



LUND  
UNIVERSITY

# MSc in Photonics

LUND UNIVERSITY | SWEDEN

- Master of Science in Photonics
- 2 years, full-time, 120 ECTS credits
- Faculty of Engineering
- Lund Campus
- Application deadline: January 2022
- Programme start: August 2022

## PROGRAMME OVERVIEW

The 21st century is the century of the photon. Photonics technology lies behind the modern internet and is what gives us today unprecedented access to information and knowledge. Lasers and related technologies have become indispensable in almost all fields of science, manufacturing and society. If for cutting, welding or drilling in industrial production, for imaging, diagnosis and treatment in medicine or for light harvesting and illumination in places that are off the electrical grid, photonics technology is today virtually everywhere.

The Photonics programme at Lund University aims at educating talented students in the science and technology that lies behind the photonics revolution. You will obtain in-depth understanding of optics and laser technology as well as practical experience in optical design. You will experience working in modern optics and laser laboratories and gain detailed knowledge of important photonics applications (e.g. communication or medical optics). The education programme is coupled to world-leading research activities in optics, lasers and their applications, performed at the Lund Laser Centre. You will obtain universal skills preparing you for excelling both in industrial or academic future careers.

## PROGRAMME MODULES/COURSES

**Compulsory courses and number of ECTS credits:** Optics and Optical Design (7.5), Lasers (7.5), Optoelectronics and Optical Communication (7.5) Advanced Optics and Lasers (7.5), Master's degree project (30). **Electives Mandatory:** Medical Optics (7.5) Atomic and Molecular Spectroscopy (7.5). **Electives:** A number of 7.5 credit/ECTS courses available in the areas of digital communication, nano-technology, ultrafast science, bio-photonics and applied spectroscopy.

## CAREER PROSPECTS

The employment opportunities in photonics are excellent. The photonics market features stable growth much beyond the global GDP growth. Applications of photonics include light sensing, telecommunication, information processing, illumination, metrology, spectroscopy, medicine, laser material processing, automotive robotics and defence. The photonics industry is truly global and International enterprises offer job

opportunities all over the world. A number of photonics related companies (e.g. Axis Communications, NKT Photonics, Veoneer, Ericsson) are located in Lund or the greater Öresund region. PhotonicSweden represents the optics industry in Sweden. Two international research facilities create additional opportunities for photonics engineers in Lund – MAX IV, a modern synchrotron of the latest generation, and ESS, the European Spallation Source that is currently under construction.

## ENTRY REQUIREMENTS AND HOW TO APPLY

### Entry requirements

A Bachelor's degree in science or engineering. Completed courses of at least 40 credits/ECTS in physics and 30 credits/ECTS in mathematics, covering quantum mechanics, electromagnetism, basics in optics, multi-dimensional calculus, linear algebra and Fourier analysis. English Level 6.

### How to apply

- 1. Apply online:** Go to [www.lunduniversity.lu.se/photonics](http://www.lunduniversity.lu.se/photonics). Click on "Apply" and follow the instructions for the online application at [www.universityadmissions.se](http://www.universityadmissions.se), the Swedish national application website. Rank the chosen programmes in order of preference.
- 2. Submit your supporting documents:**
  - **General supporting documents:** Check what documents you need to submit (i.e. official transcripts, degree diploma/proof of expected graduation, translations, proof of English, passport) and how you need to submit them at [www.universityadmissions.se](http://www.universityadmissions.se).
  - **Programme-specific supporting documents:** For information on programme-specific documentation, please check the programme webpage.
- 3. Pay the application fee (when applicable)**

### Tuition fees

Tuition fee SEK 145 000 per year for non-EU/EEA citizens. No fee for EU/EEA citizens. See [www.lunduniversity.lu.se](http://www.lunduniversity.lu.se) for details on tuition fees.

### Selection criteria/additional information

The selection is based on academic qualifications and on a statement of purpose.

## ABOUT THE FACULTY OF ENGINEERING

The Faculty of Engineering, LTH, is a place for dreams and discoveries. We inspire creative development of technology, architecture and design and teach some of Sweden's most attractive Master's programmes, all built on a broad research base. LTH is among the leading engineering faculties in Europe



with nearly 10 000 students. Over 1 000 researchers at LTH work hard to improve the quality of life for people and promote more careful use of the Earth's resources. A world record in 5G technology, solar cell-driven water purification, early cancer diagnosis, nanotechnology for more efficient solar panels, and a health-promoting oat drink are some of the innovations developed at LTH. Together we explore and create – for the benefit of the world.

#### ABOUT LUND UNIVERSITY

Lund University was founded in 1666 and is repeatedly ranked among the world's top 100 universities. The University has around 44 000 students and more than 8 000 staff based in Lund, Helsingborg and Malmö. We are united in our efforts to understand, explain and improve our world and the human condition.

Lund is considered one of the most popular study locations in Sweden. The University offers one of the broadest ranges of programmes and courses in Scandinavia, based on cross-disciplinary and cutting-edge research. The unique disciplinary range encourages boundary-crossing collaborations both with-

in academia and with wider society, creating great conditions for scientific breakthroughs and innovations. The University has a distinct international profile, with partner universities in almost 70 countries.

Lund University has an annual turnover of more than EUR 880 million, of which two-thirds go to research in our nine faculties, enabling us to offer one of the strongest and broadest ranges of research in Scandinavia.

The establishment of the world-leading facilities MAX IV and European Spallation Source (ESS) will have a major impact on future scientific and industrial development in both materials science and life science. MAX IV is the leading synchrotron radiation facility in the world while ESS will feature the world's most powerful neutron source when it starts producing neutrons in 2023. These facilities together with the new University campus in Science Village will constitute a science complex and an international hub for research, education and innovation in which Lund University plays a central role.

#### CONTACT

Programme webpage:  
[www.lunduniversity.lu.se/  
photonics](http://www.lunduniversity.lu.se/photonics)

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Learn more at [www.lunduniversity.lu.se](http://www.lunduniversity.lu.se)  
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