

Graduation

The internationally recognized academic degree of Bachelor of Engineering (B. Eng.) will be conferred by the Ernst-Abbe-Hochschule University of Applied Sciences Jena on students who have successfully completed the programme.

Entrance Requirements

Entrance requirements for the programme are the general university entrance qualification or entrance qualification to a university of applied sciences. A pre-study industrial placement is not required. Programme language is German. International students who apply for the full-time course have to pass the language exams DSH 2 or DSH 3 or Test DAF with 4 or 5 points in all portions. More information about entrance requirements can be found on the following site: www.eah-jena.de.

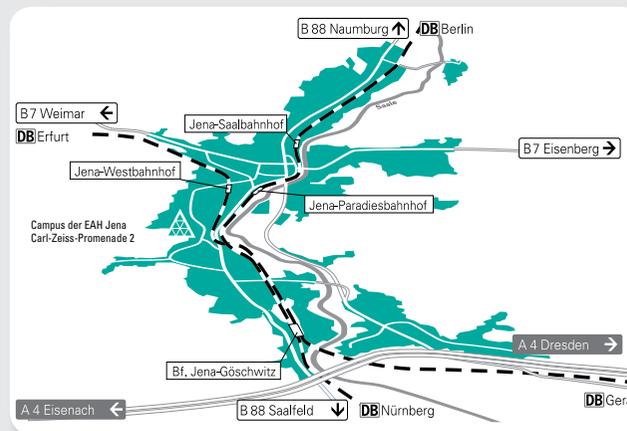
Professional Perspectives

The German precision engineering and optical industry includes for example high-tech fields such as laser and laboratory technology, precision technology, illuminating technology in all its applications, ophthalmic optics, medical engineering, information and communication technology and the solar sector. Its products are found in nearly all parts of life and will permanently change the industrial future of Germany over the coming years.

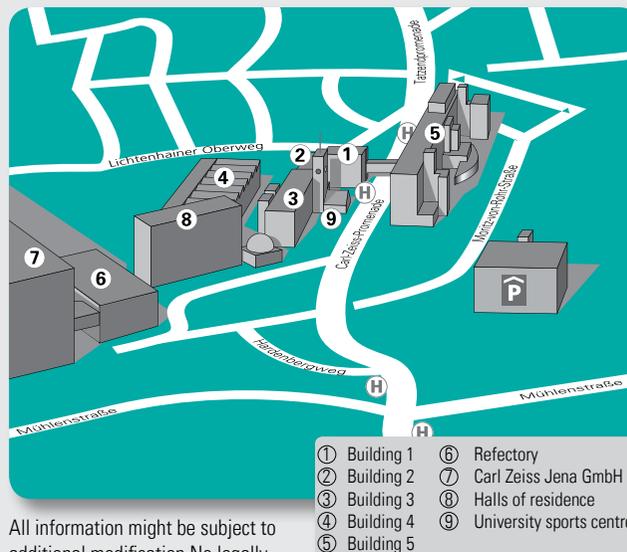
The biggest problem currently facing the sector is the acute shortage of skilled personnel. According to current studies of the photonics network OptoNet, high-tech companies in the photonics industry mainly employ highly qualified personnel and continue their juvenescence process by hiring graduates. Graduates have embarked on successful careers over the past years in the different sectors of optical technologies in companies or research establishments.

The prospects of an interesting and a well-paid job for graduates, especially in the laser and optical technology fields, are exceptionally favourable for students who have successfully completed their course.

Road and rail links



Campus map



As of: August 2017

- ① Building 1
- ② Building 2
- ③ Building 3
- ④ Building 4
- ⑤ Building 5
- ⑥ Refectory
- ⑦ Carl Zeiss Jena GmbH
- ⑧ Halls of residence
- ⑨ University sports centre

All information might be subject to additional modification. No legally binding claims can be inferred from this informational flyer.

Foundation for the Accreditation of Study Programmes in Germany
Accreditation Council
Successfully accredited by ACQUIN

Ernst-Abbe-Hochschule Jena
University of Applied Sciences

Carl-Zeiss-Promenade 2, Postfach 10 03 14, 07703 Jena, Germany



Photos: EAH Jena, S. Reuter, J.-P. Kasper, I. Rodigast

Laser- and Optotechnologies

Bachelor's Degree Course

INNOVATION FOR QUALITY OF LIFE.
Health, Precision, Sustainability & Networking

B. Eng. Laser- and Optotechnologies

Application	www.eah-jena.de/bewerbung
Dean's office	Tel.: +49 (0)3641 205-400, Fax: +49 (0)3641 205-401 Email: scitec@eah-jena.de
Course director/ Course consultant	Prof. Dr. Burkhard Fleck Tel: +49 (0)3641 205-354 Email: Burkhard.Fleck@eah-jena.de



Programme Content and Objectives

The Bachelor's degree programme Laser- and Optotechnologies is interdisciplinary oriented. Apart from the usual basic training provided for all technical programmes, the programme focuses on the areas of laser technology, optics, optical technologies and optoelectronics.

The contents of this subject-specific programme are strongly geared to optics relevant support programmes and are always adapt to the latest developments in science and technology. A voluntary year abroad offers the opportunity to expand the knowledge beyond the education programme of the Ernst-Abbe-Hochschule University of Applied Sciences and to establish international contacts at an early stage.

Modern optical technologies play a key role in present and future. This is reflected in the fact that many areas are increasingly penetrated by optical applications. Examples are precision, medical, environmental, communication technologies and traffic engineering. With integrating this study programme into the education range of the department SciTec, the Ernst-Abbe-Hochschule University of Applied Sciences was responsive to the acute shortage of skilled personnel in the optical branch.

The conditions for this form of training, which is tailored to the optical industry, are exceptionally favourable in "Optical Valley", the optical location at Jena which is steeped in tradition. The close involvement of local industry in the course ensures a practice-oriented training of a very high technical standard.

The course, which has a strong international bias, trains skilled personnel in a six semester university programme leading to the internationally recognized Bachelor's degree (Bachelor of Engineering). Graduates can continue their studies at the Ernst-Abbe-Hochschule University of Applied Sciences Jena by taking the consecutive Master of Engineering degree programme of the same name.

	Module 1		Module 2		Module 3		Module 4		Module 5	
1st Semester	Mathematics I		Physics I		Physical-Chemical Material Properties		Technical Mechanics	Electrical Engineering	Computer Sciences	Technical English
2nd Semester	Mathematics II		Physics II		Basics of Engineering Design/CAD					
3rd Semester	Mathematics III		Basics of Optics		Basics of Laser Technique	Basics of Measurement Technology		Electronics	Control Engineering	Basics of Quality Management
4th Semester	Technical Optics		Illumination Technology	Basics of Laser Material Processing	Modern Laser Applications with Laser Safety	Production Engineering	Basics of Automation of Production/Robotics		Sensor Technology	Project I
(5th and 6th Semester)	Voluntary Year Abroad (30 weeks)									
5th (7th) Semester	Basics of Optical Technologies	Microscopy	Theoretical Physics		Measurement and Signal Processing		Project II	Business Administration	Elective Module	
6th (8th) Semester	Soft Skills		Internship			Bachelor Thesis			Colloquium	

Recommended elective modules	Modern Production Engineering	Opto-electronics	Introduction into FEM	3D-CAD	CAM-Prototyping	English for Academic Purposes	Further Foreign Language
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Employment Opportunities

There are employment opportunities for graduates of the Programme Laser- and Optotechnologies in many fields including the **optical industry, laser technology, laser development and application, information and communication technology, optoelectronics, electronics, computer technology, medical and environmental engineering, biotechnology and sectors associated with optics.**

Because the Bachelor degree is internationally recognized, there are very good career prospects for graduates not only in Germany but also abroad. Young well-trained professionals are thus available for industry.

Programme Overview

Enrolment is for the respective winter semester (October). The standard course duration is six semesters.

The first two semesters focus on consolidating, deepening and extending students' knowledge of mathematics, physics and languages. Students gain initial experience of problem solving in the technical basic subjects. The subject-specific training is delivered in semesters 3 to 6. A large number of practical courses and an 8 week industrial placement ensure that the training is practice-oriented. The practical courses, which are run parallel with many lectures, provide

an opportunity for students to gain practical experience. The project work in the 4th and 5th semesters deepens students' knowledge of the subjects taught, while at the same time fostering an interdisciplinary method of working. The course concludes in the 6th semester with the Bachelor thesis which can be written at an industrial company, at universities, as well as at research establishments in Germany or abroad.

The qualification network of university, industry and research, supported by the Thuringian competence network "OptoNet e.V." ensures that the Bachelor theses are of a high scientific and practical standard.

There is an option of spending an additional year abroad after the 4th semester with the support of the university and the German Academic Exchange Service.

