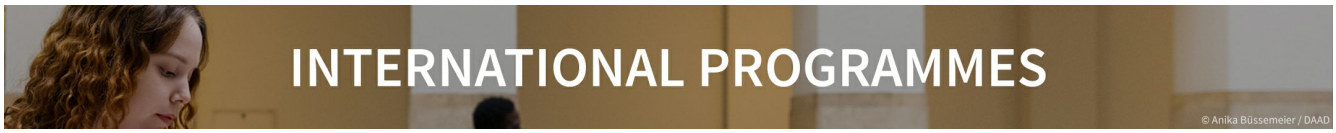
Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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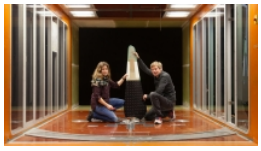
Master's degree

MSc Aerospace Engineering

Technical University of Darmstadt • Darmstadt





Overview

Degree	Master of Science in Aerospace Engineering
Teaching language	• English
Languages	There is a wide range of English taught elective courses for each elective area so that is possible to study the programme in English (100%). The Aerospace Engineering courses are offered in English (see "Course organisation"). A certain amount of further mechanical engineering courses might be chosen (most offered in German). Please consult the module descriptions for further information. The Master's thesis has to be written in English!
Mode of study	Less than 50% online
Programme duration	4 semesters
Beginning	Winter and summer semester
Additional information on beginning, duration and mode of study	At the beginning of each semester, we're happy to welcome our new students and introduce them to the study programme, the study regulations and the most important contact people to ensure that you are well prepared for the MSc Aerospace Engineering programme. The "Getting Started" orientation programme takes place at the beginning of April for the summer semester and at the beginning of October for the winter semester. The general mode of study of the Aerospace Engineering programme involves attending classes in person. Nevertheless, additional online studying material is available for several modules, ranging from recorded lectures, online tutorials or digital course material to live streaming of lectures. Please note that most of the exams can only be taken in person in Darmstadt.
Application deadline	Your complete application package (also including an up-to-date transcript of records and the equivalence list of our department) must have been received in paper form by TU Darmstadt by the dates listed for "Aerospace Engineering" on this website. Please always check the information on the website of theinternational admission office! Applicants with a German school leaving certification (Abitur) and a German Bachelor's degree should apply at TU Darmstadt via the standard track. Applications will be processed immediately. We strongly encourage early applications. During the

	formal entrance examination, proof of the required entrance competencies is verified on the basis of the submitted documents. If the entrance competencies cannot be clarified positively or negatively during the formal entrance examination, a substantive entrance examination will then be conducted. In this case, we will invite you to the exam by e-mail.
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	Yes
Description/content	The aerospace industry is a steadily growing field, and it is thus an extremely important and decisive global economic factor. Aerospace science and technology drives innovations in multitudes of disciplines and thus must be regarded as a pioneering technology field. The Technical University of Darmstadt focusses its long-standing and broad expertise in this field in order to establish a dedicated modern Aerospace Engineering education in the framework of a Master‘s degree programme. Due to its international and global character and relevance, this Master‘s degree programme is offered by internationally renowned aerospace engineering experts in English. The Master‘s degree programme in "Aerospace Engineering" is the link between engineering tradition and technological future. Consequently, the curriculum touches upon important and essential basics as well as modern and forward-looking technological aspects of aerospace engineering sciences in order to convey competences for prospective students for the establishment of engineering system solutions. Preparing the students for the scientific orientated Master’s thesis at the end of their studies, a broad range of courses are offered, from traditional basics (e.g. structural mechanics, fluid dynamics, flight mechanics) and applied disciplines to innovative and modern teaching forms such as face-to-face tutorials in very small groups on topics such as the field of additive manufacturing or cockpit design. Do you want to find out whether your idea of the Master's fits our programme? Let's find out by using the Online Self Assessment. Are you interested in what our students have to say about the programme? Let's ask the #studentsoftudarmstadt about it.

Course Details

Course organisation	**Compulsory Elective Courses Ia – Fundamentals (Choose one out of three):** • Machine Dynamics (taught in German) • Sustainable Systems Design • Transport Phenomena **Compulsory Elective Courses Ib – Digitalisation (Choose one out of three):** • Digitalisation in Production (taught in German) • Machine Learning Applications • Smart Products, Engineering & Services **Compulsory Elective Courses II** – Core Electives from Aerospace Engineering* • Advanced Fluid Mechanics I • Avionics System Safety • Composite Structures • Compressible and Irrotational Flow

- Flight Mechanics II: Dynamics
- Flight Propulsion
- Foundations of Space Systems
- High Temperature Materials Behaviour
- Introduction to Turbulence
- Laser Measurement Technology
- Lightweight Engineering I
- Lightweight Engineering II
- Mechatronic Systems I
- Mechatronic Systems II
- Modelling of Technical Turbulent Flows
- Space Systems and Operations

Compulsory Elective Courses III – Electives from the Natural Sciences and Engineering in the field of Aerospace Engineering*

- Aerodynamics II
- Compressor Technology
- Finite Element Methods in Structural Mechanics
- Fundamentals of Navigation I
- Fundamentals of Navigation II
- Future Air Transportation Systems
- Global Satellite Navigation Systems and Orbit Determination
- High-Accuracy Methods for Computational Fluid Dynamics
- High Temperature Materials Behaviour II
- Lightweight Construction Materials
- Nonlinear Finite Element Analysis in Lightweight Design
- Space Debris – Risks, Surveillance and Mitigation
- Space Flight Mechanics
- Structural Integrity and Fracture Mechanics
- Systemic Evaluation of Air Transportation
- Virtual Testing for Lightweight Structures

The compulsory elective areas offer a wide range of different topics so that you can study the subjects that interest you the most. In addition, the programme offers the following elective areas:

- Advanced Design Project (team work on recent research topics)
- External Project Work (conduct a project at an industry partner for 12 weeks)
- Laboratory Tutorial
- General Studies (take courses from other departments)
- Master's thesis (six months, full-time)

*It is also possible to choose some further course of the Mechanical Engineering Department in these elective areas. You can find more information on our website. Please note that offered lectures might change in time.

You will find detailed module descriptions in the download section of our website.

A Diploma supplement will be issued	Yes
International elements	• Projects with partners in Germany and abroad • Language training provided
Integrated internships	**External Project Work** The internship serves to increase the understanding of knowledge already acquired in lectures from the Bachelor's degree programme in a practical environment. In this way, the internship allows students to gain insight into various activities in the working world. It thus serves as preparation for possible future fields of work. The project work aims at the individual activity of the students. The students perform a practice project within a company. The project as well as the company is chosen by the students.

	Duration: The project has a duration of 180 hours, and it has to be done within the scope of a full-time occupation of at least 12 weeks.
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 about 340 EUR per semester. This includes administrative fees and the semester ticket ("Deutschlandticket"). The area of validity of the semester ticket will be extended to all transportation organisations and lines participating in the "Deutschlandticket" offer throughout Germany. Registration fees
Costs of living	Estimated living expenses are about 700 EUR to 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 within the university	Yes
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” can be submitted twice a year. The application periods are as follows: 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 Mechanical Engineering, Aerospace Engineering or an equivalent
Language requirements	Applicants must provide proof of sufficient English language skills, e.g.: • UNIcert-Step III in English • TOEFL test (paper/cBT 550/213, iBT 95) • IELTS 7/7.5/8 • CEFR (grade C1) For the most recent information on the accepted language certificates or equivalence of other

	English language certificates, please check this website or contact the International Admission Office.
Application deadline	Your complete application package (also including an up-to-date transcript of records and the equivalence list of our department) must have been received in paper form by TU Darmstadt by the dates listed for "Aerospace Engineering" on this website. Please always check the information on the website of theinternational admission office! Applicants with a German school leaving certification (Abitur) and a German Bachelor's degree should apply at TU Darmstadt via the standard track. Applications will be processed immediately. We strongly encourage early applications. During the formal entrance examination, proof of the required entrance competencies is verified on the basis of the submitted documents. If the entrance competencies cannot be clarified positively or negatively during the formal entrance examination, a substantive entrance examination will then be conducted. In this case, we will invite you to the exam by e-mail.
Submit application to	**Online Application TU Darmstadt** For more information, also refer to the website of our department.

Services

Possibility of finding part-time employment	Students can be employed as tutors or student researchers, for example. Jobs & part-time work Jobs @ Department of Mechanical Engineering
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	Please find more information on this website and also here.
Support for international students and doctoral candidates	• Welcome event • Buddy programme • Specialist counselling
General services and support for international students and doctoral candidates	• Mentoring by professors as well as the MasterPlus programme by the international office, departmental peer-to-peer mentoring as part of the Getting Started Programme • Open office hours offered by theMechCenter – the Office for Student Affairs of the

Department of Mechanical Engineering
- Support by the International Student Service

©Andreas Kappel, TU Darmstadt

Andreas Kappel

MSc, Institute of Lightweight Engineering and Structural Mechanics, Dept. Mechanical Engineering

In aerospace engineering, we try to solve complex and interdisciplinary challenges for the future mobility of a globalised society.

Aerospace Engineering @ TU Darmstadt

We engineer the future! Engineers help shape tomorrow's world. We are aware of our responsibility and think beyond our own professional world. With an open and curious mindset, we prove our ability to develop inter- and transdisciplinary ideas and solutions again and again. With this approach, we are capable of tackling and shaping the major topics of the future – together with you!

» more:
https://youtu.be/lxNrBdUIBNA

Technical University of Darmstadt

Lecture and media centre

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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 Mechanical Engineering

Otto-Berndt-Straße 2
64287 Darmstadt

info@mechcenter.tu-darmstadt.de
Course website: https://www.maschinenbau.tu-darmstadt.de/studieren/interessierte/interessierte_master/m__sc___aerospace_engineering/maschinenbau_bsc_2.en.jsp

https://www.linkedin.com/company/technische-universit%C3%A4t-darmstadt-fachbereich-maschinenbau/

https://www.instagram.com/tudsat_ev/

https://www.youtube.com/channel/UCGaNnlFr7qtiOLvZ293qvWg

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

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