

OTTO-VON-GUERICKE-UNIVERSITÄT MAGDEBURG: A FRONTRUNNER IN INNOVATION & EXPERIENTIAL LEARNING IN ENGINEERING EDUCATION

Germany is an Engineering country. Many famous brands with well-known engineering products shape the German engineering market and hence also the engineering education landscape. The Otto Von Guericke University Magdeburg (OVGU) is a visionary in the German engineering education space. The patron of the university was a physicist and engineer in the 17th century. He invented the air pump and demonstrated the forces of air pressure with the famous hemisphere experiment. In 1953, the Technical College for Heavy Machinery Engineering (Hochschule für Schwermaschinenbau) with several engineering departments was founded in the ruins of the destroyed city of Magdeburg. The Technical College developed into the Technical University of Magdeburg and after the German reunification, the OVGU was founded on these roots in 1993. The three engineering faculties including the Faculty of Mechanical Engineering, the Faculty of Process & Systems Engineering, and the Faculty of Electrical Engineering and Information Technology are the successors of the founding departments and form together the 'Engineering Campus'.

The OVGU is system-accredited where all study programs are regularly evaluated together with students, alumni, external reviewers, and industrial partners. The institute conducts yearly conferences with students and discusses all aspects of studying including teaching and learning problems, and administrative issues such as visa issues for international students and support in finding industrial contacts for practical internships. The institute aspires to constantly improve its courses and modules and owing to this, OVGU has been able to be a frontrunner in educational and research innovation in Mechanical Engineering, Process & Systems Engineering, and Electrical Engineering making it one of the most preferred engineering institutions in the country.



Prof. Dr.-Ing. Ulrike Steinmann
Dean of the Faculty for Electrical
Engineering & Information Technology

Prof. Dr.-Ing. Ulrike Steinmann aims to help students achieve holistic development and help them reach their true potential.

The Faculty of Mechanical Engineering

The Faculty of Mechanical Engineering at OVGU has seven institutes with almost 20 chairs in several disciplines of its engineering field. All chairs have individual labs for their specific subject. Often these labs are used in exercises and lectures to give a practical demonstration as well as learning by doing experience to the students. The Faculty of Mechanical Engineering is also a member of the association 'Fakultätentag für Maschinenbau und Verfahrenstechnik, FMVT' (Faculty Association for Mechanical and Process Engineering). For more than 20 years it is carrying the quality seal of the FMVT.



Prof. Dr. Franziska Scheffler
Vice Dean Faculty of Process & Systems
Engineering

A passionate learner herself, Prof. Dr. Franziska Scheffler instills a culture of constant learning and consistent improvement in her students.



Prof. Dr.-Ing. habil. Thorsten Halle
Dean of the Faculty of Mechanical
Engineering

A pioneering educator aspiring to offer an inclusive learning environment for the students to thrive.

Adding more about the faculty, Prof. Dr.-Ing. habil. Thorsten Halle - Dean of the Faculty of Mechanical Engineering says, "As a member of the FMVT, we are actively contributing to the development process of education in Mechanical Engineering. With this engagement, we want to ensure that the nationwide quality aims of engineering education are following the new trends and developments in our field. Our curriculum is designed to provide students with a comprehensive understanding of various aspects of mechanical engineering, including manufacturing, design, analysis, and research. The courses also incorporate modern technologies such as automation, simulation, and robotics, which prepare students for the future demands of the industry. Besides the classical engineering subjects, we also have a strong focus on the planning, control, and logistics of modern manufacturing systems and supply chains".

The faculty offers international students three unique English Master's programs in 'Systems Engineering for Manufacturing' (SEM), 'Biomechanical Engineering' (BiME), and 'Computation Methods in Engineering'

(CoME). Project-orientated modules have been implemented in all study courses. Here the students are solving problems in small teams. They learn how to organize, document, and present their work. Some of the projects are directly linked to industry and run in direct cooperation. The faculty also leverages the partnerships OVGU has with various research institutions including the Fraunhofer Institute for Factory Operation and Automation IFF and other companies providing students with opportunities for internships, research projects, and collaborations.

The Faculty of Process & Systems Engineering

The Faculty for Process & Systems Engineering has four institutes - the Institute of Process Engineering (IVT), the Institute of Instrumental & Environmental Technology (IAUT), the Institute of Fluid Dynamics and Thermodynamics (ISUT), and the Institute of Chemistry (ICH). Also, there are almost 20 chairs doing research in several disciplines including research on - Particle technology and particle systems, Chemical product development and analytical product

characterization, Innovative material and energy transformation processes, Dynamics of process engineering systems, and Probability methods in engineering calculations.

Talking more about the unique learning experiences offered by the faculty, Prof. Dr. Franziska Scheffler, Vice Dean Faculty of Process & Systems Engineering says, "Our curriculum is designed to provide students with a comprehensive understanding of various aspects of chemical and process engineering, including biotechnology, safety, and research. Besides the classical engineering subjects, it also has a strong focus on the planning, control, and simulation of new processes. Aside from this, we also offer international students two unique English Master programs in Chemical and Energy Engineering (CEE) and Process Safety and Environmental Engineering (PSEE)".

CEE aims at providing the students with in-depth knowledge and competencies in chemical and energy engineering which enables them to use new scientific methods for their work and to master a broad variety of permanent new challenges in the fields of research, practical application of scientific results, and teaching. They finish the program well-prepared for their future professional career.

PSEE deals with the economical usage of energy resources, safe production and handling of materials, and the protection of the environment. PSEE aims to educate experts for the industry as well as for authorities, research organizations, and higher education. Graduates from the program are versed in the natural scientific fundamentals of technical processes, especially those related to safety and the environment, and think and act holistically in the assessment of safety and environmental concerns and their prevention and mitigation.

The Faculty of Electrical Engineering & Information Technology

The Faculty of Electrical Engineering and Information Technology has four institutes with 16 chairs in several disciplines of its engineering field. In line with the research areas, these chairs have diverse laboratories and testing environments. These labs are accessible to students as part of internships and research projects or bachelor and master theses. From the medical technology research campus 'STIMULATE' to state-of-the-art control rooms for monitoring and controlling the entire European energy network to laboratories for measuring electromagnetic emissions the faculty offers several opportunities to experience electrical engineering in all its facets.

The faculty's Electrical Engineering and Information Technology (EIT) Master's program is a four-semester, research-oriented course divided into compulsory modules, compulsory elective modules, and the Master's thesis. The theoretical knowledge is taught at a high level with innovative teaching methods. Soft skills are learned in a seminar on scientific working, writing, and presenting. The optional specialization courses are designed to provide students with knowledge, insight, and skills pertaining to sophisticated technologies according to the main research areas of the Faculty of Electrical Engineering and Information Technology. These research areas are Automation Systems, Information and Communication Technology, and Power and Energy.

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Adding more about the courses offered by the faculty which might be more appealing for international students, Prof. Dr.-Ing. Ulrike Steinmann - Dean Faculty for Electrical Engineering and Information Technology says, "We offer international students unique English Master programs in Electrical Engineering and Information Technology. Also, with the interdisciplinary, four-semester Master's degree in Medical Systems Engineering (MSE), we offer a combination of different engineering disciplines with a constant focus on the application of knowledge from these disciplines in the field of medicine". The latter is a research-oriented program linked to the Medical Technology Research Campus and the Faculty of Medicine, in which students acquire high-level knowledge in medical imaging, medical intervention systems, and modelling of physiological and biological systems, among others.

TOP 10 ENGINEERING COLLEGES IN GERMANY - 2023

Institute Name	Location	Description
Brand University of Applied Sciences	Hamburg	An educational institution with a distinct focus on brands as it provides practical and industry-relevant education to its students in the field of branding, design, marketing, communication and entrepreneurship
Fachhochschule Wedel	Wedel	An university of applied sciences offering various bachelor and master modules in english as part of an exchange semester and a fully english-language programme with the master's programme in IT engineering
FOM International University's	Essen	A private university providing practical experience-focused education for working professionals across all courses and regularly introduces new courses in digitalization and industry 4.0 to enhance the quality of engineering education
Karlsruhe Institute of Technology	Karlsruhe	A research university offering students, researchers and employees unique learning, teaching and working conditions, with a focus to contribute to overcoming the global challenges facing humanity through pioneering research in the fields of energy, mobility and information
Otto Von Guericke University Magdeburg	Magdeburg	An university traditionally focussing on technical and natural sciences as well as on human medicine and considering management and economics, social sciences and humanities indispensable disciplines of a modern institution of higher education
RWTH Aachen University	Aachen	An institutions for science and research enrolled with over 150 academic programmes, and initiatives from research, teaching and academic life edited to target citizens to feel understandable and interesting
Technical University of Munich	Munich	An university combined with top-class facilities for cutting-edge research with unique learning opportunities, also creating a lasting value for society through excellence in education and research
Technische Hochschule Brandenburg	Brandenburg	A public university offering attractive, cutting-edge degree courses in three disciplines: engineering, business administration and economics as well as information technology and media
Technische Universität Berlin	Berlin	An internationally renowned technical universities with a range of services offered and served to forge a unique link between the natural and technical sciences on the one hand, and the planning, economics and social sciences and humanities on the other
University of Stuttgart	Stuttgart	A technical university with highly ranked programs in civil, mechanical, industrial and electrical engineering, also highly reputed in the fields of advanced automotive engineering, efficient industrial and automated manufacturing, process engineering, aerospace engineering and activity-based costing



HIGHER EDUCATION Review

Presents



Otto-von-Guericke-Universitat Magdeburg

Recognized as

**HIGHER EDUCATION Review TOP 10
ENGINEERING COLLEGES IN GERMANY
2023**

For its exceptional academic expertise, capability to adapt to the evolution of educational field and transformational impact on students' career.



Mary Janifha Evangeline X
Assistant Managing Editor