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 an university of applied sciences
- training contract with a partner company.

The course has no admission restrictions and is offered every winter semester. Application deadline is 15th August.

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.

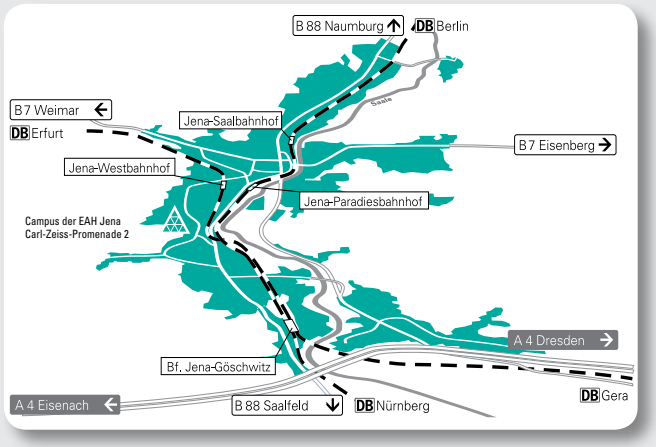
The biggest problem currently facing the sector is the acute shortage of skilled personnel. According to current studies of the photonics network OptoNet, high-tech companies in the photonics industry mainly employ highly qualified personnel and continue their juvenescence process by hiring graduates. 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.

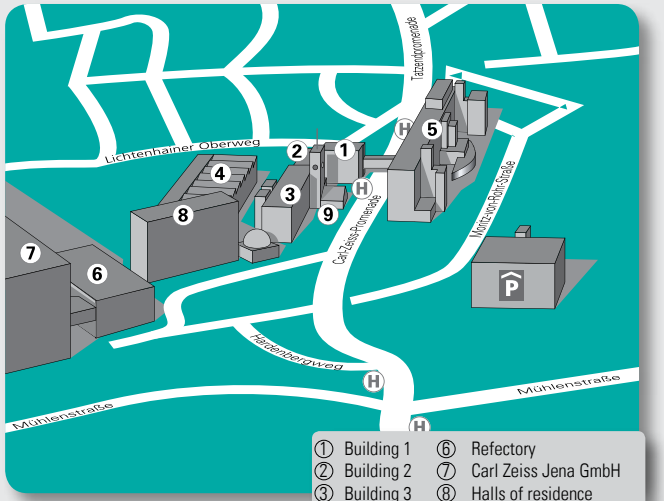
Contact

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

Road and rail links



Campus map



As of: August 2017

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

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JENAER BILDUNGS ZENTRUM
SCHOTT CARL ZEISS JENOPTIK

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University of Applied Sciences
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Photos: EAH Jena, S. Reuter, J.-P. Kasper, I. Rodigast

www.scitec.eah-jena.de

Ernst-Abbe-Hochschule Jena
University of Applied Sciences

Laser- and Optotechnologies

Bachelor's Degree Course

with integrated vocational education

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

B. Eng. Laser- and Optotechnologies

www.eah-jena.de

Programme Content and Objectives

The Bachelor's degree course "Laser- and Optotechnologies" with integrated vocational education lasting 5 years combines a professional qualification as "Optics Technician" (CCI - Chamber of Industry and Commerce) with a first academic degree (Bachelor of Engineering). Vocational and academic education are 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. The close involvement of local industry and research institutes in the course ensures a practice-oriented training of a very high technical standard.

Programme Overview

Enrolment is for the respective winter semester (October). Requirement for enrolment is a study and training contract with a partner company. The standard course duration is 5 years. In the first two years, the basic block of vocational education (theory and practice) take place for "Optics Technician". It is possible to reduce the duration to 2 years because of good performances. The vocational education is than finished with the CCI-examination at the end of the 2nd education year. Otherwise the vocational education is finished with the CCI-examination at the end of the 3rd education year.

With starting the third year, students are regularly enrolled in the Bachelor's degree course "Laser- and Optotechnologies". The first two semesters focus on consolidating, deepening and extending students' knowledge of mathematics, physics and languages.

Programme Overview

year													
1st year	vocational education „Optics Technician" basic block of vocational education (theory and practice) - 20 weeks vocational school/ 32 weeks practice incl. holidays												
2nd year	▶ vocational education „Optics Technician" basic block of vocational education (theory and practice) - 13 weeks vocational school/ 39 weeks ▶												
			module 1		module 2		module 3		module 4		module 5		
3rd year	practical phase in companies at non-lecture period	1st Semester	Mathematics I		Physics I		Physical-Chemical Material Properties		Engineering Mechanics	Electrical Engineering	Computer Sciences	Technical English	
		2nd Semester	Mathematics II		Physics II		Basics of Engineering Design/ CAD						
4th year	▶ practical phase in companies at non-lecture period	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 year	6th semester - vocational education/ practical phase in companies at non-lecture period	5th Semester	Basics of Optical Technologies	Microscopy	Theoretical Physics		Measurement and Signal Processing		Project II	Business Admistration	Elective Module		
		6th 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

legend: ▶ CCI-intermediate examination (in August at beginning of the 2nd education year) ▶ CCI-final examination (optional because of good performances at the end of the 2nd education year)
▶ CCI-final examination (at the end of the 3rd education year at non-lecture period between 2nd and 3rd semester)

The subject-specific training is delivered in semesters 3 to 6. The phases of vocational practice are passed during the non-lecture period. The course concludes in the 6th semester with the Bachelor thesis.

Cooperating companies

The Ernst-Abbe-Hochschule University of Applied Sciences Jena cooperates successfully with the following partner companies:

- Doctor Optics (Neustadt/Orla)
- Jenoptik AG (Jena)
- POG Präzisionsoptik Gera GmbH (Gera)

In addition, companies, which qualify for "Optics Technician" and are recognized by the CCI, from all over Germany can be considered as potential partners.

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. Young well-trained professionals are thus available for industry.