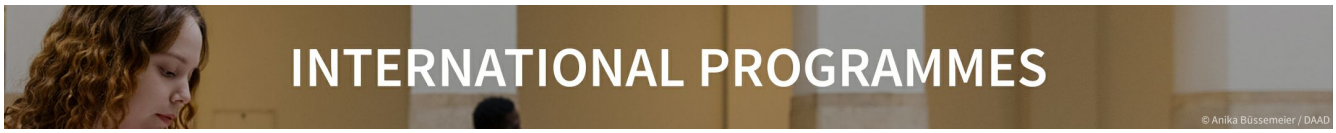
Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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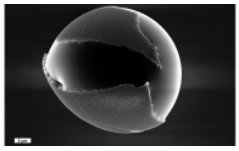
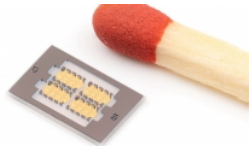
Master's degree

Master of Science in Micro- and Nanotechnologies

Technische Universität Ilmenau • Ilmenau

Overview

Degree	Master of Science
Teaching language	• English
Languages	The main teaching language is English. Some elective subjects may be offered in German. A German language course is compulsory (part of the curriculum) for students who do not have any German language proficiency.
Programme duration	4 semesters
Beginning	Winter semester
Application deadline	Application period for students with certificates from non-EEA / international countries: 16 January – 15 May Application period for students with certificates from EEA countries, Switzerland, or the UK: 16 April – 15 September Foreign applicants who need to apply for a visa to enter Germany should submit their application at least three months before the application deadline.
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	Studying microtechnologies and nanotechnologies at the TU Ilmenau offers a combination of classical microtechnologies and modern nanotechnologies. It covers methods, tools, and theoretical considerations for research and development in the world of microscale and nanoscale structures. The aim of this engineering science-oriented interdisciplinary Master's programme is to teach the scientific fundamentals and basic technical knowledge about microstructure and nanostructure generation as well as their systemic integration in systems. Students acquire skills to contribute and drive future developments in microtechnologies and nanotechnologies as well as

nanotechnical applications.
Particular attention is devoted to teaching the relevant methodological variety of lithographic nanostructuring techniques (top-down strategy), the molecular structuring through self-assembly (bottom-up approach), the opportunity of combining both concepts, and the required characterisation techniques.
The programme comprises the following foci:

- Nanotechnology, nanoelectronics, and nanosensors
- Materials for microtechnologies and nanotechnologies
- Technologies of microstructuring and nanostructuring
- Structure and material characterisation
- Semiconductors
- Microsystems technology / system integration
- Microelectronic packaging and assembly

Under the principle of unity of research and teaching, this interdisciplinary programme is supported by the Institute of Micro- and Nanotechnologies MacroNano® and its Centre of Micro- and Nanotechnologies. Students will be involved in research projects from an early stage. They have the opportunity to gain hands-on experience in the modern laboratory space (used as clean rooms in different classes) available in two technology buildings.

Course Details

Course organisation	The programme is based on courses both in fundamental and engineering sciences. It aims to deepen skills and competencies acquired from undergraduate studies or practical work experience in the fields of semiconductor technology, microelectronics, microtechnologies and nanotechnologies. During the first two semesters, the required theoretical background is taught. At this time, the students already have the opportunity to select certain specialisation courses in combination with elective soft skill courses. Students without German language knowledge are expected to take at least one German course. The third semester consists of a further specialisation subject and an advanced research project. Within the fourth semester, students work on the Master's project and thesis, which is defended in a colloquium. Semester 1: Electronics Technology 1, Semiconductor Devices 1, Materials of Micro- and Nanotechnologies, Nanodiagnostics, Nanotechnology, Introduction to Project Work, Soft Skills Semester 2: Microtechnologies 2, Lab Materials & Micro-/Nanofabrication, Introduction to Project Work, Soft Skills, Advanced Studies (personal choice of subjects related to the course outline) Semester 3: Project with Seminar, Advanced Studies (personal choice of subjects related to the course outline), Technical Subject (choice from the entire Master's curriculum) Semester 4: Master's thesis with colloquium
A Diploma supplement will be issued	Yes
Course-specific, integrated German language courses	Yes
Course-specific, integrated English language courses	No

Costs / Funding

Tuition fees per semester in EUR	None
Semester contribution	Approx. 150 EUR per semester (including a train ticket and reduced prices in the university canteen and cafeterias)
Costs of living	Approx. 860 EUR per month (including apartment rent)
Funding opportunities within the university	Yes
Description of the above-mentioned funding opportunities within the university	Students at TU Ilmenau do not pay tuition fees; instead, they only need to pay the semester contribution of approximately 150 EUR per semester. Further information on funding opportunities is available at:https://www.tu-ilmenau.de/en/international/service/we4you-student-service/funding-opportunities

Requirements / Registration

Academic admission requirements	For admission to the Master of Science in Micro- and Nanotechnologies (MSc MNT), the successful completion of a Bachelor's or comparable course of at least six semesters or 180 credit points is required. The MSc MNT builds upon Bachelor's degrees in the following fields: • electrical, electronics and communications engineering • mechatronics • technical physics • material science • mechanical engineering All of the above Bachelor's degree programmes must include an in-depth component in the following areas: • fundamentals of electrical engineering • electronics/microelectronics • analogue and digital electronics • semiconductor physics/technology • material science • physics, chemistry, and higher mathematics
Language requirements	Applicants must provide one of the following certificates: • TOEFL iBT 95 to 120 (Internet-based) • IELTS minimum 7.0 • CEFR minimum level C1 • Cambridge Exam: CAE Additionally, please check the admission pages for language requirements.
Application deadline	Application period for students with certificates from non-EEA / international countries: 16 January – 15 May Application period for students with certificates from EEA countries, Switzerland, or the UK: 16 April – 15 September

	Foreign applicants who need to apply for a visa to enter Germany should submit their application at least three months before the application deadline.
Submit application to	Online application: http://www.tu-ilmenau.de/apply

Services

Possibility of finding part-time employment	Temporary jobs are available at local enterprises. In some departments of TU Ilmenau, Master's students are regularly employed as scientific assistants.
Accommodation	Various student residences are available on campus. The rent in the residences is between 250 EUR – 350 EUR per room and month, depending on the type of residence. Registration is required in advance at the administering office of the "Studierendenwerk Thüringen". Information on the residences and registration can be found at:https://www.stw-thueringen.de/en/housing/ Student applicants have a good chance of getting a room if the application for a room is submitted in good time, approx. three months before the start of the semester. Of course, there is also the option to look for a privately rented apartment/room in Ilmenau or the surrounding area. For further information on privately rented accommodation, please contact TU Ilmenau's international student service, we4you: https://www.tu-ilmenau.de/en/international/service/we4you-student-service/team
Career advisory service	TU Ilmenau's we4you career counselling service provides assistance to international students, enabling an easier transition from the classroom to the working world. Through individualised career counselling, workshops on CV writing, and interview practice, we give students the tools they need to succeed in today's job market. Opportunities for internships and part-time or graduate jobs are further bolstered by our industry network and accessible job portal. Visits to local and nationwide job fairs are also on the agenda. These activities and events seek to equip students with the tools to confidently pursue their professional aspirations in the region surrounding the university, in Germany, and beyond. For more information, visit: https://www.tu-ilmenau.de/en/international/service/we4you-student-service/career-counseling
Support for international students and doctoral candidates	• Welcome event • Buddy programme • Tutors • Specialist counselling • Visa matters • Help with finding accommodation • Support with registration procedures • Accompanying programme • Cultural and linguistic preparation
General services and support for international students and doctoral candidates	TU Ilmenau offers an international student service called we4you, aimed at supporting prospective and current students during the application and arrival process, everyday student life, and beyond. The we4you team provides advice, organises events and excursions, and helps students feel comfortable in Ilmenau. For online and on-site we4you support, please visit: https://www.tu-

Jonas is Studying Micro- and Nanotechnologies at the TU Ilmenau

Film production of Bellmannmedia shows a testimonial of a Micro- and Nanotechnologies Master's student, the facilities, and the studying atmosphere on the campus of TU Ilmenau.

» more:
https://vimeo.com/480437945

Technische Universität Ilmenau

Campus of the Technische Universität Ilmenau

© Hajo Dietz

Technische Universität Ilmenau is public university with a strong focus on research. Located in the centre of Germany, it has a long tradition in engineering and natural sciences, making it a sought-after destination for interdisciplinary research and education. With five faculties dedicated to delivering cutting-edge and sustainability-oriented programmes, the university offers 19 Bachelor's degree programmes, 25 Master's degree programmes, and doctoral education designed for real-world impact. Interested students can apply for a programme in the fields of engineering (e.g. Biomedical Engineering, Automotive Engineering, Mechanical Engineering), technology (e.g.

Computer Science, Micro and Nanotechnologies, Renewable Energy Technology), mathematics (e.g. Business Mathematics), natural sciences (e.g. Biotechnical Chemistry, Technical Physics), or economic and social sciences (e.g. Media and Communication Science, International Business Economics). Many of the university's programmes are taught in English, and the large number of registered patents per staff provides just one example of the university's many innovation activities. Students at Technische Universität Ilmenau enjoy a great supervision ratio, access to excellent facilities conducive to research-driven learning (including modern labs and makerspaces), and career counselling and events to support global professional connections. The we4you international student service assists students in integrating into the university's vibrant campus community, which comprises over 100 nationalities. Through its extensive national and international partnership network and mobility options, Technische Universität Ilmenau fosters the expertise and personal development of its students and staff.

University location

Ilmenau is a vibrant hub of innovation and enterprise, where tradition intertwines with a strong focus on the future. The university town with its approximately 40,000 residents is situated in the centre of Germany in the federal state of Thuringia. Thuringia is known for its rich cultural heritage, with influential historic figures such as Goethe, Bach, and Luther having strong ties to the region. Thuringia offers stunning green landscapes, meandering rivers, and idyllic lakes, with the Thuringian Forest covering large areas of the state. In Ilmenau, the Kickelhahn monument – situated atop the verdant woods – serves as a tribute to Goethe's profound connection to the town. It not only offers breathtaking panoramic views of the Thuringian landscape but also features verses from Goethe's immortal poetry, translated into multiple languages. Thuringia has a strong tradition of academic excellence and innovation, particularly in the fields of technology, engineering, and biotechnology.

Ilmenau, located in the picturesque valley of the Ilm River and nestled in the northern foothills of the Thuringian forest, is more than a living monument to the past. Once renowned for its exquisite glass and porcelain craftsmanship, Ilmenau pulsates with a dynamic energy as a science and technology centre.

For TU Ilmenau students, this blend of heritage and innovation offers ample opportunities, such as forging connections with experienced and visionary mentors, fellow students, and pioneering companies. It allows them to immerse themselves in a realm where theoretical knowledge meets real-world application.

Ilmenau is well-connected by public transport and positioned at an equal distance (about two hours) from the major German cities of Berlin, Frankfurt, and Munich, as well as their international airports.

Contact

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https://de-de.facebook.com/TU.Ilmenau/

https://twitter.com/TU_Ilmenau

https://www.linkedin.com/school/tu-ilmenau/

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Last update 24.11.2024 05:47:10

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Editor
DAAD - Deutscher Akademischer Austauschdienst e.V.
German Academic Exchange Service
Section K23 – Information on Studying in Germany
Kennedyallee 50
D-53175 Bonn
www.daad.de

GATE-Germany
Consortium for International Higher Education Marketing
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The publication is funded by the German Federal Ministry of Education and Research and by contributions of the participating German institutions of higher education.