of Telecommunications Engineering \(ETSETB\)](#)

Official degree

[Recorded in the Ministry of Education's degree register](#)

ADMISSION

Places

44

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

Within the framework of the courses offered by the Interdisciplinary Higher Education Centre (CFIS)

You can also take an interdisciplinary double degree coordinated by the CFIS at two UPC schools.
Further information on the [CFIS website](#)

PROFESSIONAL OPPORTUNITIES

Professional opportunities

Graduates may go on to become researchers; specialists, including heads of projects, areas and departments; and entrepreneurs, in the following settings:

- High-tech industry
- Electronics and nanotechnology industry
- Telecommunications companies
- Biotechnology, biomedicine and pharmaceutical companies
- Companies that design systems and services based on new technologies
- Technology consultancies
- Technology centres
- Research and development centres
- Research centres and laboratories
- Universities and research
- Teaching

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](#)

Barcelona School of Telecommunications Engineering (ETSETB)

CURRICULUM

Subjects	ECTS credits	Type
FIRST SEMESTER		
Calculus 1	6	Compulsory
Inorganic Chemistry	6	Compulsory
Linear Algebra and Geometry	6	Compulsory
Numerical and Computational Methods 1	6	Compulsory
Physics 1	6	Compulsory
SECOND SEMESTER		
Biophysics 1	6	Compulsory
Calculus 2	6	Compulsory
Mathematical Methods 1	6	Compulsory
Organic Chemistry and Biochemistry	6	Compulsory
Physics 2	6	Compulsory

Subjects	ECTS credits	Type
THIRD SEMESTER		
Mathematical Methods 2	6	Compulsory
Mechanics	6	Compulsory
Probability and Statistics	6	Compulsory
Quantum Physics	6	Compulsory
Thermodynamics	6	Compulsory
FOURTH SEMESTER		
Circuit Theory	6	Compulsory
Electromagnetism	6	Compulsory
Instrumentation	6	Compulsory
Numerical and Computational Methods 2	6	Compulsory
Statistical Physics	6	Compulsory
FIFTH SEMESTER		
Biophysics 2	6	Compulsory
Electromagnetic Waves	6	Compulsory
Projects of Engineering Physics 1	6	Compulsory
Signal Theory	6	Compulsory
Solid State	6	Compulsory
SIXTH SEMESTER		
Control Theory	6	Compulsory
Photonics	6	Compulsory
Physical Electronics	6	Compulsory
Projects of Engineering Physics 2	6	Compulsory
Quantum Mechanics	6	Compulsory
SEVENTH SEMESTER		
Advanced Materials	6	Optional
Astrophysics and Cosmology	6	Optional
Biomedical Photonics	6	Optional
Computational Biophysics	6	Optional
Computer Programming and Its Applications	6	Optional
Computer Simulation of Condensed Matter	6	Optional
Ethics in Science and Engineering	6	Optional
General Relativity	6	Optional
Nanotechnology	6	Optional
Physics of Fluids	6	Optional
Quantum Optical Technologies	6	Optional
EIGHTH SEMESTER		
Bachelor's Thesis	30	Project

