



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 2021
- Programme start: August 2021

Programme overview

The 21st century is the century of the photon and photonics is the science and technology of generating, controlling and detecting photons. Lasers and related technologies are today indispensable tools in very diverse fields of science, manufacturing and medical applications. Light-emitting diodes replace our traditional lighting and contribute to lowering global power energy consumption. Photonic technology, i.e. optical fibers and integrated photonic devices, is the backbone of global communication and information exchange, with transformational impact on today's global society. Laser-based imaging, diagnostics and treatment methods revolutionise the life-science sector.

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, laser science and bio-photonics.

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. While the photonics industry is truly global, a number of photonics related companies (e.g. Axis Communications, NKT Photonics, Veoneer, Ericsson) exist in Lund and the greater Öresund region and two international research facilities create additional opportunities for photonics engineers – MAX IV, a synchrotron radiation laboratory that opened in Lund in June 2016, 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 (equivalent to IELTS 6.5, TOEFL 90). See www.lunduniversity.lu.se for details.

HOW TO APPLY

1. **Apply online:** Go to www.lunduniversity.lu.se/photonics. Click on "Apply" and follow the instructions for the online application at the Swedish national application website www.universityadmissions.se. 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
- **Programme-specific supporting documents:** For information on programme-specific documentation, please check the programme webpage.

3. Pay the application fee (when applicable).

SELECTION CRITERIA/ADDITIONAL INFO

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

TUITION FEES

There are no tuition fees for EU/EEA citizens. For non-EU/EEA citizens, the tuition fee for this programme is SEK 145 000 per year. See www.lunduniversity.lu.se for details on tuition fees.

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 close to 10 000 undergraduate students. Over 1 000 researchers at LTH work hard to improve the quality of life for people and promote a more careful use of the Earth's resources. Our vision is: Together we explore and create – for the benefit of the world. 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.

About Lund University

Lund University was founded in 1666 and is repeatedly ranked among the world's top 100 universities. The University has 40 000 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 the most popular study location in Sweden. The University offers one of the broadest ranges of degree programmes and courses in Scandinavia, based on cross-disciplinary and cutting-edge research. Because of its wide disciplinary range, interdisciplinary collaborations and engagement with wider society, Lund University is particularly well equipped to meet complex societal challenges. With partner universities in around 70 countries, the University's profile is distinctly international.

Learn more at www.lunduniversity.lu.se

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CONTACT

Programme webpage

www.lunduniversity.lu.se/photonics

Programme Director

Cord Arnold, msc.photonics@lth.lu.se