

At a Glance

Target Audience

This course is for students that want to achieve special knowledge of innovative technologies in Photonics. Additionally this course addresses working people with bachelor's degree, that seek a higher occupational qualification by master's degree. These people study extra-occupationally without losing their job.

Degree

Master of Science (M. Sc.)
Applied Photonics

Prerequisites for Admission

- a high quality Bachelor or Diploma degree in Physics or Engineering, e.g. in Electronics, Optoelectronics, Mechatronics or Optometry
- profound English (B2)
- fundamental German (A1)

In addition

Language of instruction is English. You gain practical exercises by laboratory work and seminars during two semesters. Additional soft skills studies will prepare the students for a future career in industry.

Application and Admission

In general the course starts in winter and summer semester. The application has to be send until July 15th for winter semester and until 15th January for summer semester to

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✉ zulassungsamt@hs-aalen.de

🌐 www.hs-aalen.de/bewerbung

The University

Aalen University is one of the leading research institutions among the Universities of Applied Sciences in Baden-Württemberg. One of the key missions of Aalen University is to deliver a superior education to our students by combining the developments in industry with the latest research findings.

Moreover

The institution builds on this tradition by expanding its research capabilities and intensifying its relationship with companies. We offer an attractive, modern environment to students. Therefore Aalen University is the first choice to those who search an industry-oriented education with international focusing.

Contact

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Applied Photonics Master of Science (M.Sc.)

Optional Part-time study
(wahlweise mit integrierter Berufstätigkeit)



hs-aalen.de/s/ph



Prädikat
Familienbewusstes
Unternehmen

Photonics

Strictly, the term “Photonics” stands for the science of photon. The classical meaning refers to fiber-optic communication originated in the 1980s. Today the term incorporates many novel disciplines. In the essence, it is related to four application areas, where “Photonics” is used to connote applied research and development. These are:

- Optical information and communication
- Industrial manufacturing
- Illumination and displays
- Biophotonics in the domain of Life Science

Specifically “Photonics” not only denotes the particle properties of light, the term incorporates all practical applications of optics, and the potential to create, transport and process optical signals. Photonic techniques are used in various fields. The combination of medical problems and photonic technologies proved to exhibit a high economical potential.

Courses of Study

Mandatory courses:

Quantum Optics, Photonic Detectors and Devices, Advanced Optical Communications Technology, Laser and Nonlinear Optics, Optical Systems, Physical Optics, Interferometry, Project.

Optional courses:

Interferometry, Fundamental Optics, Applications of Optical Design Strategies, Photonics Communications Engineering, Biophotonics, Applications of Photonic Detectors, Advanced Image Processing, Laser Photonics, Laser Application Technology, Illumination, Simulation of Sensor Systems, Optics Technology, Advanced Optical Design.



Progress of Program

Duration of Study

First semester for lectures and project

Second semester for lectures

Third semester for Master Thesis

Maximum number of semesters: 6

Time Schedule

Monday to Friday according to class schedule

Conventional Education Program

- Lectures
- Laboratory exercises
- Project
- 5 days every week, 3 semesters duration

Part-time Program

- 2 days lectures, laboratory, project
- 1-3 days professional life every week
- 4 semesters duration typically (maximum 6 semesters)

Post-graduate

Graduates of the Photonics Master course are particularly well educated for a leading position in research and development, where good theoretical knowledge of physics and optics are combined with practical experience:

- Development and application of lasers and laser systems
- Development of fibre-optic components and systems
- Design and development of optical instruments
- Novel techniques for illumination and displays
- Design and application of medical systems for diagnosis and therapy

Study Course

Semester	3	Master Thesis										
	2	Laser and Non-Linear Optics	Physical Optics	Optical Systems	Advanced Optical Communications Technology	Optical Design Strategies	Biophotonics	Advanced Optical Design	Illumination	Laser Photonics	Optics Technology	International Photonics
	1	Project	Quantum Optics	Photonics Detectors and Devices	Interferometry	Fundamental Optics	Applications of Photonic Detectors	Photonics Communications Engineering	Advanced Image Processing	Laser Application Technology	Simulation of Sensor Systems	International Photonics (courses offered in Halmstad and Barcelona)
		Mandatory module				Optional module						