



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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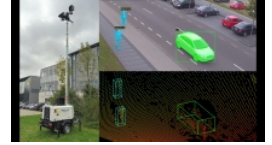
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Master's degree



Automotive Engineering (MSc)

RWTH Aachen University • Aachen



Overview

Degree	Master of Science in Automotive Engineering
Teaching language	<ul style="list-style-type: none">English
Languages	<p>The Automotive Engineering (MSc) degree programme is a Master's programme that is fully taught in English (100%). All compulsory and elective modules are taught in English.</p> <p>The Master's thesis can be completed in either German or English.</p>
Full-time / part-time	<ul style="list-style-type: none">full-time
Programme duration	3 semesters
Beginning	Winter semester
Application deadline	<p>The following dates apply for starting our programme on 1 October (winter semester) each year:</p> <p>Non-EU students (non-EU/EEA citizens): 1 December to 1 March</p> <p>EU students (EU/EEA citizens) and international exchange students who are already enrolled as students at RWTH Aachen University: 1 May to 15 July</p>
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	<p>The English-taught Automotive Engineering (MSc) Master's programme at RWTH Aachen University is part of the extensive catalogue of Master's degree programmes in Mechanical Engineering. The Faculty of Mechanical Engineering is among the most acclaimed in the world and one of the largest</p>

in Europe. Automotive Engineering is an essential part of the different institutes and research entities. With the Institute for Automotive Engineering celebrating its 120th anniversary in 2022, education and research in this field have a long tradition. Key infrastructure includes automotive laboratories for chassis and drivetrain components, a dynamic (hexapod-type) driving simulator, crash test facilities, climate and semi-anechoic chambers and extensive test tracks (incl. autonomous driving infrastructure). An insight into our extensive facilities, research activities and industrial projects can be found at www.ika.rwth-aachen.de.

The English-taught Automotive Engineering (MSc) Master's programme was originally introduced in 2000 and attracts a vast number of applicants each year.

In this programme, students are taught the technological basics and in-depth knowledge of the conception and the development of passenger cars and commercial vehicles as well as the conception and the development of motorcycles and off-highway vehicles (e.g. agricultural vehicles and bots). This comprises technical vehicle design with regard to market, legislative, and manufacturing requirements. Course modules cover all major research and development domains such as chassis, body, drivetrain, safety, driver assistance systems, thermal management, electronics, connected and automated driving and others. An extensive focus is on autonomous driving. Graduates will be proficient in relevant technological areas like vehicle dynamics, energy efficiency, acoustics, mechatronics, structural fatigue, and durability.

The programme provides in-depth knowledge of industrial design approaches and research topics with regard to real-world vehicle requirements, market developments, and legislative constraints.

Students have the option to join excursions and technical visits that take place each year in the excursion week in May/June following Whitsun. Some elective courses are held by lecturers from industry and also feature dedicated visits to automotive companies.

The Master's thesis is usually embedded in a real project on state-of-the-art topics with industrial partners or different partners in publicly-funded projects (e.g. EU funding).

After graduation, students will enjoy a highly regarded Master's degree with a multitude of possible opportunities to work in research, industry, consultancies or other sectors. The degree qualifies students to continue towards a German Dr-Ing degree or continue in PhD degree programmes around the world.

Current information

The student advisory service of the programme (masterprog@ika.rwth-aachen.de) offers dedicated individual support for students and applicants from countries/regions of conflict and/or crisis. All communication remains confidential.

Course Details

Course organisation

The programme duration is three semesters, and it consists of two semesters of compulsory and elective courses. Each semester comprises on average 30 CP (credit points).

A 22-week Master's thesis concludes the programme after the third semester.

The courses are taught in English and usually comprise lectures and corresponding exercises as well as a written or oral examination. Compulsory subjects amount to 38 CP, and elective course of 22 CP are to be taken within the first two semesters. The Master's thesis itself is weighted at 30 CP.

The students are required to earn a total of 90 CP. Students who have been conditionally accepted into the programme and must acquire additional CP will have to earn more than 90 CP in order to make up the credits they were missing at the time of admission (maximum 120 CP).

The final grade is the credit-weighted average of all prior modules, excluding enrolment conditions.

» [PDF Download](#)

A Diploma supplement will

Yes

be issued

Integrated internships

An industrial internship of 20 weeks must be approved prior to the registration of the Master's thesis. It can be an internship that was already completed before enrolment.

The approval of the internship does not take place upon application to the programme. A reminder to obtain the approval will appear in the acceptance letter.

Most students will have permission to pursue internship positions in industry in Germany using their student visa, provided the internship content is in line with the internship guidelines.

The internship guidelines can be found on the website of the Faculty of Mechanical Engineering (<http://www.maschinenbau.rwth-aachen.de>). If you have questions regarding the contents of required internships, please contact the Faculty of Mechanical Engineering Internship Office: praktikantenamt@fb4.rwth-aachen.de.

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

There are no tuition fees at RWTH Aachen University, except for RWTH Academy programmes. However, every student, including international students, must pay a student body and social contribution fee, which includes the cost of a semester ticket (state-wide public transport excluding long-distance trains/buses in North Rhine-Westphalia, plus some buses crossing into Belgium and the Netherlands). The exact amount varies each year. It is currently approx. 300 EUR per semester.

Costs of living

The entire cost of studies and life in Aachen, including rent, insurance, living expenses, etc., is on average at least 1,100 EUR per month or 13,200 EUR per year. Please find more information about general costs via the following website: <http://www.rwth-aachen.de/go/id/bqmo/lidx/1>.

Funding opportunities within the university

No

Requirements / Registration

Academic admission requirements

The primary requirement for admission to the three-semester Master's programme in Automotive Engineering (MSc) is a Bachelor's degree (or equivalent) in mechanical engineering or automotive engineering (minimum seven semesters). The following content is required (amount/contents as per RWTH module handbooks):

- Mechanik / Mechanics
- Maschinengestaltung / Machine Design
- CAD-Einführung / Introduction to CAD
- Thermodynamik / Thermodynamics
- Wärme- und Stoffübertragung / Heat and Mass Transfer
- Werkstoffkunde / Material Science

- Regelungstechnik / Control Engineering
- Strömungsmechanik / Fluid Mechanics
- Mathematik / Mathematics
- Fahrzeugtechnik - Längsdynamik / Automotive Engineering – Longitudinal Dynamics
- Fahrzeugtechnik - Vertikal- und Querdynamik / Automotive Engineering – Vertical and Lateral Dynamics
- Grundlagen Mobiler Antriebe / Mobile Propulsion Fundamentals
- Mechatronische Systeme in der Fahrzeugtechnik / Mechatronic Systems in Automotive Engineering
- Industriepraktikum / Industrial internship (20 weeks as per RWTH regulations – internship can be taken after enrolment until registration of the Master's thesis)

Lacking or not completely meeting these requirements will result in enrolment conditions, i.e. mandatory subjects required in addition to the formal curriculum to be completed after enrolment and prior to the registration to the Master's thesis. Certain limitations apply to the maximum amount of imposed conditions, and exceeding these will mean that we will not accept you into our programme. Enrolment conditions will not exceed 30 CP (exceptions apply), and it will probably mean that the realistic duration to complete the programme extends to four semesters (including Master's thesis). The decision concerning enrolment conditions is taken by the Examination Board after careful assessment of each individual application.

There is no minimum GPA requirement, but all prospective applicants are advised that the programme is very demanding, and coursework and exams are unlike any they may have taken before.

Mandatory requirements for the application:

1. Tabular resume / CV
2. Copy of transcript of records
A transcript of records with all of the completed semesters is key to the selection process. If your Bachelor's studies have not yet concluded, the last year's (i.e. last two semesters) transcript can be submitted later prior to enrolment. It is strongly recommended to include an overview of the subjects you are taking during your final year.
3. Module descriptions / diploma supplement / module catalogue
An official description of the course contents in your Bachelor's programme provides us with vital information to assess your fitness for our Master's programme. It forms the basis for potential enrolment conditions. There is no defined format; please simply use the one provided by your university. If this information is incomplete, we will be unable to properly assess your proficiency in the relevant fields. It is likely that it would lead to a rejection – even if you actually fulfil all requirements.
4. Copy of university completion certificate (degree certificate)
5. Proof of English language skills: Copy of language certificate (TOEFL, IELTS, etc.)
6. Only for non-EU students (non-EU/EEA citizens): Copy of GRE test certificate
Minimum test results: Verbal Reasoning 145, Quantitative Reasoning 160, Analytical Writing 3.

Further optional documentation/proof of proficiency/assessments may include internship certificates, job references, national university entrance examination result (e.g. GATE), motivation letter, recommendation letters, etc.

Important: All official documents are required in their original language and translated into German or English. The correctness of the translation must be notarised by the responsible German diplomatic or consulate representative in your home country (e.g. at a German Embassy) or through a registered/certified interpreter or translator. You can upload copies of the notarisations. Please make sure that any notary stamps etc. are clearly visible and legible.

Language requirements

The Automotive Engineering (MSc) Master's programme is an international Master's programme taught in English. German language proficiency is therefore not a requirement. However, knowing some German is very helpful in daily life in Aachen, and we recommend taking a dedicated language course if you have no knowledge of German language at all.

The following language tests are accepted as proof of English language skills:

- Test of English as Foreign Language/TOEFL, Internet-based test IBT test score: 90
- IELTS Test score: 5.5
- Cambridge Test – Certificate of Advanced English CAE

- First Certificate in English (FCE), grade: B
 - A certificate, certifying English skills at the B2 level of the Common European Framework of Reference for Languages, CEFR – This certificate can be a German "Abitur" certificate, where it is clear that a student completed English until the end of Qualification Phase 1 – that is grade 11 for the G8 "Abitur", otherwise grade 12 – and completed the subject with at least sufficient performance.
 - Placement test of the RWTH Aachen Language Centre at the B2 level, that is MK 7
- Important Information:** Applicants who are already enrolled as students at RWTH Aachen may only obtain and use this language certificate.

Applicants who have completed an educational qualification (secondary or higher level degree) in the UK, Ireland, USA, Canada, New Zealand, or Australia are exempt from the requirement to provide evidence of English language proficiency.

A mere participation in an English-language academic or study programme in one of the countries listed above (e.g. during an exchange year etc.) does not replace the language test requirement. Studies in an English-language study programme in a country other than one of the countries above is not sufficient! Language tests from other universities are not accepted either, nor are certificates and test results from other tests.

Application deadline

The following dates apply for starting our programme on 1 October (winter semester) each year:

Non-EU students (non-EU/EEA citizens):
1 December to 1 March

EU students (EU/EEA citizens) and international exchange students who are already enrolled as students at RWTH Aachen University:
1 May to 15 July

Submit application to

Applications can only be submitted through the [RWTHonline application tool](#). Do not use any other means to apply. We strongly advise against using agencies and/or organisations that falsely promise a higher chance of acceptance.

Services

Possibility of finding part-time employment

International students may take up work in the private sector during the semester or in the semester break for up to four months without having obtained a work permit. Students thus may work full time for 120 days or part time (up to four hours per day) for 240 days. This regulation is also stated on the residence permit.

During the semester, students are allowed to take up jobs with working hours of up to 19 hours a week. During the semester break, students may work full time but only for a maximum of 13 consecutive weeks. To give an example: A student takes up a job at a restaurant. She or he is scheduled to work for 19 hours per week. According to the regulation stated above, the student is allowed to work for 48 weeks of the year. The student's employer is advised to register the number of days that the student has worked in order to avoid difficulties with the Immigration Office.

Student assistants are more flexible with regard to working hours since the aforementioned regulation does not apply. As a student assistant - the so-called "HiWi" – you are allowed to work up to 19 hours per week throughout the year. These HiWi positions are very sought-after and difficult to obtain, especially if placed in very popular institutes.

Please find more information about financial matters and work opportunities on the following website: <http://www.rwth-aachen.de/go/id/bqmp/lidx/1>.

Accommodation

Unlike in other countries, you are not automatically assigned a place to live when you come to Germany to study. You must independently look for housing and independently apply for a room in a dorm.

RWTH Aachen University does not own or manage any dorms and thus cannot provide nor guarantee housing. The staff at the International Office can only provide you with information about providers and give you an overview of different options. Here are a few tips to prepare you for apartment hunting in Aachen:

1. Begin your search for housing at least three months before you come. Use the numerous addresses and information on our webpages. When searching for an apartment, you can apply to both the private apartment market or to the Studierendewerk dorms.
2. In order to increase your chances of finding a room or an apartment, it is important that you are flexible about the location and take the outer districts of Aachen and surrounding cities into consideration. Please note that if you are not a citizen of the EU, the conditions of your visa may not allow you to live outside of Germany.
3. Reserve a room early on for your first few days or weeks in Aachen – for example, in a hostel or guesthouse. That way, you can be sure that you have short-term housing and can continue to look for permanent housing once you are here.

The availability and demand of the housing market often determine whether you find a private apartment, a shared flat, or a room in a student dorm. Your search can take longer than you expect. You aren't alone though; almost all new students at RWTH are in the same situation. Start your search early and don't be shy about asking for help.

Career advisory service

A dedicated course advisory service is available to all students. The advisers in charge are themselves engineers in Automotive Engineering with extensive experience to support any arising academic and career planning queries.

Specific career advisory support and counselling for female students is provided by a team of experts at the Faculty of Mechanical Engineering as well as across the university.

Support for international students and doctoral candidates

- Welcome event
- Buddy programme
- Visa matters
- Specialist counselling

General services and support for international students and doctoral candidates

Support with many formalities is provided by the [International Office](#).

RWTH Aachen University is a diverse university. It offers extensive support in all matters of gender, diversity and equal opportunities. These include advisory experts and a range of dedicated events in German and English.

Its LGBTQ+ community is also well organised. Denominational student unions as well as unions and clubs relating to different national and cultural backgrounds are equally available.

The RWTH sports centre is available to all members of the university and offers a range of activities.

Furthermore, student support in Mechanical Engineering is guaranteed by over 60 distinguished professors (chairs), 150 adjunct professors/lecturers and over 1,000 full-time engineering researchers (most with teaching roles).



Institute for Automotive Engineering (ika) at RWTH Aachen University

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Thinking the Future

The Excellence Initiative of the German federal and state governments provided a huge boost to the further development of RWTH Aachen University. The institutional strategy on which the successful Excellence Initiative application was based has, in the meantime, been expanded to form a long-term strategy to strengthen all the areas of the university and enhance their profiles. In the process, it has gained great momentum, an example of which can be seen in the extensive building activities.

Visible evidence of this is the [RWTH Aachen Campus](#), which is being developed in close cooperation with industry and which is to form one of the largest research campuses in Europe. Students and employees of RWTH Aachen will benefit equally from these developments and are expressly invited to get involved in shaping the individual initiatives.

The many stimulating ideas already have an impact on the whole urban region of Aachen and the entire tri-border area of Germany, Belgium and the Netherlands. An innovative knowledge community is evolving, which is closely networked with some of the world's leading research and industry partners.

RWTH Aachen is a major driving force behind this development. And Aachen, as a liveable and lovable city at the crossroads of three cultures, provides an ideal environment for this creative process of development.

RWTH Graduates in High Demand

With its 260 institutes in nine faculties, RWTH Aachen is among the leading European scientific and research institutions. Its 45,377 students in 157 courses of study were registered for the winter semester of 2017/18, including 9,651 international students from 131 countries. Teaching at RWTH Aachen is first and foremost application-oriented. Its graduates are therefore sought-after as junior executives and leaders in business and industry.

National [rankings](#) (DE) and international assessments attest to the RWTH graduates' marked ability to handle complex tasks, to solve problems constructively by using teamwork and to take on leadership roles. It is therefore not surprising that many board members of German corporate groups studied at RWTH Aachen.



University location

Many new products and processes originate in Aachen. In the research laboratories and testing facilities of RWTH, for example, the first all-metal aircraft was developed, as was the diesel soot filter. This is where the first wind tunnel stood and the first particle accelerator.

This trend-setting innovative capacity and the practical technology transfer to the economic world have a long history in Aachen, the city of science. The first German Technology Development Center opened here in 1982. With its business start-ups and the approximately 32,000 jobs that were created as a result, Aachen has become the city with the highest density of university spin-offs and engineering offices in Germany.

Science has defined the structural change from a mining area to a technology region and today it is the most important economic factor. More than 50,000 people study and teach at the four universities and colleges in the Aachen region. Because of the academic expertise here, Forschungszentrum Jülich and numerous research centres of international corporate groups have been established in and around Aachen, making the urban region a Silicon Valley at the heart of Europe.

Aachen, known as an “Europastadt” (city of Europe), is Germany’s westernmost major city at whose city borders three nations with three languages converge. It is the centre of a dynamic, cross-border knowledge region, and it stands for world-class university education in natural sciences and engineering.

International RWTH students from various countries, along with the close contacts the university has with many registered alumni, give the scientific centre of Aachen an international atmosphere.

Teaching and research are also reflected in the image of the city. Thanks to the students and their diverse cultural life, the tradition-rich city of Aachen has a lively and young appearance, particularly in the student quarter of Pontviertel. Its proximity to the Eifel and the Ardennes as well as to Maastricht and Brussels with their linguistic and cultural distinctiveness give the city that lies in the shadow of Charlemagne’s palace chapel a particular charm. According to a study by the Prognos consultancy, anyone who has been here once keeps coming back...

Contact

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Institute for Automotive Engineering (ika)

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🌐 Course website: <https://www.ika.rwth-aachen.de/en/studies/study-programs/automotive-engineering-msc.html>

● https://twitter.com/ika_RWTH

🌐 <https://de.linkedin.com/company/institut-f-r-kraftfahrwesen-aachen-ika->

📷 <https://www.instagram.com/rwthaachenuniversity/?hl=de>

📺 https://www.youtube.com/channel/UC1JYszBEw9BgHDJ_tSSUfDQ

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German Academic Exchange Service

Section K23 – Information on Studying in Germany

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www.gate-germany.de

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