

Master's degree in Engineering Physics

The **master's degree in Engineering Physics** is oriented towards frontier engineering based on advanced education in physics. Specialist engineering fields such as nanotechnology, nanoelectronics and biomedical engineering require an ever-growing number of professionals who have extensive training in advanced physics and sound knowledge of quantum physics, complex system physics and device physics, which can be applied both at the nanoscopic scale and in large-scale facilities.

Applicants must prove that they have a bachelor's degree in Physics or Engineering Physics and that they have passed 240 ECTS credits.

GENERAL DETAILS

Duration and start date

One academic year, 60 ECTS credits. Starting September

Timetable and delivery

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).

[More information about fees and payment options](#)

[More information about grants and loans](#)

Language of instruction

English

Official degree

Official university degree.

ADMISSION

General requirements

[Academic requirements for admission to master's degrees](#)

Specific requirements

Applicants must prove that they have a bachelor's degree in Physics or Engineering Physics and that they have passed 240 ECTS credits.

Places

30

Pre-enrolment

Pre-enrolment period open.

Open until **13 December 2019**.

[How to pre-enrol](#)

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

Professional opportunities

- Industries with a strong technology component.
- Basic and applied research centres.
- Frontier engineering in the field of nanotechnology.
- Research centres and large-scale facilities, as a qualified specialist.
- Doctoral training in research centres and 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.

ORGANISATION

UPC school

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

Academic coordinator

[Jordi Martí Rabassa](#)

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

Subjects

ECTS credits

Type

FIRST SEMESTER

Critical Phenomena and Complexity	5	Compulsory
Large Facilities: Synchrotron and Neutron Sources	5	Compulsory
Machine Learning with Neural Networks	4	Optional
Numerical Methods for Continuum Systems	4	Optional
Physics of Materials	4	Optional
Project Management	3	Compulsory
Quantum Matter	5	Compulsory
Surface Engineering and Microdevices	5	Compulsory

SECOND SEMESTER

Atomic and Molecular Physics	4	Optional
Complexity in Biological Systems	4	Optional

Subjects	ECTS credits	Type
Computational Astrophysics	4	Optional
Laser Applications in Remote Sensing: Lidar	3	Optional
Molecular and Soft Condensed Matter	4	Optional
Stochastic Methods for Optimization and Simulation	4	Optional
Master's Thesis	17	Project

November 2019. [UPC](#). Universitat Politècnica de Catalunya · BarcelonaTech