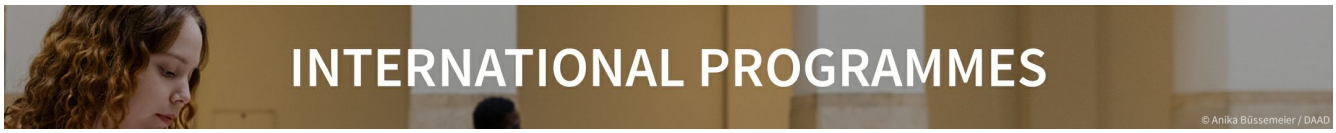
Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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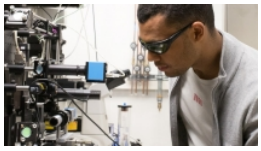
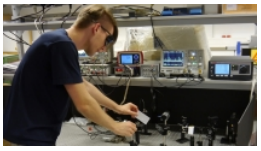
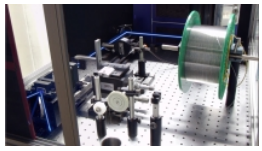
Master's degree

Photonics (MSc)

Hochschule München University of Applied Sciences • München




Overview

Degree	MSc
Teaching language	• English
Languages	The programme is taught entirely in English. All teaching materials, lecture notes, and internship instructions will be provided in English. Most of these materials (lecture notes, screen casts, etc.) are additionally available in German. Students have the option of giving one of the colloquium presentations in German or English. The Master's thesis can be written in German or English. German language courses are offered by the Department for General Studies.
Full-time / part-time	• full-time • part-time (study alongside work)
Programme duration	3 semesters, 6 semesters
Beginning	Winter and summer semester
Additional information on beginning, duration and mode of study	https://sci.hm.edu/studierende/studiengaenge/master/photonics/index.en.html
Application deadline	2 May to 15 June for the following winter semester 15 November to 15 January for the following summer semester https://hm.edu/en/your_stay_at_hm/students/fulltime/uebersichts____startseite_variante_31.en.htm
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No

Description/content	Photonics – the technology and science of light The innovative power of photonics is changing our daily lives. Brilliant laser sources, quantum computers and quantum communication, powerful fibre optic networks, light-based therapy and diagnostics in medicine as well as energy-efficient solid-state lighting characterise the current technical progress that will determine our lives in the future. The Master's degree programme in Photonics provides you with sound and comprehensive knowledge to help shape this journey into the future. The course content ranges from the physical fundamentals of electrodynamics, quantum theory, semiconductor and laser physics to application-related content such as laser materials processing and optical communication technology. In addition, you have the opportunity to choose further electives from the wide range of courses offered by Hochschule München University of Applied Sciences. The theoretical knowledge is put into practice and deepened through a high proportion of practical laboratory assignments. In the project and Master's thesis, research and engineering skills are trained and creativity is encouraged. The Master's thesis can be carried out either in the university's research laboratories or in industry. The Munich region represents an international centre of photonics industry and research. The degree programme involves close cooperation with local industry; it is advised by an industrial advisory board (see partners), and joint seminars are held with industrial companies. The programme has modern equipped research laboratories in which numerous research projects are carried out in collaboration with national and international industrial and academic partners. The research focuses on multiphoton microscopy for biological and medical applications, ultrashort pulse laser material processing, photoacoustics, and optical fibre sensor technology. The programme has gained a very high reputation in its industrial and academic environment. After completing the programme, you will be prepared for a career as a high-tech expert in industry. You will have very good employment prospects and possess important intercultural skills and international experience. You may also choose to pursue doctoral studies.

Course Details

Course organisation	Examples of educational organisation: Full-time study (three semesters): First semester: two compulsory modules (Electrodynamics-Quantum Theory, Semiconductor Optics), two elective modules, and one interdisciplinary module Second semester: two compulsory modules (Laser Physics, Optics Design), two elective modules, and project study Third semester: Master's thesis and colloquium Part-time study (six semesters): First semester: Electrodynamics – Quantum Theory compulsory module, one elective module, and one interdisciplinary module Second semester: Laser Physics compulsory module, one elective module, and project study Third semester: Semiconductor Optics compulsory module and one elective module Fourth semester: Optics Design compulsory module and one elective module Fifth semester: Master's thesis Sixth semester: Master's thesis and colloquium Examples of compulsory elective modules: Quantum Information; Photoacoustics, Physical Modelling and Simulation; Micro- and Fibre Optics Examples of interdisciplinary elective modules: Project Management, Quality Management, Technology and Innovation Management

A Diploma supplement will be issued	Yes
Integrated internships	The Master's programme in Photonics includes a project study and a Master's thesis. Many students do their research work for three to six months in local companies. Programme advisers will assist students with finding an appropriate position. German language skills are beneficial for finding a position either in academia or industry.
Course-specific, integrated German language courses	No
Course-specific, integrated English language courses	Yes

Costs / Funding

Tuition fees per semester in EUR	None
Semester contribution	Approx. 85 EUR
Costs of living	Please check here: https://www.hm.edu/en/your_stay_at_hm/students/fulltime/living.en.html
Funding opportunities within the university	No

Requirements / Registration

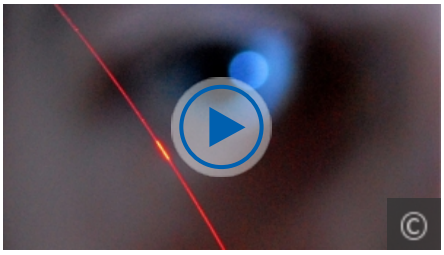
Academic admission requirements	In order to enrol in the programme, you must meet the following qualifications as well as other requirements which may apply: You possess a Bachelor's degree or a comparable degree from a natural science or engineering degree programme with a final grade better than the equivalent German grade of "good". In these degree programmes, you acquired solid basic knowledge in physics, optics, and/or laser technology, amounting to at least 10 credit points in accordance with the ECTS or equivalent. In your cover letter, please describe the courses you have successfully completed in these fields. Your degree work was attained either at a German university or at a foreign school that is properly accredited. The Bachelor's degree must cover at least 180 ECTS credit points and at least six theoretical semesters. The completion of a practical semester or an industrial internship of at least 18 weeks during the Bachelor's studies is required. If you have completed a Bachelor's degree with less than 210 ECTS credits (but at least 180 ECTS credits) or if you have not yet completed an 18-week industrial internship, you can make up for this during the Master's degree programme. In this case, the Master's programme is extended to four semesters. If some applicants do not meet the final grade of "good" or better, or if there is uncertainty about their other qualifications, these applicants must prove their qualifications in an oral entrance examination. This examination is offered after the correct application to the programme. It has a

	duration of 20 to 30 minutes and serves as proof of sufficient basic skills in mathematics, physics, optics, and laser technology. The examination is held by two professors.
Language requirements	English language skills at a B2 level German language skills at least at an A2 level are recommended. During your Master's degree programme, you can further improve your German language skills. Hochschule München University of Applied Sciences offers additional language courses in German that can be attended voluntarily and free of charge.
Application deadline	2 May to 15 June for the following winter semester 15 November to 15 January for the following summer semester https://hm.edu/en/your_stay_at_hm/students/fulltime/uebersichts____startseite_variante_31.en.htn
Submit application to	https://hm.edu/studium_1/bewerbung/master_bewerbung/index.de.html (Select "Zum Bewerbungsportal")

Services

Accommodation	https://www.studierendenwerk-muenchen-oberbayern.de/en/accommodation/ The department cannot assist in finding accommodation in Munich.
Career advisory service	Link to the Career Centre: https://www.hm.edu/en/about_hm/affiliated_institutes/career_center.en.html
Support for international students and doctoral candidates	• Welcome event • Buddy programme
General services and support for international students and doctoral candidates	A mentoring programme is designed to establish contacts between German and international students. Volunteer mentors help newly arrived international students with questions and problems relating to everyday student life. Further information can be found at https://moodle.hm.edu/enrol/index.php?id=20207.
Supervisor-student ratio	Teaching takes place in small groups with individual supervision by the lecturers.

Our Partners



Master's in Photonics

Introduction to the Master's in Photonics (in German)

» more:
https://youtu.be/eO9gMktDUJI

Hochschule München University of Applied Sciences

Studying at Hochschule München University of Applied Sciences

Hochschule München University of Applied Sciences is the second largest university of applied sciences in Germany. Our 18,000 students and our location in a leading European business centre offer fantastic opportunities. This also means that we have a responsibility in industrial, economic, and social contexts.

We offer degree courses and active academic collaboration in the STEM subjects (sciences, technology, engineering, mathematics), in business administration, the social sciences, and public health as well as in architecture and design. Our Department of General and Interdisciplinary Studies is unique in providing every student with a cross-disciplinary education and in developing their personal skills.

It is especially important for us to nurture our graduates' characters. Besides their well-founded professional skills, our students should stand out by thinking and acting in a sustainable, entrepreneurial, and intercultural way. With these additional qualifications, which reach beyond the student's specialist fields, we prepare them to contribute to society and to approach their careers with foresight, creativity, and a sense of responsibility.

We offer and develop individualised study approaches and options for applicants with varied educational backgrounds, thus opening our university and offering a range of paths for lifelong learning and studying. Hochschule München University of Applied Sciences ensures excellent applied and research-based teaching in the following four areas: Bachelor's degrees for students who have finished their secondary schooling and for the professionally qualified, Master's degrees and doctoral qualifications, continuing education and life-long learning in all fields, and applied research.

Hochschule München University of Applied Sciences actively engages with its educational mandate and aims to secure an outstanding position as a university of applied sciences. It recognises the future demands of society and industry to which it aims to adapt itself with a critical yet open vision for current issues, such as the current digitalisation of all areas of life. It focuses on continually improving quality and on constant development in research, teaching, and continuing education.

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University location

Munich and the surrounding area are well known for their high standard of living. In Munich, tradition and innovation, industry and science, cultural and tourist attractions all contribute to its outstanding quality of life. In fact, the city of Munich ranks among the top three most liveable cities in the world (source: Mercer Quality of Living Survey 2019). Independent surveys and statistics regularly show Munich's economic power, the variety of recreational opportunities, its excellent public transport system, and its exceptionally low crime rate. As one of the leading economic and technical powerhouses in Germany, Munich is a top choice for global companies seeking locations with rich research and development opportunities and strong human capital for their national headquarters, such as Apple and Microsoft, as well as global headquarters like Siemens, BMW, MAN, Linde Group, Allianz, and Munich Re. These companies frequently turn to Hochschule München University of Applied Sciences for their R&D needs, and our students participate in faculty research to meet the needs of companies in the region. These relationships also facilitate our student's success in finding internships and placements in industry for independent research projects, which frequently lead to job offers after graduation.

Both academically as well as industrially, the metropolitan area of Munich is established as one of the most important locations for the

fields of photonics, optics and laser technology in Germany and world wide. Outstanding companies such as Siemens AG, Osram AG, Toptica AG, Thorlabs Germany GmbH and many other photonics firms are located in the metropolitan area. In recent years, a significant number of successful start-up firms have arisen from the academic environment Munich provides. The Department of Applied Sciences and Mechatronics, together with the faculty of the photonics programme, has outstanding connections to industry providing graduates of the photonics with excellent networking opportunities.

The Master's course of Photonics is strongly supported by an industrial advisory board, which includes representatives from companies from southern Germany who are internationally recognised as leaders in their fields.

Contact

Hochschule München University of Applied Sciences
Department of Applied Sciences and Mechatronics

Prof Dr Johannes Roths

80335 München

photonics-fk06@hm.edu
Course website: https://sci.hm.edu/studierende/studiengaenge/master/photonics/index.en.html

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Section K23 – Information on Studying in Germany
Kennedyallee 50
D-53175 Bonn
www.daad.de

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