

# Erasmus Mundus master's degree in Photonics Engineering, Nanophotonics and Biophotonics (Europhotonics)

The **Erasmus Mundus master's degree in Photonics Engineering, Nanophotonics and Biophotonics**, coordinated by the **Université Paul Cézanne Aix-Marseille III** and with the **UPC as a participant**, ([master's degree website](#)) offers an opportunity for further study of theoretical, experimental and applied photonics, particularly photonics engineering, nanophotonics and biophotonics. It includes courses on photonic materials science, nanophotonics, quantum optics, optical engineering, biomedical microscopy and photonics, spectroscopy and renewable energy.

Students can go on work placements and apply for Erasmus Mundus grants.

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## GENERAL DETAILS

### Duration and start date

Two academic years, 120 ECTS credits. Starting September

### Timetable and delivery

Afternoons. Face-to-face

### Scholarships

Students can go on work placements and apply for Erasmus Mundus grants.

### Language of instruction

English

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

### Location

[Escola Tècnica Superior d'Enginyeria de Telecomunicació de Barcelona \(ETSETB\)](#)

### Official degree

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

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## ADMISSION

### General requirements

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

### Places

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### Pre-enrolment

To enrol for an interuniversity master's degree coordinated by a university other than the UPC, you must enrol through the coordinating university:

[Université Paul Cézanne Aix-Marseille III \(France\)](#)

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## PROFESSIONAL OPPORTUNITIES

### Professional opportunities

At present, there is a recognised shortage of manpower for both research-related posts and industrial jobs in photonics-related technologies. In addition, the creation of small, tech-based, spin-off photonics companies is requiring an ever greater number of specialised professionals. Students will be put in touch with photonics-related research groups at partner institutions, which offer doctoral programmes with EU grants.

## 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.

### Specific competencies

On completion of the course, students will be able to:

- Understand and integrate advanced theoretical fundamentals of photonics, particularly in the fields of photonics engineering, nanophotonics and biophotonics.
- Approach research ideas, developments and applications in an original manner.
- Understand photonics as an interdisciplinary scientific and technological discipline that is connected to other disciplines such as physics, chemistry, biology, materials science and renewable energies.
- Interpret the main phenomena associated with optics/photonics and apply the knowledge and problem-solving skills acquired to theoretical, experimental and technological aspects of photonics.
- Apply the scientific method, integrate knowledge and be discriminating when they are reading photonics research and interpreting incomplete and sometimes apparently contradictory experimental, observational and theoretical data.

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## ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

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### European programme

Erasmus Mundus

### UPC school

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

### Participating institutions

[Universitat Politècnica de Catalunya \(UPC\)](#)

[Institute of Photonic Sciences \(ICFO\)](#)

[Universitat Autònoma de Barcelona \(UAB\)](#)

[Universitat de Barcelona \(UB\)](#)

[Universität Karlsruhe \(Germany\)](#)

[Université Paul Cézanne Aix-Marseille III \(France\)](#) - **coordinating** university

### Academic coordinator

[Crina Cojocaru](#)

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## CURRICULUM

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### Subjects