EUROPEAN MASTER OF SCIENCE IN PHOTONICS

PROGRAMME JOINTLY OFFERED BY GHENT UNIVERSITY, VRIJE UNIVERSITEIT BRUSSEL

120 ECTS CREDITS - LANGUAGE: ENGLISH

The European Master of Science in Photonics is being phased out. You can enrol for our **new curriculum** in the '[Master of Science in Photonics Engineering]'.

WHAT

Photonics is now widely recognised as a major innovation enabling discipline for the 21st century. It can be defined as the field of science and technology where the fundamental properties of light and its interaction with matter are studied and applied. For several decades photonics has been penetrating in more and more applications and household appliances. At the moment, photonics is a discipline of key importance in industrial sectors such as tele- and data communication, display and camera industry, biotechnology, solar energy, medical instrumentation, laser material processing, etc. The European Master of Science in Photonics is a multi-disciplinary programme covering basic physics, material technologies, electronics and applications in different fields. Students will be trained to become specialists in the field. Key features of this programme are the extensive student mobility opportunities and the multidisciplinary engineering modules in Electronics & Information Technology, Physics & Materials or Life Sciences.

STRUCTURE

The European Master of Science in Photonics is a two year (120 credits) English taught programme, based on four pillars: a strong backbone of core photonics courses, specialisation in a broad spectrum of advanced photonics courses, a secondary specialisation in a related field (multidisciplinary engineering modules) and a master's dissertation. During the first year, the focus is on courses covering the fundamentals of photonics: light propagation in complex media, basic understanding of the properties of optical materials and lasers. Thereby both theoretical knowledge as well as practical skills are addressed. During the second year there is room for advanced photonics electives, multidisciplinary engineering courses and the master's dissertation.

Engineering Modules

As photonics engineers mostly work in multidisciplinary environments where the knowledge and skills in other engineering domains are important assets, students can, besides further taking up specialized photonics electives, broaden their horizon by taking up one of the Engineering Modules. The modules on offer are: Electronics & Information Technology, Physics & Materials, Life Sciences and Business Engineering & Entrepreneurship

Mobility Opportunities

Students have a broad range of options for engaging in international mobility: Taking courses (30 credits) at a partner institute; carrying out their Master's dissertation fully or partly at a partner institute (30 credits); courses (30 credits) AND master's dissertation (30 credits) at a partner institute; carrying out a long internship (>10 weeks, 10 credits) at a company or research institute abroad.

About the partner institutes

The programme has set up collaborations with a number of European universities and research institutes offering high quality programmes in photonics. Some of these partner institutes offer a full programme (courses + dissertation) while others offer only courses or only a dissertation. For the partner institutes offering courses the programme board has preselected a number of specialised photonics courses and multi-disciplinary courses from which the student can easily construct a programme fulfilling the requirements. The partner institutes are geographically spread over Europe and have their own specific profile allowing the student to specialise in virtually any subdiscipline of photonics. More details about the partner institutes can be found on the website of the programme (www.masterphotonics.be). At the end the master, a summer symposium is organised, bringing together all students at a single location. At this symposium the second master students present their master's dissertation and lectures will be held by leading international experts in photonics.

Master's Dissertation

The master's dissertation is an original work about a specific topic in photonics. In general it consists of a literature study combined with practical work in the form of simulation, modelling, fabrication and/or measurements of photonic components. The completion of the master's dissertation is a requirement to obtain the degree of master of science in photonics engineering.

LABOUR MARKET

The aim of this master's programme is to form engineers and scientists with solid basic knowledge in the field of photonics and with the skills to apply this knowledge to the design, realisation and the management of photonic systems for a broad range

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of application domains. Furthermore the students will have the opportunity to broaden their knowledge and skills in other domains such as ICT, biosciences, physics and chemistry of materials, industrial management etc. Therefore graduates are expected are expected to be offered a broad range of future opportunities, including: research in high technology companies, in particular photonics related companies; research in academic laboratories and research institutes (possibly in PhD context); development of new photonic products in industry; technical support in a company for its products or services; technical marketing and sales.

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FACULTY OF ENGINEERING AND ARCHITECTURE

2021-22

ADMISSION REQUIREMENTS FOR INTERNATIONAL DEGREE STUDENTS

Information on admission requirements and the administrative procedure for admission to this study programme, can be found on the following page: https://studyphotonics.com/.

Foreign students need to be in possession of a bachelor degree in Electrical engineering, in (Applied) Physics, Material Science or an equivalent of this to be admitted to the programme. Students in possession of another bachelor degree might need to follow a preparatory programme. The educational board will make the final decision whether to accept the application or not.

LANGUAGE REQUIREMENTS

Language requirements Dutch: no language requirements

Language requirements for this study programme differ from the required standard level for English taught study programmes as specified in the Ghent University Education and Examination Code:
English: TOEFL 570 (paper-based) - TOEFL 87 (internet-based) - TOEFL 213 (computer-based) - IELTS: 6.5 (with a minimum of 6.0 for every part) - Cambridge Certificate of Advanced English (CAE): grade B - Cambridge Certificate of Proficiency in English (CPE): grade C - Certificate B2 awarded by a university language centre
Prospective students are **exempted from** the applicable language requirements if they have obtained one of the following diplomas or certificates:

- a secondary education diploma awarded by (an educational institution that is recognized by) the Flemish Community;
- a higher education diploma awarded by an institute of higher education that is recognized by the Flemish Community;
- a certificate confirming that the student passed one year or at least 60 credits of study in a English-language secondary or higher education

PRACTICAL INFORMATION

Study programme

studiekiezer.ugent.be/european-master-of-science-in-photonics-en/programma

Information sessions

Graduation Fair

afstudeerbeurs.gent/en/students/further-studies

Enrolling institution

Ghent University, Vrije Universiteit Brussel

Information on enrolment at Ghent University.

Application Deadline (for International degree students)

The international master has a specific application procedure.

Tuition fee

More information is to be found on: www.ugent.be/tuitionfee

Contact
Ghent University
Faculty of Engineering and Architecture
Opleidingscommissie Fotonica
Peter Bienstman
Tech Lane Ghent Science Park 126
9052 Gent
peter.bienstman@ugent.be
International Relations Officer
Degree students
T +32 9 264 36 99
International.ea@UGent.be

www.studyphotonics.com

GHENT UNIVERSITY

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