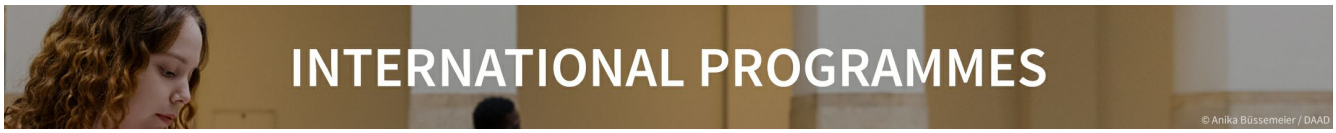
Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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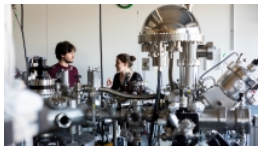
Master's degree

Materials Science

Technical University of Darmstadt • Darmstadt





Overview

Degree	Master of Science
Teaching language	• English
Languages	Courses are held in English (100%). Participants can choose to write the Master's thesis in English or German.
Full-time / part-time	• full-time
Programme duration	4 semesters
Beginning	Winter and summer semester
Additional information on beginning, duration and mode of study	While it is technically possible to start the MSc Materials Science in summer semester, the whole curriculum is tailored for a start in winter.
Application deadline	Opening and closing dates of the application periods may vary from year to year and depend on where you obtained your Bachelor's degree. Please always consult the service page of the TU Darmstadt Office for International Admission for binding information. The application window for the winter semester 2024/25 opened on 1 June 2024. Applicants with international certificates must provide their complete application (including certificates and language certificates) in paper form by 31 August 2024. This also includes participation in the Online Self Assessment. The application period for the 2025 summer semester has not been scheduled yet, but will most probably open on 1 December 2024 and close on 1 March 2025. Applications will be processed as quickly as possible after having received the complete application. Thus, we strongly encourage early applications. Applicants with a German school leaving certification (Abitur) shouldapply at TU Darmstadt via the standard track.
Tuition fees per semester in EUR	None
Combined Master's degree /	No

PhD programme	
Joint degree / double degree programme	No
Description/content	**Functional materials** such as energy materials, magnetic, or electronic materials are essential for the society of the 21st century. The Master's programme places specific emphasis on the science and engineering of the structure, synthesis, analysis, modelling and characterisation of functional materials such as ceramics, inorganic, and organic semiconductors, thin films, energy materials, metals, and nanomaterials. Compulsory courses cover fundamental aspects such as quantum mechanics of materials, surface science, and computational materials science as well as materials analytics and engineering. Courses on theoretical materials science include quantum mechanics, non-equilibrium thermodynamics, and continuum mechanics. A wide range of elective courses provides further insight into advanced topics. You can focus on energy materials for solar cell or fuel cells, on materials for the efficient use of energy, on ceramics for nano-actuation, on smart nanomaterials, on thin magnetic films for spintronics, on high performance alloys, or other advanced materials. You also may specialise in the characterisation or modelling of advanced functional materials. You will join one of the research groups at the department for your Master's thesis.

Course Details

Course organisation	**Compulsory courses:** First semester: • Research lab I • Quantum Mechanics or Micromechanics • Functional Materials • Surfaces and Interfaces Second semester: • Research lab II • Theoretical Methods in Materials Science • Advanced Characterisation Methods in Materials Science • Sustainable Materials Third semester: • Advanced research lab (research internship) Fourth semester: • Master's thesis and defence **Elective courses** in materials science (22–26 credits) and general studies (6–10 credits) have to be taken during the first three semesters. Topics include: • Magnetism and Magnetic Materials • Solid State and Structural Chemistry of Materials • Advanced Microscopy • Ceramic Materials • Engineering Microstructures

- Semiconductor Interfaces
- Chemical Sensors
- Mechanical Properties of Metals and Ceramics
- Surface Science
- Graphene and Carbon Nanotubes
- Materials Chemistry in Electrocatalysis
- Electrochemistry in Energy Applications
- High Pressure Materials Synthesis
- Phase Transitions in Materials
- Density Functional Theory
- and more...

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A Diploma supplement will be issued	Yes
International elements	• Projects with partners in Germany and abroad
Integrated internships	**Research internships** A research internship (advanced research lab) is scheduled for the third semester. This internship can be done at the university, at a research institute, or a research-oriented company. For the Master's thesis, a six-month research project is required. This can be done at the university, a research institute, or a research-oriented company. Only one of the advanced research lab and Master's thesis project may be carried out externally (not at another university), **not both.**
Course-specific, integrated German language courses	No
Course-specific, integrated English language courses	No

Costs / Funding

Tuition fees per semester in EUR	None
Semester contribution	The registration fee totals approx. 340 EUR per semester. This includes administrative fees and the semester ticket ("Deutschlandticket"). The validity area of the semester ticket will be expanded to encompass all transportation organisations and lines participating in the "Deutschlandticket" offer throughout Germany. Registration fees
Costs of living	Estimated living expenses are about 900 EUR per month. Please note that these costs are just a rough estimation and can vary greatly depending on your way of life, your accommodation, etc. Costs and budget
Funding opportunities	Yes

within the university	
Description of the above-mentioned funding opportunities within the university	Financial funding for international students in their final study phase: An application for “Leistungsorientierte Studienabschluss-Förderung” (financial funding for international students in their final study phase) can be submitted twice a year. Application periods: 1 to 15 April and 1 to 15 October Deutschlandstipendium: The Deutschlandstipendium has been supporting outstanding students at universities with one year of financial assistance since 2011. An application is only possible once enrolled.

Requirements / Registration

Academic admission requirements	Bachelor's degree in Materials Science or equivalent (e.g. Materials Engineering, Physics, Chemistry, or similar). Note that students with a distinct engineering background often do not have sufficient knowledge in the fields of natural and materials science to get admission. However, we thoroughly evaluate each application individually. For more information on the requirements, please consult our FAQ section, (especially Q7).
Language requirements	The MSc Materials Science is taught in English. To be accepted for the study programme, our regulations require knowledge of the English language at least on a UNIcert III level (C1). For equivalent proofs (TOEFL, TOEIC or similar) please consult theofficial list of the "TU Sprachenzentrum" (click here for the PDF). Also note the possibility of proving that your Bachelor's (or previous Master's) medium of instruction was English. As with any other formal question, please contact theTU Office for International Admissionin case of doubt. **No German language skills are necessary (and thus, no German language certificate is needed).**
Application deadline	Opening and closing dates of the application periods may vary from year to year and depend on where you obtained your Bachelor’s degree. Please always consult the service page of the TU Darmstadt Office for International Admission for binding information. The application window for the winter semester 2024/25 opened on 1 June 2024. Applicants with international certificates must provide their complete application (including certificates and language certificates) in paper form by 31 August 2024. This also includes participation in the Online Self Assessment. The application period for the 2025 summer semester has not been scheduled yet, but will most probably open on 1 December 2024 and close on 1 March 2025. Applications will be processed as quickly as possible after having received the complete application. Thus, we strongly encourage early applications. Applicants with a German school leaving certification (Abitur) shouldapply at TU Darmstadt via the standard track.
Submit application to	To apply at TU Darmstadt, please follow the instructions givenhere. For more information, please consult the TU Darmstadt Office for International Admissionand the FAQ for MSc Materials Science applicants.

Services

Possibility of finding part-time employment	Students can be employed as tutors or student researchers, for example. Jobs & part-time work
Accommodation	**TU Darmstadt's** International Affairs Department assists international students in their search for accommodation through its Housing Assistance Office. A major science hub, Darmstadt is home to multiple research institutions, three universities, and many high-technology companies, all of which attract people from around the world. A wide variety of accommodations that vary in size, furnishing, and rent are available in Darmstadt and its vicinity. As the university does not own or manage student housing, we support students in finding housing in private and public student dormitories or on the private market. In order to improve your chances in finding the optimal place to live, we recommend that you start your search early. We are happy to assist you in this process. Please make sure to register online on the housing assistance website for international students. Our services include the distribution of an “Accommodation Guide” that includes links to private and public student dormitories, hotels and youth hostels, and a “Housing Guide” that provides tips on how to search for accommodation in Darmstadt.
Career advisory service	TU Darmstadt Career Service
Support for international students and doctoral candidates	• Welcome event • Accompanying programme • Visa matters • Buddy programme • Tutors
General services and support for international students and doctoral candidates	The TU Darmstadt International Student Servicewill be happy to assist you in all questions concerning life and studies in Germany/Darmstadt. Additionally, we as the Materials Science department are keen to make sure you have all you need for a carefree start in Darmstadt, e.g. in form of a welcoming event and a buddy programme specifically for our international Master's students.
Supervisor-student ratio	1:18

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Rishabh Kundu
B Tech (Hons.)

Materials Science is where natural sciences and engineering come together to create breakthroughs that are urgently needed for sustainability-driven innovations. I can't think of anything more fascinating!

The MSc Materials Science at TU Darmstadt – From Students For Students

Everything you want to know about our MSc programmes – from students for (prospective) students

» more:
https://www.youtube.com/watch?v=CQQtIzVXqiU&t

Technical University of Darmstadt

Materials Science main building

© Thomas Ott, TU Darmstadt

TU Darmstadt

By choosing **TU Darmstadt**, you are making an investment in your personal and professional future. Committed to academic rigour, cutting-edge research, and interdisciplinary collaboration, **TU Darmstadt** provides its community with an environment that sparks innovation. Our challenging 113 academic programmes allow students to gain international experience at an early stage while preparing them for successful careers in research, education, and the private sector.

In addition to its acclaimed strengths in engineering and technology,**TU Darmstadt** offers prospective students a wide range of study programmes in the natural sciences, social sciences, and the humanities.

Our subject profile:

50% Engineering
35% Natural Sciences
15% Humanities

Founded in 1877, **TU Darmstadt** is one of Germany's leading universities of technology and a member of TU9, a network of the most distinguished German institutes of technology. **TU Darmstadt** is also the coordinator of the European University **UNITE!** (**University Network for Innovation, Technology and Engineering**) – an alliance of nine leading European universities of technology.

TU Darmstadt has a global reputation for outstanding technology transfer through industrial partnerships, award-winning teaching facilities, and highly ranked research output. Its distinct focus on interdisciplinary cooperation works as a catalyst for innovative approaches to technology in research and everyday life applications.

Committed to an international orientation in teaching and research, as well as the promotion of values like open-mindedness and mutual respect, TU Darmstadt is home to a diverse community of students and researchers from 120 countries. With more than 300 partner universities around the globe and 40 double degree programmes as well as a strong network of industrial partners in the region, our alumni are sought-after professionals on the local, national, and international level. The QS Graduate Employability Ranking regularly ranks **TU Darmstadt** among the best universities in the world.

At **TU Darmstadt**, it is our priority to support international students in navigating this new environment. The International Student Services (ISS) team is happy to assist you before and during your stay.

University location

With around 160,000 inhabitants and well over 40,000 students (roughly 26,000 of whom are at **TU Darmstadt**), the **science city of Darmstadt** offers a high quality of life as well as numerous cultural and tourist attractions in the immediate vicinity. Due to the city's location in the centre of the **dynamic Rhine-Main region** and an excellent public transportation system, **Darmstadt** is well connected to destinations in **Germany** and around Europe.

A metropolitan high-tech centre in the heart of Europe, **Darmstadt** is the birthplace of numerous inventions that have changed our daily lives: from the radio-controlled clock, Plexiglas®, and the first enzyme-based washing agent to the liquid crystals in our mobile phones and notebooks. As the home of Art Nouveau, the internationally renowned European Space Agency, and research facilities like Fraunhofer Institutes, **Darmstadt** offers a creative and innovative milieu for living, studying and conducting research.

- Getting around: All TU students will be equipped with a semester ticket ("Deutschland Semester Ticket" in German). The "Deutschlandticket" entitles students to use all public transport in Germany.
- The University Sports Centre at **TU Darmstadt** gives students the opportunity to find a healthy balance between work and personal life. There are also plenty of opportunities to participate in activities at the university stadium or swimming pool. Entry is free of charge to both facilities. During the ongoing pandemic, students have the option of taking online classes.
- Finally, TUtor International is a project at **TU Darmstadt** supporting international students culturally, academically and socially. Our aim is to assist international students with their orientation and integration into student life and German society. As a multicultural and international team, we are well aware of the differences in cultural backgrounds, and we are here for you as companions and friends. Connect with us on Instagram and Facebook.

Contact

Technical University of Darmstadt
Department of Materials and Earth Sciences

Peter-Grünberg-Straße 2
64287 Darmstadt

master@mawi.tu-darmstadt.de
Course website: https://www.mawi.tu-darmstadt.de/MSc_en

https://www.facebook.com/mawi.tud/

https://www.linkedin.com/company/mawi-tuda/

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Section K23 – Information on Studying in Germany
Kennedyallee 50
D-53175 Bonn
www.daad.de

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