Table of Contents

Master's degree .............................................................................................................................................. 2

Joint Master's Degree in Mechatronic Engineering (EU4M) • Karlsruhe University of Applied Sciences • Karlsruhe ......................................................................................................................... 2
# Master's degree

## Joint Master's Degree in Mechatronic Engineering (EU4M)

**Karlsruhe University of Applied Sciences • Karlsruhe**

## Overview

<table>
<thead>
<tr>
<th><strong>Degree</strong></th>
<th>Master of Science</th>
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**In cooperation with**
- Universidad de Oviedo, Spain
- École Nationale Supérieure de Méchanique et Microtechniques de Besançon, France
- Ivanovo State Power Engineering University, Russia
- Nile University, Egypt
- and other European and non-European associated members

**Teaching language**
- German
- English

**Languages**
- Germany: German 80%, English 20%
- France: French 100%
- Spain: Spanish 100%
- Egypt: English 100%
- Russia: English 100%

**Programme duration**
- 4 semesters

**Beginning**
- Winter semester

**More information on beginning of studies**
- Arrival recommended - end of August
- registration - early September
- intensive language course - Mid-September
- Mechatronic lectures start - October

**Application deadline**
- Non-EU and European applicants:
  - applying to obtain a scholarship from EACEA: 15 January
  - self-funded: 15 May

  for the following winter semester

<table>
<thead>
<tr>
<th><strong>Tuition fees per semester in EUR</strong></th>
<th>Varied</th>
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</table>

**Additional information on tuition fees**
- International students who are not EU nationals pay a tuition fee of 1,500 EUR per semester. (For information on exemptions, please see: [https://www.hs-karlsruhe.de/en/prospective-](https://www.hs-karlsruhe.de/en/prospective-)}
**Combined Master's degree / PhD programme**
- No

**Joint degree / double degree programme**
- Yes

**Description/content**
During the first year, the course focuses on gaining a better understanding of the development and description of mechatronic systems. Lessons at the partner institutions are similar.

Modules of the first year (60 CP) are:
- Automation 1+2 (16 CP)
- Mechanics and Materials 1+2 (16 CP)
- Advanced Mechatronics 1+2 (16 CP)
- Key qualifications 1+2 (languages and seminars 12 CP)

Additional small group seminars are specific to EU4M, such as Programming of Humanoid Robots, Microcontrollers, Microstructure Technology, and German for Engineers. Students participate in fairs like Mechatronic Dialogue.

For the second year, students move on to one of the partner institutions. The third semester consists of four specialisation modules as well as a key qualification (30 CP).

Specialisations:
- UniOvi: System Analysis, Mechatronics in Production Development, Robotics
- HsKA: Micro- Mechatronic Systems, Robotics, Energy Efficiency
- ENSMM: Micro-Mechatronics, Micro-Robotics, Automation
- ISPU: Control of Engineering Systems
- Nile University: Mechatronic Engineering

During the fourth semester, students work on their Master’s thesis (30 CP).

**Course Details**

**Course organisation**
Students study for two years at universities in two different European countries of their choice. You can decide if you start in Germany or come for your second year.

The first year is offered in Egypt, Spain, and Germany. The second is offered at each partner institution: Karlsruhe (Germany), Besançon (France), Gijón (Spain), Ivanovo (Russian Federation), and Cairo (Egypt). During the first year, lessons at the partner institutions are similar.

For the second year, students move on to one of the other partner institutions in order to specialise in their third semester. The Master’s thesis in the fourth semester can be done at the university or in industry.

It is possible to spend part of the course or thesis at one of our associated member universities (e.g., in the US, Brazil, Cuba, or Malaysia).

Teaching formats are lectures, labs, seminars, and projects. Practical training takes place at the universities as well as in industry and at research centres.

Students will acquire a joint degree or one Master’s degree from each university at which they have studied.

**Types of assessment**
Performance is mainly assessed by written exams. There are also oral exams, practical project work and homework.
<table>
<thead>
<tr>
<th><strong>A Diploma supplement will be issued</strong></th>
<th>Yes</th>
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</thead>
<tbody>
<tr>
<td><strong>International elements</strong></td>
<td></td>
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<tr>
<td>• International guest lecturers</td>
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<tr>
<td>• Language training provided</td>
<td></td>
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<tr>
<td>• Study trips</td>
<td></td>
</tr>
<tr>
<td>• Courses are led with foreign partners</td>
<td></td>
</tr>
<tr>
<td>• Projects with partners in Germany and abroad</td>
<td></td>
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</tbody>
</table>

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<tr>
<th><strong>Integrated internships</strong></th>
<th>An internship of six to eight weeks can be undertaken during the summer break between the first and the second year, but this is not obligatory. There is also the option of a one-year working period. In Germany, for example, it is common to write the thesis while working in a company. For some students the working experience at the company is very fruitful, especially if they have not had any working experience before. Working on an industry-funded thesis project can be a hugely beneficial experience.</th>
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</thead>
<tbody>
<tr>
<td><strong>Special promotion / funding of the programme</strong></td>
<td></td>
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<tr>
<td>• ERASMUS+</td>
<td></td>
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<tr>
<td><strong>Course-specific, integrated German language courses</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Course-specific, integrated English language courses</strong></td>
<td>Yes</td>
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</table>

### Costs / Funding

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</tr>
<tr>
<td><strong>Semester contribution</strong></td>
<td>All students pay semester fees (student services fee, registration fee, student union membership fee) amounting to approx. 160 EUR per semester.</td>
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<tr>
<td><strong>Costs of living</strong></td>
<td>The cost of living is approximately 700 EUR per month for general expenses, including rent, utilities, food, household items, transport, entertainment, clothing, insurance, books, the semester contribution (not included in the above-mentioned tuition fee for non-EU nationals), etc.</td>
</tr>
</tbody>
</table>

| **Funding opportunities within the university** | No |

### Requirements / Registration

| **Academic admission requirements** | Academic admission requirements include a Bachelor’s degree equivalent to at least 180 ECTS in the areas of mechanical engineering, electrical engineering, mechatronics, automotive engineering, |
sensorics, micro systems technology, or a related area, with above-average marks. Bonus points are given for practical experience, language skills, and a well-written motivation letter. Please note that you only can be granted a generous Erasmus+ scholarship if you apply before 15 January for the following winter semester.

| Language requirements | Applicants must provide proof of their German skills. The proof that is required varies, depending on the chosen study track. If you start your studies in Germany, you must provide proof of your German skills at minimum level of B1 according to the Common European Framework of Reference for Languages. Overall, level B1 of the teaching language is needed to study in the first country. For the second country, level A2 at the beginning of the Master’s studies is sufficient. Level B1 can be obtained during the first year. So when you choose to go to one of these countries, you must have the following level:
| | Germany: B1 German
| | France: B1 French
| | Spain: B1 Spanish
| | Egypt: B1 English
| | Russia: B1 English, A1 Russian
| | Two examples:
| | • If you want to start in Egypt and continue for the second year in Germany, you have to have B1-level or equivalent in English and A2 in German (so you take your German B1-level exam in Egypt).
| | • If you want to start in Germany and continue in France, you need B1-level in German and A2 in French (so you take your French B1-level exam in Germany).

| Application deadline | Non-EU and European applicants:
| | • applying to obtain a scholarship from EACEA: 15 January
| | • self-funded: 15 May
| | for the following winter semester

| Submit application to | http://www.eu4m.eu/inicio

| Services |

| Possibility of finding part-time employment | International students who come from outside the EU or the EEA are allowed to work outside of the university for 120 full or 240 half days per year. Therefore, students may work full-time during the lecture-free period or part-time during the semester. As the Karlsruhe region has a very low unemployment rate, chances of finding student jobs are generally quite good.

| Accommodation | Students can apply for student housing through student services ("Studierendenwerk") at http://www.studentenwerk-karlsruhe.de/en/wohnen/. However, there is usually a waiting list for dormitory accommodation.
| | The Studierendenwerk website also provides information about its extensive private accommodation service.

| Career advisory service | At the Center of Competence, you can get support and have your application documents (German and English), letter of application and CV checked.
| | https://www.hs-karlsruhe.de/cc/praxis/
Our Partners

JJ Sanchez
Juan José Sanchez Alonso
MSc

“After I graduated as an Industrial Engineer in Spain, I worked and later studied in the EU4M programme at HsKA and UniOvi, where I got my MSc degree in 2015. The advantages include getting to know two highly ranked European universities, a broad academic training, modern laboratories, professional experience abroad and dealing with people from other cultures, thus improving intercultural competence. I am multilingual, which is an enormous advantage in my profession in international projects.”

HsKA Campus

This video features a short view of the green campus and interesting student projects at Karlsruhe University of Applied Sciences. The university has a long history of cooperation with industry in order to offer common projects. Additionally, there are close ties with international institutions to provide double and joint degree programmes.

more:
https://www.youtube.com/watch?v=wpVqe2HOIEU
Karlsruhe University of Applied Sciences (HsKA) is all about technology and business. The university offers degree programmes in engineering and IT as well as business management and media. There are six faculties:

- Architecture and Construction Engineering
- Computer Science and Business Information Systems
- Electrical Engineering and Information Technology
- Information Management and Media
- Management Science and Engineering
- Mechanical Engineering and Mechatronics

Small classes and an excellent student-teacher ratio ensure that individual students are well taken care of.

**Applied Teaching and Learning**

The majority of German engineers have graduated from universities of applied sciences such as HsKA, where teaching and learning are geared towards practical application.

Important elements of this are as follows:

- mandatory experience in business and industry of all professors
- seminars accompanied by lab classes
- mandatory internship semesters and thesis work in industry
- hands-on project work from day one

**Applied Research**

At HsKA, teaching is complemented by research, which equally focuses on its practical application. Close links to industry ensure the university's high quality standards and ensure that its graduates are well prepared for the labour market, both nationally and globally. This is borne out by numerous university rankings, which rank HsKA among the top of German universities of applied sciences.

**University location**

**The Campus**

The university’s main campus is located in the centre of Karlsruhe, on the southern edge of the spacious Hardt forest. It is a green campus that is equally suited for studying and recreation. The city of Karlsruhe, with a population of 310,000, including a combined student population of well over 45,000, is the centre of one of Germany’s prime technology regions.
Contact

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Faculty of Mechanical Engineering and Mechatronics

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twitter: https://twitter.com/hskanews  
instagram: https://www.instagram.com/eu4m_master/

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