

# Master's degree in Engineering Physics

The **master's degree in Engineering Physics** ([master's degree website](#)) 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.

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## GENERAL DETAILS

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### Duration and start date

One academic year, if starting in September and one and a half academic year, if starting in February, 60 ECTS credits.  
Starting February and September

### Timetable and delivery

Mornings. Face-to-face

### Fees and grants

Approximate fees for the master's degree, excluding other costs, €1,660 (€4,150 for non-EU residents).

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

[More information about grants and loans](#)

### Language of instruction

English

Information on [language use in the classroom and students' language rights](#).

### Official degree

Official university degree.

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## ADMISSION

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### 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

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### Pre-enrolment

Pre-enrolment closed (consult the new pre-enrolment periods in the [academic calendar](#)).

[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: ACADEMIC CALENDAR AND REGULATIONS

### 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
<b>FIRST SEMESTER</b>		
Atomic and Molecular Physics	4	Optional
Computational Astrophysics	4	Optional
Critical Phenomena and Complexity	5	Compulsory
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
<b>SECOND SEMESTER</b>		
Biophysical and Materials Science Characterisation	4	Optional
Complexity in Biological Systems	4	Optional
Large Facilities: Synchrotron and Neutron Sources	5	Compulsory

<b>Subjects</b>	<b>ECTS credits</b>	<b>Type</b>
Machine Learning with Neural Networks	4	Optional
Materials Science of Drugs	4	Optional
Molecular and Soft Condensed Matter	4	Optional
Stochastic Methods for Optimization and Simulation	4	Optional
Master's Thesis	17	Project

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August 2022. [UPC](#). Universitat Politècnica de Catalunya · BarcelonaTech