



Site Anhalt University of Applied Sciences has a 125 years old tradition of education in engineering sciences. Köthen is the former capital of the principality of Anhalt-Köthen and is well known for the composer Johann Sebastian Bach, who spent five years at the princely court before moving to nearby Leipzig. The PV cluster at Anhalt University (Prof. Bagdahn, Prof. Bergmann, Prof. Bernhard) also cooperates intensively with PV companies and institutes around the world in several R&D projects.

Costs A service fee for the students social affairs agency (Studentenwerk) of 70,- € per semester is charged (in the first semester plus 6,- € for the student union). In addition costs for accommodation and living have to be borne (room rentals in Köthen are relatively cheap in comparison to other German cities).

Address

Anhalt University of Applied Sciences
(Hochschule Anhalt)
Faculty Electrical and Electronic Engineering,
Mechanical Engineering and Industrial Engineering
(Fachbereich Elektrotechnik, Maschinenbau
und Wirtschaftsingenieurwesen)
Bernburger Straße 57
06366 Köthen
Germany
Tel. +49 (0) 3496 67 2400

Program advisor

Prof. Dr. Norbert Bernhard
norbert.bernhard@hs-anhalt.de

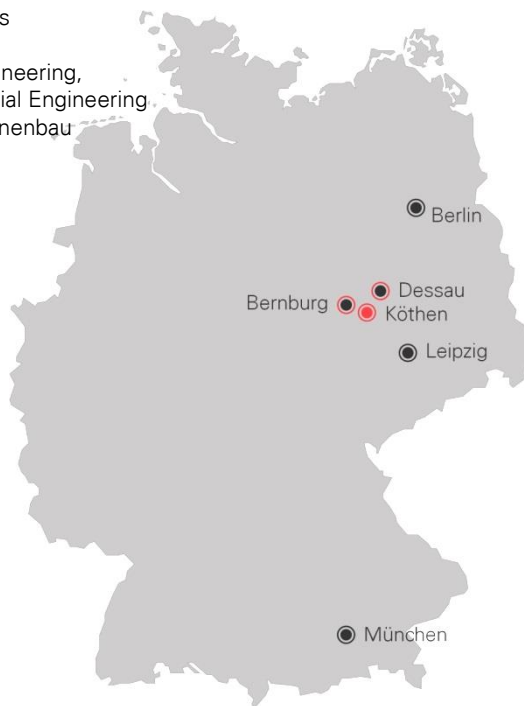
General Advisory Office

Tel.: +49 (0) 3496 67 5203
Fax: +49 (0) 3496 67 5299
E-Mail: beratung@hs-anhalt.de

Internet: <http://www.hs-anhalt.de>

Further Information

<http://www.emw.hs-anhalt.de/www/studieren/aufbaustudium/photovoltaics-engineering-science/general-information.html>



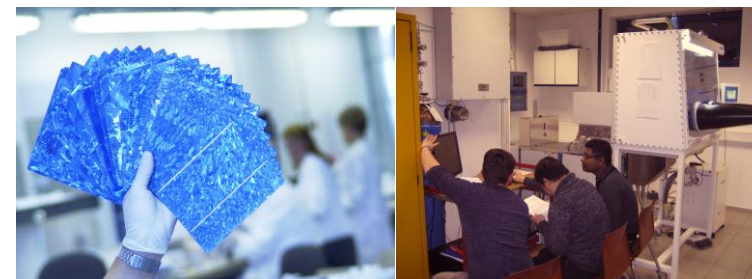
Master of Science (M. Sc.)

Faculty of Electrical and Electronic Engineering, Mechanical Engineering and Industrial Engineering

Photovoltaics Engineering Science

Master of Science

According to most technological and economic forecasts, photovoltaics (PV) will play a major role in the future worldwide supply of electrical energy, especially under the aspect that the goals of the world climate protection process have to be reached. Photovoltaics is an inherently green energy with almost zero carbon footprint during energy generation and a footprint in the production process of solar modules comparable to other industrial or consumer goods. Due to the long lifetime of solar modules of 30 years and more, the total carbon footprint of this technology is much lower than that of traditional electrical power generation by burning coal, oil or gas. Together with other renewables, photovoltaics will be a key technology in the development of a sustainable world energy supply.



Curriculum The master program consists of two semesters of courses in solar cell physics, technology of crystalline silicon and thin-film solar cells and modules, cell and materials characterization, components of a PV system and their reliability, system design, monitoring, yield and performance analysis, storage systems and electric grids and solar energy integration. The technical subjects will be accompanied by courses in German language (usually at beginner level) and business administration. A final research semester under supervision of a professor from the University concludes the program. The courses combine lectures with exercises, seminars or practical laboratory work.



Anhalt University of Applied Sciences



Prerequisites Bachelor in Engineering Science or Physics or comparable subject, which ensures a sufficient basic knowledge in mathematics, physics, fundamentals of engineering and scientific methodology. At least 210 credits or 7 semesters of study for the Bachelor required. In addition the applicant has to be sufficiently skilled in the English language, enabling her/him to follow courses and instructions in English. No knowledge of German is required.

Program Duration 3 semesters (2 semesters courses, 1 semester master thesis). 90 credits will be awarded (30 per semester).

Start of Program Winter or summer semester (if started in the summer semester, the courses of the 2nd semester in the diagram below will be taken before those of the 1st semester, i.e. the semester sequence will be 2-1-3 in this case). Tuition starts on the first working day in October or April.

Master Thesis Research for the master thesis under the supervision of a professor of the University and other experienced scientists can be performed in the PV laboratory of Anhalt University, at the Fraunhofer Center for Silicon Photovoltaics CSP (in nearby city of Halle), or in any other PV laboratory or any PV company worldwide.

Career Prospects Engineer in research and development (R&D), design, construction, operation or management of photovoltaic (PV) power plants. Due to the forecast strong increase of PV power generation, especially in the sun-rich countries around the world, excellent job perspectives are expected.

| |
|--|
| Courses directly related to PV engineering |
| Soft skills |
| Master thesis (by research) |

Photovoltaics Engineering Science (M. Sc.)

| Semester | Credits (≈ Tuition Hours per Week) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|------------------------------------|--|--|--|----------------------------------|--|--|--|--|----|--|--|--------------------------------|--|----|--|--|--|--|----|------------------|--|--|--|----|--|--|--|--|
| | 1 | | | | 5 | | | | | 10 | | | | | 15 | | | | | 20 | | | | | 25 | | | | |
| 1. | Physics of the Solar Cell | | | | Crystalline Silicon Solar Cells | | | | Thin Film Solar Cells | | | | Cell and Materials Diagnostics | | | | Solar System Applications | | | | German Language | | | | | | | | |
| 2. | Solar Modules and Components | | | | System and Component Reliability | | | | System Design, Monitoring, Yield and Performance Analysis, Markets | | | | Storage Systems | | | | Electric Grids, Solar Energy Integration | | | | Business Studies | | | | | | | | |
| 3. | Master Thesis | | | | | | | | | | | | | | | | | | | | | | | | | | | | |