Table of Contents

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

International Master's Degree Programme in Geomatics (MSc) • Karlsruhe University of Applied Sciences • Karlsruhe ........................................................................................................................................... 2
# Master's degree

**International Master's Degree Programme in Geomatics (MSc)**

*Karlsruhe University of Applied Sciences • Karlsruhe*

## Overview

<table>
<thead>
<tr>
<th><strong>Degree</strong></th>
<th>Master of Science in Geomatics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teaching language</strong></td>
<td>English</td>
</tr>
<tr>
<td><strong>Languages</strong></td>
<td>All courses are held in English. Assignments, project reports, examinations, and the Master’s thesis are to be written in English.</td>
</tr>
<tr>
<td><strong>Programme duration</strong></td>
<td>4 semesters</td>
</tr>
<tr>
<td><strong>Beginning</strong></td>
<td>Winter semester</td>
</tr>
<tr>
<td><strong>More information on beginning of studies</strong></td>
<td>International students start in the winter semester.</td>
</tr>
</tbody>
</table>
| **Application deadline** | 15 May - international applicants  
15 June - European applicants  
15 July - Germans and residents of Germany |
| **Tuition fees per semester in EUR** | Varied |
| **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-students/guidance-advice/study-fees/](https://www.hs-karlsruhe.de/en/prospective-students/guidance-advice/study-fees/)) |
| **Combined Master's degree / PhD programme** | No |
| **Joint degree / double degree programme** | Yes |
| **Description/content** | Geomatics is a modern, self-contained geo-information, geoscience, engineering, and ICT-related discipline. It deals with the acquisition, processing, modelling, analysis, and visualisation of spatially referenced data. This concerns the geometry as well as the physical and socioeconomic features of our Earth, spatial information infrastructures of the built and natural environment, and the simulation of geospatial processes. The data originates from many different sources, including... |
satellites, air and seaborne sensors, ground-based measurements, surveys and statistics, and analogue maps. Today’s techniques make extensive use of GNSS and often involve the crowd. The data is processed with state-of-the-art information and communication technologies (ICT), often in geographical information systems (GIS) and based on a broad spectrum of mathematical algorithms and models. Thus, Geomatics plays an important role in products and services, which depend on geospatial data and spatial computing.

The internationally oriented programme is unique in combining the study of cartography and geodesy with a focus on the following six fields of specialisation:

- geoinformatics: application programming for web processing, monitoring, and open source GIS
- geovisualisation: computer-aided visualisation, communication, and use of geospatial information
- geobusiness: location-aware spatial analysis based on economic principles
- environment: monitoring and managing our changing natural environment by means of GIS and remote sensing
- geodesy: engineering photogrammetry and geodesy for automated information extraction
- navigation: GNSS/MEMS-integrated precise navigation for outdoor and indoor applications

The international Geomatics programme is also offered in cooperation with the Universidad Politécnica de Valencia (UPV) as a double-degree MSc programme. Students have the opportunity to spend one year at HsKA (Germany) and one year at UPV (Spain) in order to receive Master’s degrees from both universities.

Due to the high demand for qualified Geomatics engineers, the MSc graduates are guaranteed a wide choice of rewarding careers at national and international levels in private industry as well as at governmental or scientific institutions. In Germany, the MSc graduates can pursue a career in the higher civil service (“Höherer Verwaltungsdienst”). The MSc degree also qualifies graduates of the programme for PhD programmes. At Karlsruhe University of Applied Sciences, PhD studies can be carried out in cooperation with different German and foreign partner universities.

**Course Details**

**Course organisation**

The international study programme Geomatics (MSc) comprises 120 ECTS in four semesters and generally consists of five modules and 30 ECTS per semester. The second and third semesters cover compulsory and elective modules, and students must select six out of 10 electives. The courses of the first semester ensure that all students possess the required knowledge base.

**Types of assessment**

Assignments or project work throughout the semester, written or oral exams at the end of each semester

**A Diploma supplement will be issued**

Yes

**International elements**

- International guest lecturers

**Integrated internships**

Optional

**Course-specific, integrated German language courses**

Yes
Course-specific, integrated English language courses: No

Costs / Funding

<table>
<thead>
<tr>
<th>Tuition fees per semester in EUR</th>
<th>Varied</th>
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</tr>
<tr>
<td>Semester contribution</td>
<td>All students pay semester fees (student services fee, registration fee, student union membership fee) amounting to approx. 160 EUR per semester.</td>
</tr>
<tr>
<td>Costs of living</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>
<tr>
<td>Funding opportunities within the university</td>
<td>No</td>
</tr>
</tbody>
</table>

Requirements / Registration

<table>
<thead>
<tr>
<th>Academic admission requirements</th>
<th>Bachelor’s degree in geodesy, cartography, geography, surveying, geodetic engineering, civil engineering, or similar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Significant knowledge in GIS (6 CP)</td>
</tr>
<tr>
<td></td>
<td>Significant knowledge in programming (6 CP)</td>
</tr>
<tr>
<td></td>
<td>Bachelor’s grade better/equal to 2.3 (according to the German grading system)</td>
</tr>
<tr>
<td>Language requirements</td>
<td>TOEFL (min. 500 PBT), IELTS (min. 5.5) or equivalent</td>
</tr>
<tr>
<td>Application deadline</td>
<td>15 May - international applicants</td>
</tr>
<tr>
<td></td>
<td>15 June - European applicants</td>
</tr>
<tr>
<td></td>
<td>15 July - Germans and residents of Germany</td>
</tr>
<tr>
<td>Submit application to</td>
<td><a href="https://www.hs-karlsruhe.de/geomatics/application/">https://www.hs-karlsruhe.de/geomatics/application/</a></td>
</tr>
</tbody>
</table>

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. |
Our Partners

Christian Seitz
Issac Boates
MSc

“I came to Karlsruhe in the fall of 2016 because of the attractiveness of the International Geomatics Master’s programme as well as Germany’s reputation as being a world leader in technological development and intercultural exchange. Since I have been here, I have not only expanded my career knowledge and my German language proficiency but have also made friends with people from all corners of the globe and learned to see the world through a lens that is totally different from my own.”

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.

Specific specialist or non-specialist support for international students and doctoral candidates

- Accompanying programme

Supervisor-student ratio

Seven professors to 30-50 Master’s students

Attending class

The video clip is a sequence of a much longer video prepared by Geomatics students as their contribution to the Geomatics & Participation summer school at HsKA in 2016. The students had been asked to tell the participants from South Africa about studying at HsKA. They seemed to have enjoyed acting for the movie.

more:
https://www.youtube.com/watch?v=JgRRid0mnig

Karlsruhe University of Applied Sciences
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.

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**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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