



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



Table of Contents

| | |
|---|----------|
| Master's degree | 2 |
| Master's in Embedded Systems Engineering (ESE) • Dortmund University of Applied Sciences and Arts • Dortmund | 2 |

Master's degree

Fachhochschule
Dortmund
University of Applied Sciences and Arts

Master's in Embedded Systems Engineering (ESE)

Dortmund University of Applied Sciences and Arts • Dortmund



Overview

| | |
|-----------------------|---|
| Degree | Master of Engineering (MEng) |
| In cooperation with | <ul style="list-style-type: none">• University of the Basque Country, Bilbao, Spain• Norwegian University of Science and Technology (NTNU), Trondheim, Norway• KU Leuven, Leuven, Belgium• Kiev National University of Construction and Architecture (KNUCA), Kiev, Ukraine• West Ukrainian National University (WUNU), Ternopil, Ukraine• IMC Krems, Krems, Austria• KTU Kaunas, Lithuania• University of Latvia (LU), Riga, Latvia |
| Teaching language | <ul style="list-style-type: none">• English |
| Languages | Courses are held in English (100%). Students can use German for written assignments and their theses, too. |
| Full-time / part-time | <ul style="list-style-type: none">• full-time |
| Programme duration | 4 semesters |
| Beginning | Winter semester |
| Application deadline | <p>Application deadline:</p> <p>15 June for the following winter semester</p> <p>Pre-application process:</p> <p>In order to verify whether you meet the requirements for admission to the programme before submitting your application, all applicants (EU, German, non-EU) are highly recommended to submit their relevant documents (Bachelor's degree, Bachelor's transcript, language certificate) for a pre-check. We start with the pre-check in April.</p> <p>After successfully passing the pre-check, you will receive instructions and a link to the online portal.</p> <p>Here you can find the link to the Pre-Check Service: https://precheck.go-study-europe.de/</p> <p>Please check: https://www.fh-dortmund.de/en/studies/application-enrollment.php</p> |

Application process:

We only accept online applications. You will be guided to the application portal after doing the pre-check (described above).

Tuition fees per semester in EUR None

Combined Master's degree / PhD programme No

Joint degree / double degree programme Yes

Description/content

From University to High-Tech Industry – Join the English-taught Master's in Embedded Systems Engineering (ESE) multidisciplinary programme at the Dortmund University of Applied Sciences and Arts (Fachhochschule Dortmund). Study in a friendly international environment, with projects turning cutting-edge knowledge into practical experience in the dynamically growing high-tech industries of the German Ruhr Valley region.

Mechatronics is everywhere – embedded system software in the domain of mechatronics is a driving force for today's and tomorrow's technological progress impacting almost every industry with high-tech solutions. When you graduate with a Master's of Engineering in Embedded Systems Engineering, having a wide-range scientific and technological expertise, you will be highly proficient in at least one following of our curriculum specialisations:

- automotive systems
- robotics & computer vision
- microelectronics and hardware engineering
- embedded software engineering

Upon completion of this Master's programme, you will be able to comprehensively research and provide state-of-the-art solutions for high-tech problems.

Our students have key advantages of studying ESE at the FH Dortmund:

- Wide research and job opportunities for our students and many career opportunities for our graduates in German and international companies, e.g. in the Ruhr Valley industrial region
Our graduates work at Bosch, Siemens, Volkswagen AG, Daimler, to name a few.
- Culturally diverse international teams and class experience
- Interactive learning methods
- International events and conferences, as well as a semester abroad exchange programmes
- Research opportunities in our Research Institute for the Digital Transformation (IDiAL)
- Scholarship opportunities and dormitory access
- Hands-on experience, practical approaches
- International networking
- We are more than a university, we are family – we support students and staff in achieving an equitable balance between study, professional, and family life.

More information on the Master's in Embedded Systems Engineering (ESE) programme:

- [ESE on European Partnership for Project and Innovation Management \(EuroPIM\) website](#)
- [ESE on FH Dortmund website](#)
- or contact us directly (see the contact information above)

Course Details

Course organisation

The international Master's in Embedded Systems Engineering (ESE) programme is taught in four

semesters including the Master's thesis. It is a full-time practice-oriented programme with a workload of 3,600 hours and 120 credit points (ECTS).

The first two semesters consist of five modules each. In the second and third semesters, students may study their chosen specialisation. The programme finishes with a Master's thesis.

Master's thesis topics comprise university research projects or industrial development/research. All classes and labs as well as course documentation and exams are in English. Students can use German for written assignments and write their thesis in German.

Compulsory modules (each Module 6 ECTS):

First semester

- Mathematics for Signals & Controls
- Distributed and Parallel Systems
- Embedded Software Engineering
- Requirements Engineering
- Scientific & Transversal Skills

Second semester

- Mechatronic Systems Engineering
- Microelectronics & HW/SW Co-Design
- R&D Project Management
- Signals and Control Systems 1
- Elective 1

Third semester – specialisation and research project

- Elective 2
- Elective 3
- Research Project

Fourth semester

- Master's Thesis (30 ECTS)

Elective Modules (each module 6 ECTS):

- Applied Embedded Systems
- Smart Home & Smart Building & Smart City
- SW Architectures for Embedded and Mechatronic Systems
- Signals and Systems for Automated Driving
- IoT & Edge Computing
- Robotic Vision
- Signals & Control Systems 2
- Formal Methods
- System on Chip Design
- Automotive Systems
- Hardware Project
- Model-Based Systems Engineering
- Software for Robots
- Embedded Systems Hardware Design and Rapid Prototyping
- Trends in Embedded and Mechatronic Systems
- Radar Systems
- ARV
- Research Seminar

The didactic model of the programme involves lectures (partly online), practical elements, and scientific elements. The practical elements include work with industry and society. The teaching elements are mainly designed as block lectures. Therefore, the programme can be studied part-time in a very flexible way while working in a company. Students have the possibility to receive academic recognition of job-related achievements. The third semester can also be used as an exchange semester with one of the partner universities. The electives allow for a specialisation on a topic such as an application domain. Furthermore, courses from a Master's programme on project management or a programme on digital transformation can be selected. The research project and

the Master's thesis can be conducted in cooperation with a company or within a research project at the university.

Further information and detailed descriptions of each module can be found here:
[Master's in Embedded Systems Engineering – Module Handbook](#)

» [PDF Download](#)

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|---|--|
| A Diploma supplement will be issued | Yes |
| International elements | <ul style="list-style-type: none">• International guest lecturers• Language training provided• Training in intercultural skills• Courses are led with foreign partners• Projects with partners in Germany and abroad |
| Integrated internships | None (The project and the Master's thesis can be done in combination with an internship.) |
| Special promotion / funding of the programme | <ul style="list-style-type: none">• DAAD• ERASMUS+ |
| Name of DAAD funding programme | DAAD Strategic Partnerships |
| Course-specific, integrated German language courses | Yes |
| Course-specific, integrated English language courses | Yes |

Costs / Funding

| | |
|--|---|
| Tuition fees per semester in EUR | None |
| Semester contribution | Enrolment fees are approx. 300 EUR per semester. The fee includes a semester ticket covering public transport in Germany. |
| Costs of living | Approx. 900 EUR per month to cover personal expenses |
| Funding opportunities within the university | No |

Requirements / Registration

Academic admission requirements

Academic admission requirements include the completion of a “Diplom” or Bachelor's course of study of Information Technology, Electrical Engineering or (Technical) Computer Science at a university of applied sciences ("Fachhochschule") or a university, or the completion of a corresponding accredited Bachelor's qualification programme at a university of cooperative education ("Berufsakademie") with an overall grade of at least “good” (2.5).
In addition, competences in the field of study of Embedded Systems and Software Engineering on a sufficient level need to be demonstrated. It must be evident that previous studies included a thesis.

Language requirements

Applicants must provide proof of their English skills:

- TOEFL iBT 90 points (Internet-based)
- TOEFL ITP 550 points
- IELTS 6.5
- or equivalent

Certificates should not be older than two years.

Application deadline

Application deadline:

15 June for the following winter semester

Pre-application process:

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After successfully passing the pre-check, you will receive instructions and a link to the online portal.

Here you can find the link to the Pre-Check Service: <https://precheck.go-study-europe.de/>

Please check: <https://www.fh-dortmund.de/en/studies/application-enrollment.php>

Application process:

We only accept online applications. You will be guided to the application portal after doing the pre-check (described above).

Submit application to

Only online applications are accepted. Please send all requests to: service-ese@fh-dortmund.de

Find more information on our website: <https://www.fh-dortmund.de/ese>

Services

Possibility of finding part-time employment

Not offered by the university

Students have good chances to find a paid internship or student job, especially in the third and fourth semesters.

Accommodation

Students can find accommodations on the private market. Rent for a single room in a student hall of residence is approx. 300 EUR.

Dortmund University of Applied Sciences and Arts does not have an internal accommodation office. It is the responsibility of each student to find her/his own accommodation.

Career advisory service

<https://www.fh-dortmund.de/service-einheiten/career-service.php?loc=en>

Support for international students and doctoral candidates

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

General services and support for international students and doctoral candidates

<https://www.fh-dortmund.de/international/international-office/index.php?loc=en>

Our Partners



Master's in Embedded Systems Engineering (ESE) at FH Dortmund

From university to high-tech industry, turn your wish into a reality with the Master's ESE programme at the Dortmund University of Applied Sciences and Arts (Fachhochschule Dortmund / FH Dortmund).

Are you interested? Please visit our website of the Master's ESE programme: <https://www.fh-dortmund.de/ease> – get closer to the German high-tech industry!

» more:

<https://www.youtube.com/watch?v=43ukiQsWd1M&t=24s>

— Dortmund University of Applied Sciences —
and Arts



Building of the Faculty of Computer Science

© Fachhochschule Dortmund, University of Applied Sciences and Arts

Dortmund University of Applied Sciences and Arts (Fachhochschule Dortmund) is future-oriented with a more than a 100-year-old history. The world is changing – and our modern university is changing, too.

- Study and teaching here is geared towards practical problem-solving.
- Our highly experienced professors are cementing the link between theory and practice.
- Internationality and diversity: engaged worldwide, we motivate our students to take at least one semester abroad at our partner universities in the EU.
- We are a family-friendly university keeping the best balance between studying and personal life.
- The university offers over 80 study options, in eight faculties:

1. Computer Sciences
2. Information Technology
3. Mechanical engineering
4. Electrical engineering
5. Applied Social Sciences
6. Economics
7. Architecture
8. Design

We have years of experience in international education successfully offering three international Master's degree study programmes:

- Master's in Embedded Systems Engineering (ESE) offered by the Faculty of Computer Sciences
- Master's in Digital Transformation (MDT) offered by the Faculty of Computer Sciences
- European Master's in Project Management (EuroMPM) offered by the Faculty of Business Studies
- Master's in Digital Design (MDD) offered by the Faculty of Computer Sciences and Design

Furthermore, we offer the [Ruhr Master's School](#).

We motivate our students to go abroad for at least one semester to extend their professional network and experience, improve language skills and develop intercultural competences.

**Fachhochschule
Dortmund**
University of Applied Sciences and Arts

University location

Go study in Dortmund

Dortmund University of Applied Sciences and Arts welcomes foreign students who want to come and study at the Faculty of Computer Science as degree-seeking students or exchange students who study here for one or two semesters.

The Faculty of Computer Science receives international students from all over the world. They usually come from partner institutions and follow a course of study agreed with their home institutions or participate in our international Master's courses of study as degree-seeking students.

Foreign students have access to all campus facilities and are assisted by the International Office in all matters of enrolment, housing and visas. The following website contains general information for all incoming international students, from application forms to health insurance matters:

<https://www.fh-dortmund.de/international/international-office/index.php?loc=en>

To find out what the city of Dortmund has to offer, see the following website for information and impressions of this dynamic city in the Ruhr area.

<http://www.dortmund.de/>

Contact

Dortmund University of Applied Sciences and Arts
Computer Science

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Emil-Figge-Straße 38
44227 Dortmund

✉ service-ese@fh-dortmund.de

🌐 Course website: <https://go-study-europe.de/embedded-systems-engineering/>

📘 <https://www.facebook.com/gostudyeurope/>

📷 <https://www.instagram.com/gostudyeurope/>

📺 https://www.youtube.com/channel/UCuxp6dy5F456SvLEQ_7w47Q?app=desktop

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International Programmes in Germany - Database

www.daad.de/international-programmes
www.daad.de/sommerkurse

Editor

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GATE-Germany

Consortium for International Higher Education Marketing
www.gate-germany.de

Disclaimer

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Federal Ministry
of Education
and Research