



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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Master's degree



AI Engineering of Autonomous Systems

Technische Hochschule Ingolstadt • Ingolstadt



Overview

Degree	Master of Engineering (MEng)
Teaching language	<ul style="list-style-type: none">English
Languages	The language of instruction of the Master's programme is English.
Full-time / part-time	<ul style="list-style-type: none">full-timepart-time (study alongside work)
Programme duration	3 semesters
Beginning	Winter and summer semester
Application deadline	<ul style="list-style-type: none">2 May to 15 July for the following winter semester (start early October)15 November to 15 January for the following summer semester (start mid-March) <p>If you have a Bachelor's degree from a country other than Germany, uni-assist must check your eligibility for study in Germany and convert your grades to the German grading system. You will need to submit all the necessary documents to uni-assist online. The process will take between four and six weeks to complete.</p>
Tuition fees per semester in EUR	500 EUR
Additional information on tuition fees	<p>This is a service fee payable by all students from third countries (with a citizenship outside the EU and the European Economic Area).</p> <p>With this fee, we want to significantly expand our services for international students.</p> <p>No service fees are charged for citizens of an EU member state and/or the European Economic Area or for students who have obtained their university entrance qualification in the German education system.</p>
Combined Master's degree / PhD programme	No

Joint degree / double degree programme No

Description/content

This exciting programme is designed to equip you with the necessary knowledge and skills to work on cutting-edge artificial intelligence (AI) technologies that currently are and will be transforming industries and changing the way we live and work.

Throughout this programme, you will learn how to design, develop, and deploy intelligent systems that can learn, make decisions and operate autonomously, i.e. without human intervention. You will explore advanced topics such as sensor networks and data fusion, data engineering, computing and software engineering, machine learning and decision making, perception and cognition as well as connectivity, which are the building blocks of modern autonomous systems.

Our experienced faculty members are experts in the field of AI engineering and as such also members of the unique "Almotion" approach funded by the Bavarian government. They will provide you with practical, hands-on training as well as theoretical insights that will help you apply your learning to countless real-world problems. Our professors will guide you through the latest developments in the field of AI engineering, including ethical considerations and challenges that come with developing autonomous systems.

By the end of this programme, you will have the skills and knowledge to design and implement intelligent systems that can learn from data, adapt accordingly, and make decisions that optimise overall performance. You will be able to develop autonomous systems that can provide new functionalities, enhance safety, and improve efficiency in a wide range of industries, e.g. mobility, production, agriculture and medical engineering.

We believe that AI engineering is the future of technology and that autonomous systems will play a crucial role in shaping our world. We are excited to accompany you on this journey, and we are committed to providing you with the support and resources you need to succeed. So come and join us and be a part of the revolution in AI engineering!

Course Details

Course organisation

The duration of the programme is three semesters. Two semesters of compulsory and elective modules are followed by one semester for the Master's thesis. The modules are taught in presence at the Technische Hochschule Ingolstadt.

The programme consists of compulsory modules in the following areas:

Intelligent Sensing and Exploration

Sensors are the sensory organs of autonomous systems, key to their mobility and autonomy. Data from multiple and even different sensors are combined to quickly and accurately communicate information about the environment, physical events, activities or situations to decision-making components.

Planning, Control and Decision Making

Planning with intelligence is a prerequisite for autonomous and predictive action. Systems need to be able to plan their actions in order to achieve a given goal and to respond to unexpected or new situations by changing their behaviour. Machine learning methods are used to combine sensory data with past experience and draw conclusions that can be used to improve actions.

Software Methods and System Development

The development of autonomous systems is approached from a software engineering perspective. Various characteristics of autonomous systems, cloud and edge computing architectures as well as learning models will be covered in order to demonstrate the technical feasibility of systems that can dynamically adapt their behaviour to changes in operating conditions by means of software.

The compulsory part is complemented by elective modules. These modules focus on specific

aspects of the development of autonomous systems, automotive applications, innovation management, and engineering processes as well as German language courses.

The research methods module allows students to apply scientific research methods to a state-of-the-art topic in AI engineering. The topic will be presented and discussed with peers and summarised in a seminar paper.

The group project provides students with an experience of "learning by doing" and collaboration in a team of their peers. A project presentation and a summary paper are the culmination of the project work.

A Diploma supplement will be issued	Yes
International elements	<ul style="list-style-type: none">• International guest lecturers• Language training provided• Projects with partners in Germany and abroad
Course-specific, integrated German language courses	Yes
Course-specific, integrated English language courses	No

Costs / Funding

Tuition fees per semester in EUR	500 EUR
Additional information on tuition fees	<p>This is a service fee payable by all students from third countries (with a citizenship outside the EU and the European Economic Area).</p> <p>With this fee, we want to significantly expand our services for international students.</p> <p>No service fees are charged for citizens of an EU member state and/or the European Economic Area or for students who have obtained their university entrance qualification in the German education system.</p>
Semester contribution	All students will have to pay a student services fee of 67 EUR per semester.
Costs of living	Student organisations estimate that costs of living are approx. 950 EUR or more per month, depending on individual needs and expectations. Mandatory health insurance in Germany will cost a student around 110 EUR per month.
Funding opportunities within the university	Yes
Description of the above-mentioned funding opportunities within the university	There are different scholarships available to enrolled students, such as the Deutschlandstipendium. All students will have to look and apply for specific scholarships themselves!

Most scholarship programmes are based on performance (grades, voluntary work, etc.). The economic situation of applicants is usually not taken into consideration. A certain level of German language skills (at least B2) is required for many scholarships.

The International Office also offers scholarships. Enrolled international students will be notified of the call once a year via the communication channels of the university.

Requirements / Registration

Academic admission requirements

Admission to this programme is based on a successfully completed Bachelor's degree in engineering, natural sciences or computer science totalling 210 ECTS. In case of a Bachelor's degree with less than 210 but at least 180 ECTS, missing competences need to be proved (e.g. by additional passed exams or internships).

In order to be admitted to the Master's programme in AI Engineering of Autonomous Systems, students have to pass an aptitude test to determine whether they have acquired the necessary skills in their Bachelor's programme. In the aptitude test, the submitted documents are evaluated according to the following criteria

- Grade of the Bachelor's degree in engineering, natural sciences or computer science
- Knowledge of mathematics, engineering, programming, software development and computer science
- Independent scientific work and experience in engineering problem solving

There are no tests or interviews that require personal presence. Please apply using the aptitude test questionnaire, which is also available on the [Primuss application portal](#)

Language requirements

Applicants must provide proof of their English skills before registration: TOEFL 530 (paper-based), 197 (computer-based), or 71 (Internet-based), or IELTS 6.0 or equivalent.

There is no requirement to formally prove German language skills for your admission. You may start with little or no German language proficiency.

Application deadline

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- 15 November to 15 January for the following summer semester (start mid-March)

If you have a Bachelor's degree from a country other than Germany, uni-assist must check your eligibility for study in Germany and convert your grades to the German grading system. You will need to submit all the necessary documents to uni-assist online. The process will take between four and six weeks to complete.

Submit application to

1. Apply online at [uni-assist](#) in order to receive a VPD document.
2. With this document you will be able to apply online via the [PRIMUSS](#) application portal of Technische Hochschule Ingolstadt (THI).

[Find out more](#) about applying to our Master's programme from abroad.

Services

Possibility of finding part-time employment

In addition to open internship positions on the university platform, students should consider research and teaching assistant positions at THI.

Furthermore, the International Office offers workshops in English to prepare international students who seek internship opportunities.

Accommodation

Technische Hochschule Ingolstadt does not run any student residence halls / dorms. You will have to start looking for accommodation on your own as soon as possible. Between 500 and 700 EUR per month should be budgeted for accommodation.

The [FAQs](#) will help you in finding accommodation in Ingolstadt or Neuburg.

Career advisory service

Workshops to prepare for the German job market

For most jobs German is still a necessary key qualification and prerequisite. We will not only provide you with the best possible support in your studies, but we will also offer a variety of German courses to help you learn German quickly.

Support for international students and doctoral candidates

- Specialist counselling
- Support with registration procedures

General services and support for international students and doctoral candidates

- Online info session for admitted degree-seekers
- Support with residence permit
- German courses at the N.I.C.E. language centre (Network & International Culture Exchange)
- Service point and individual appointments



THI Image Film International

We are Technische Hochschule Ingolstadt (THI)! Come and join us and be a part of the revolution in AI engineering!

» more:

<https://www.youtube.com/watch?v=aWCHe9TgL2g>

Technische Hochschule Ingolstadt



THI Campus

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Technische Hochschule Ingolstadt is an institution that specialises in business and technology and is characterised by innovative study concepts and modern facilities. We are currently training close to 7,000 students in more than 70 study programmes in engineering, computer science, business, life sciences and sustainability.

Our students will graduate as sought-after specialists and managers. An extremely dynamic and successful region with a distinctly strong economic structure provides for excellent framework conditions. The relatively small student body guarantees individual guidance, a familial atmosphere, and close cooperation between students and professors.

One of the core features of studying at our university is its orientation towards practical application. Internships and projects as well as a continuous cooperation with regional companies are basic components of every study programme.

The Ingolstadt campus was completed in 1999, and a new tract of buildings opened in 2014. In 2021, the Neuburg campus opened its doors with its Faculty of Sustainable Infrastructure.

Modern equipment and facilities create an atmosphere that adds to students' success and enjoyment. Technische Hochschule Ingolstadt is proud of its commitment to offer the highest possible level of quality in research and education. It is possible to explore Technische Hochschule Ingolstadt by visiting [the interactive 360° THI campus tour](#).



University location

The campus is only a short walk from Ingolstadt's appealing old city. The view from the lecture halls is of a castle and other medieval buildings. Ingolstadt lies in the centre of Bavaria, one of the most prosperous German federal states, and it is only an hour by car from the metropolitan areas of Munich and Nuremberg. The opportunities to take part in leisure activities in the area – which is close to the Alps as well as to the beautiful Altmühl valley – are unlimited. With the headquarters of Audi (the international automotive company) and a large number of innovative corporations in the city, Ingolstadt is proud to be one of the strongest economic regions in Germany. Opportunities to participate in sports activities are provided by the university as well as by various amateur and competitive sports clubs. Bavarian charm and the Bavarian way of life – including summer evenings in beer gardens and the diverse cultural events on offer – make daily life in Ingolstadt particularly attractive for students.

Contact

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🌐 Course website: <https://www.thi.de/en/electrical-engineering-and-information-technology/degree-programmes/ai-engineering-of-autonomous-systems-meng/>

● https://twitter.com/th_ingolstadt

📷 https://www.instagram.com/thingolstadt_official/

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Disclaimer

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