INTERNATIONAL PROGRAMMES

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Master's degree

Distributed Systems Engineering (DSE)

Dresden University of Technology • Dresden

Overview

Degree	Master of Science
Teaching language	English
Languages	Courses are held in English, except for specific language courses.
Full-time / part-time	full-time
Mode of study	Fully on-site with voluntary online elements
Programme duration	4 semesters
Beginning	Winter semester
Additional information on beginning, duration and mode of study	The International Master's Programme in Distributed Systems Engineering starts in October every year. Check the semester schedule of our university for specific dates. Lectures, seminars, and exercises are held on campus with additional online material. Some lecturers also offer online material to study their courses remotely without attendance. However, the curriculum is designed to be on campus, to get in contact with lecturers and your fellow students. Exams are only done on campus; you cannot attend them online.
Application deadline	- Non-EU nationals with a (prospective) degree from non-German institutions of higher education: **31 May** - Non-EU nationals with a (prospective) degree from German institutions of higher education, EU nationals, German nationals: **15 July**
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	The objective of the programme is to provide students with both the fundamental background knowledge in the area of distributed systems and up-to-date skills and techniques required for a

successful career either in the scientific or industrial sector in this field. In order to realise this objective, the programme is structured into different components. These include mandatory modules, electives, an internship/programming project, and the Master's thesis.

The six mandatory modules will provide fundamental background knowledge for all students. These modules – Foundations of Systems Engineering, Advanced Concepts of Systems Engineering, Ubiquitous Systems, Transactional Information Systems, Foundations of Security and Cryptography, and System Design – cover all layers of abstraction of distributed systems. The Systems Engineering modules provide the foundations of computational systems. The other modules focus on the different layers of abstraction, such as database systems and computer networks, security, and software architecture. In summary, the six mandatory modules provide a comprehensive introduction to the fundamental topics in distributed systems engineering, enabling students to choose their preferred specialisation for their future career.

The elective modules enable students to benefit from TU Dresden's specific local and scientific expertise in different research topics and teach students up-to-date skills and techniques in the field of distributed systems engineering. The courses in these modules are offered on a yearly basis, to allow for the easy adaptation of the programme to new developments in the fast-evolving field of computer science, and, more particularly, in the field of distributed systems. The internship/programming project enables students to apply their acquired skills in a particular practical area. The internship can be performed at a research lab or at a company associated with TU Dresden. Students conclude their studies with the Master's thesis.

Course Details

| Course organisation | The programme is structured into different components. In the first semester, students are expected to complete the six mandatory modules with a total load of 32 credits. The second and third semesters then allow students to pick from a variety of elective modules (with a total of 45 credits) to find contents relevant for their future careers. The internship (13 credits) is meant to be completed during the second semester. Students can rearrange this schedule to meet their own interests, i.e. they may choose more elective modules in the second semester and thus pursue the internship in the third semester. The fourth semester is fully dedicated to writing the Master's thesis. In total, students will earn 120 credits. A language course to learn the essentials of the German language or to improve English writing skills (with a focus on scientific writing) is also part of the curriculum.

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| **A Diploma supplement will be issued** | Yes |
| **International elements** | • Language training provided |
| **Description of other international elements** | • The course language is English.
• Students are highly encouraged to spend at least one semester abroad, either at one of our partner universities or at another research or industrial institution of their choice.
• Currently, student exchange agreements in the form of bilateral Erasmus agreements exist with several universities. |
| **Course-specific, integrated German language courses** | Yes |
| **Course-specific, integrated English language courses** | Yes |

Online learning

Pace of course	Mixed (e.g. fixed exam dates and duration, study content can be studied at any time)
Phase(s) of attendance in Germany (applies to the entire programme)	Yes, compulsory
Types of online learning elements	- Chats (with lecturers and other students) - Discussion forums and / or groups - Flipped Classroom - Online sessions - Online study material provided by institution - Online tutorials - Video learning (Pre-recorded videos, Vlogs, Video-Podcasts)

Costs / Funding

Tuition fees per semester in EUR	None
Semester contribution	Currently, students pay approx. 300 EUR per semester (i.e. for six months), including a ticket for public transport in Dresden (bus, tram, ferry, "S-Bahn" suburban train) and regional trains in the Federal State of Saxony. Students can also use a bike rental service all over the city for free for 30 minutes. The contribution also assures concessions in the university cafeterias and offers benefits (e.g. price reductions) for many cultural and leisure activities in Dresden.
Costs of living	Dresden offers high quality of living at very moderate costs. Currently, students should expect to pay around 850 EUR per month including rent, food, insurance and basic expenses. This figure is relatively low compared to other big German cities.
Funding opportunities within the university	Yes
Description of the above-mentioned funding opportunities within the university	Information on scholarships and funding for students is summarised on a dedicated web page of the TU Dresden.

Requirements / Registration

Academic admission requirements	The minimum prerequisites for the international Master's programme in Distributed Systems Engineering are as follows: - Applicants must have a three-year Bachelor's degree in computer science or a comparable first vocational qualifying university degree that is recognised in Germany. You must have finished 80% of your Bachelor's programme by the time that you apply. - Applicants must submit a document (e.g. Transcript of Records) indicating "very good" (based on scored marks and/or grades) achievements in the following computer science

related areas: Operating Systems, Networks and Distributed Systems, Database Systems, and Software Engineering. Applicants must also have at least "good" (based on scored marks and/or grades) achievements in subjects like Algorithms and Data Structures, Foundations of Programming, Computer Architecture as well as Mathematics and Theoretical Computer Science. Your transcript must show a strong emphasis on these areas, i.e. you must have taken the majority of the corresponding courses during your Bachelor's course of study.

- Additionally, you are expected to have some programming skills. Therefore, labs or assessments during your studies, internships, work experience, (open-source) projects, and contributions to such projects or software that you have verifiably developed or to which you have contributed is counted toward this admission requirement.

Applicants need to provide some information as part of the aptitude assessment process. We do not have any tests or exams that you have to pass. You just need to answer some general questions about your expertise and previous studies. Please use our online portal to create the respective form sheet and include all of the above-mentioned certificates as well as a few additional documents in your application.

Please always check the most recent updates regarding requirements on our website.

Language requirements	Certificate of English language proficiency at (at least) a C1 CEFR level (for non-native speakers only). Since the language of instruction in the Master's programme is English, students whose first language is not English must prove proficiency in the English language. We recognise many different tests, for instance TOEFL or IELTS. Please always check the most recent language requirements on our website! Native speakers from countries with multiple official languages are kindly asked to provide proof as well, for instance, a school leaving certificate that mentions English as the native language. Using a well-recognised test, however, speeds up the aptitude assessment process.
Application deadline	- Non-EU nationals with a (prospective) degree from non-German institutions of higher education: **31 May** - Non-EU nationals with a (prospective) degree from German institutions of higher education, EU nationals, German nationals: **15 July**
Submit application to	Please find detailed instructions on how and where to submit your application on our website. Please also consider the general instructions of our university.

Services

Possibility of finding part-time employment	In order to top up their budget, some students may want to look for temporary work in Dresden. If so, different regulations apply for students from EU member states, countries of the European Economic Area (EEA) and Switzerland, and students from outside the European Union and the EEA area. In addition, restrictions on the duration of employment may apply. Professors, lecturers and group leaders involved in the Master's programme may offer students the possibility of working as academic assistants. However, living expenses can be financed only partially through a job as an academic assistant.
Accommodation	It is still relatively easy to find affordable accommodation in Dresden. Accommodation is available either via the "Studentenwerk Dresden" or on the private market. Rent for a single room in a student residence is approx. 250 EUR per month. Private housing can be found online. We recommend that you move into a hall of residence at the beginning of your stay in Dresden. Subsequently, you can look for a place on the private market or in a shared apartment, which is known as a "Wohngemeinschaft" in German.

Career advisory service	TU Dresden offers plenty of counselling and training within its Career Service to help students with finding professional orientation. They offer workshops to equip students with professional skills and aid to optimise their CV. Additionally, there are special workshops for international students to get to know the German and Saxon job market and network.
Support for international students and doctoral candidates	• Welcome event • Tutors • Specialist counselling
General services and support for international students and doctoral candidates	The TU Dresden International Office is the first address for international students to ask for support that is not specifically related to the contents and structure of the Master's programme. The International Office offers a tutor network and an introduction day at the beginning of the first semester. The International Office's cultural office and various student initiatives provide a plethora of social and cultural activities each semester.

Contact

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🌐 Course website: https://dse.inf.tu-dresden.de

🅕 https://www.facebook.com/ingTUDresden

⚫ https://twitter.com/ingTUDresden

🅞 https://www.instagram.com/tudresden

▶ https://www.youtube.com/TUDresdenTV

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International Programmes in Germany - Database

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