European Master of Science in Photonics

For next generation engineers in the driver seat for innovative technology developments

B-PHOT: www.b-phot.org/
APHY: we.vub.ac.be/nl/applied-physics

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“PHOTONICS” is the science and technology that innovates with the unique properties of light
6 key technologies are currently enabling the processes of discovery and innovation:

- Biotechnology
- Nanotechnology
- Nanoelectronics
- Advanced Manufacturing
- Advanced Materials
- Photonics
Photonics light the future
In 1994 VUB started the first curriculum for photonics engineers... on the European continent

25 years of expertise in training and photonics research
# 2 master programmes

<table>
<thead>
<tr>
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<th>Master Fotonica</th>
<th>European Master in Photonics</th>
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<tbody>
<tr>
<td><strong>Partners</strong></td>
<td>VUB, UGent</td>
<td>VUB, UGent</td>
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<tr>
<td><strong>Teaching language</strong></td>
<td>Dutch</td>
<td>English</td>
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<td></td>
<td>(part of course modules in English)</td>
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<tr>
<td><strong>First Master</strong></td>
<td>Fundamental courses</td>
<td>Fundamental courses</td>
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<td></td>
<td>Hands-on training</td>
<td>Hands-on training</td>
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<tr>
<td><strong>Second Master</strong></td>
<td>Specialisation courses</td>
<td>Specialisation courses</td>
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<tr>
<td></td>
<td>Internship min. 5 weeks</td>
<td>Internship min. 10 weeks</td>
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<td></td>
<td>Master Thesis in Belgium @VUB or UGent</td>
<td>International mobility</td>
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<td></td>
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<td>Master thesis @VUB or UGent</td>
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<td></td>
<td>Or @ partner university abroad</td>
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<tr>
<td><strong>Engineering Degree</strong></td>
<td>Joint degree VUB-UGent</td>
<td>Joint degree VUB-UGent</td>
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[www.masterphotonics.be](http://www.masterphotonics.be)
PROGRAM HIGHLIGHTS

- Core and advanced photonics courses
- Specialized courses in electronics, physics, optics and engineering
- Strong focus on hands-on training in photonics skills
- Master thesis project in highly equipped research labs
- International experience

www.masterphotonics.be
### Core photonics courses

- Photonics
- Optical Materials
- Microphotonics
- Mathematics in Photonics
- Lasers
- Optical Communication Systems
- Sensors and Microsystem Electronics
- Physics of semiconductor technologies and devices
- Laboratories in Photonics Research

### Advanced photonics courses

- Biophotonics
- Optical Sensors
- Optical Spectroscopy of Materials
- Non-linear optics
- High Speed Photonic Components
- Technological processes for photonics and electronics: Laboratory
- Introduction to Quantum Physics for Electrical Engineering
- Photovoltaic Energy Conversion
- Display Technology
- Quantum optics
- Micro- and nanophotonic semiconductor devices
- Design of Refractive and Diffractive Optical Systems
- Optical design with ray tracing software: Laboratory
- Internship in Photonics

[www.masterphotonics.be](http://www.masterphotonics.be)
Hands-on-training skills in research labs

from empty table to solution
Multidisciplinary approach bonus

Set of multidisciplinary courses (18 ECTS):

- Module Modeling, Measuring and Control Systems
- Module Electronics and Information Technology
- Module Physics and Materials
- Module Life Sciences
- Module Business Engineering

Sara Van Overmeire

Alumnus
advisor Flanders Innovation & Entrepreneurship VLAIO

"If you like physics, optics and materials science, go for a master in photonics and you will be able to translate your knowledge into a variety of next-generation applications.

From novel 3D printing technologies to biosensors for cancer diagnosis."

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In academics as well as in industry, international experience, being mobile, learning to adapt to different circumstances/cultures, is a very important asset and in some cases even a must.

Source: European Commission Press Release IP-14-1025: Erasmus Impact Study confirms EU student exchange scheme boosts employability and job mobility
Close to industry

internships, lectures, thesis, events

“I enjoyed my internship within AMS/CMOSIS very much. A great experience to learn how companies work and how vital precise measurements are in real-life projects.”

Cheyenne Goeminne
2nd year master student
European Master of Science in Photonics

“For the industry, photonics engineers can make the quantum leap. Shaping the photonic industrial revolution starts with the right education.”

Jan Watté
group leader R&D Optics
Advanced Engineering CommScope

CMOSIS
image sensors

COMMSCOPE®

VUB
VRIJE UNIVERSITEIT BRUSSEL

www.masterphotonics.be
Academic and Industrial Photonics Internship

Internship (4ECTS or 10 ECTS)
summer between 2 master years

www.masterphotonics.be
Photonics Networking Events: Preparation of the graduates for the job market
Photonics Partners

Photonics in industry

COMMSCOPE®

TOMRA

European Photonics Platforms

SMETHODS

ACT MOST

ePIXFab

VRIJE UNIVERSITEIT BRUSSEL

Elevator pitches

HAMAMATSU

KLA-Tencor

Agfa-Labs

CMOSIS

ALTRAN

EUMINA fab

Xenics

Melexis

Caliopa

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Photonics After-Class Events: Light Night, bootcamp, ...
### Industry

| 65 % | ICT  
|      | Telecommunication  
|      | IoT  
|      | Manufacturing  
|      | Nanotechnology  
|      | Spin Offs  

- R&D  
- Project Management  
- Consultancy  
- Business Development

### Research

| 35 % | Applied  
|      | Industrial  
|      | Fundamental  

- PhD researcher 4 years  
- PostDoc researcher

### Education

- Professor  
- Belgium  
- International

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*The programme provides you with an analytical skillset that is far above average. In combination with the very valuable focus on industrial photonics applications, you will be prepared to go the extra mile and tackle challenging problems in your future career.*

-Alumnus Gilles Claeyss, product manager Barco (Belgium)
International community
Multidisciplinary English programme
Good balance between theory & research skills
Renowned professors in photonics research
Integrated Enterpreneurship & Innovation
Job opportunities & high employability rate
Ready to spark the light and make a difference?

**3rd BACHELOR**

- EIT (Electronica & IT)
- (Applied) Physics
- Other IR bachelors
- WE bachelors

**Master Photonics**

- 120 ECTS
  - Joint master degree
  - Photonics, optics, engineering, physics & electronics
  - Research skills
  - Projects & labs
  - International tracks
  - Industry based

Customized Preparatory Program where possible starting in 3rd bachelor

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21 MAART 2020
PHOTONICS BOOTCAMP
VOOR BACHELORSTUDENTEN

WORKSHOPS
KEYNOTES
LAB VISIT
EXPERIMENTEN

CHECK OUT OUR NEW
PHOTONICS INNOVATION CAMPUS

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