

How to apply

Admission

For admission you need a Bachelor degree with a mark 2.5 or better from the wide field of geo-related study courses. 6 credit points in a higher programming language as well as GIS are required. If the Bachelor mark is 2.0 for better only 6 CP in either programming or GIS are required.

Study fees of 1,500 € per semester apply to non-EU students.

Application deadline:

Wintersemester (start in October)

Deadline: 15 July

Summersemester (start in March)

Deadline: 15 January

Application portal:

<https://hka-application.sensin.eu>

The program leads to a Master of Science (M.Sc.) degree.

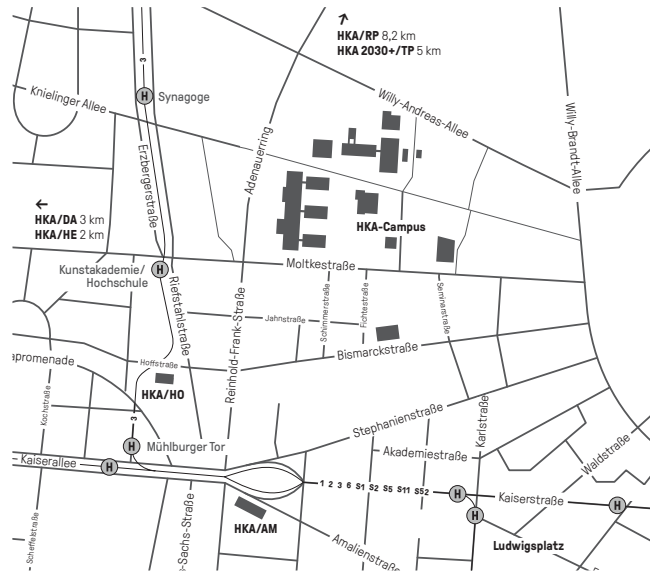
Laboratories and Research Projects

Laboratory work and the inclusion of sophisticated research and development projects (RaD) are regarded as essential characteristics and components of the Master program Geomatics. Graduates are thus well versed in science- and research-oriented academic education, while meeting at the same time the requirements of professional skills requested by industry. The existing laboratories are:

- + Laboratory for GI and Digital Image Processing
- + ESRI Development Center (EDC)
- + Laboratory for Photogrammetry and Remote Sensing
- + Laboratory for Measuring Technology
- + Laboratory for GNSS and Navigation



Further information :
www.h-ka.de/en/gmc



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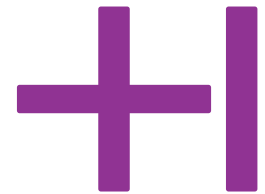
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Geomatics

Master



The Master Program

Geomatics – emerged from geodesy and informatics – is established as a modern, independent discipline within the spectrum of geodesy, navigation, informatics, geosciences, data sciences and Geomatics engineering.

In the geodetic spectrum, geomatics is dealing with processing of astronomical data (VLBI), satellite data (GNSS positioning, altimetry, gravimetry) for the maintenance and monitoring of global dynamic reference systems on space and gravity. GNSS, physical (e.g. MEMS) and optical sensor data (lidar, camera) are algorithmically fused to develop multisensory systems for georeferencing, surveying, photogrammetry, mobile mapping, mobile GIS, navigation & control of autonomous land/water/air vehicles (UAV) and intelligent out- and indoor robotics.

The geoinformatics spectrum Geomatics is dealing with the further processing, analysis, simulation and visualization of spatial information and monitoring of processes on the built and natural environment. Here remote sensing, geo-monitoring, change detection, AR/VR, building information modeling (BIM), GIS and spatial data science occur.



The sensor and geodata are communicated using state-of-the-art of information technology (IT) in geoinformation systems (GIS), in sensor networks and via the internet. For that software development is an important cross-sectional field within Geomatics. The different engineering tasks and the generated geoinformation provided by Geomatics play a key role for society, industry and the economy. So there is a high demand for qualified M.Sc. Geomatics engineers, and the graduates are guaranteed a wide choice of re-warding careers at national and international levels in private industry sector as well as at governmental, or scientific institutions.

Application Platforms

<https://hisinone.extern-hs-karlsruhe.de/> (Registration)

<https://hka-application.sensin.eu>

Study Content



The international study program Geomatics (M.Sc.) comprises 90 ECTS in 3 semesters with generally 5 modules and 30 ECTS per semester. The 1st and 2nd semester cover compulsory and elective modules, where 2 electives have to be selected among 3, while the 3rd semester is for the preparation of the Master Thesis. Due to the independence of the modules in the 1st and 2nd semester the program can be started in March or October.

Fulltime and part-time program:

The study program is offered as full-time and part-time program. By studying part-time, courses and Master Thesis have to be completed within 6 semesters. The compulsory and elective modules have been distributed from the 1st to the 4th semester. The 5th and 6th semester is for the Master Thesis.

Winter semester	Compulsory Modules: OpenSource GIS, Software Engineering, Soft skills (Language and Academic Writing) Elective Modules (2 from 3) Data Science, Geovisual Analytics, Navigation
Summer semester	Compulsory Modules BIM & VR/AR, WebServices & GeoMonitoring with Programming Applications, Satellite Image Analysis Elective Modules (2 from 3) Spatial Data Science, Mobile Apps GIS, Geodesy
3. semester	Master Thesis

Target Group

The internationally oriented program is unique in combining the study of geo-information management/cartography and geodesy with a focus on the following six fields

- + Data Sciences: Principles and algorithms from data science and big data to detect patterns and solve problems efficiently in terms of time and memory;
- + Environment: Geomonitoring with programming on time series analysis. Change Detection of the natural environment by means of GIS and remote sensing;
- + Geodesy: Physical and integrated geodesy. Multisensory ground/water/airborne intelligent systems, navigation & control e.g. (UAV), BIM (building information modelling);
- + Geoinformatics: Application programming for Web Processing Services/Monitoring and Open-Source GIS;
- + Geovisualization: Computer-aided geovisualization, Mobile apps development, VR/AR-applications;
- + Navigation: GNSS/MEMS/Optical sensors integrated precise navigation and mobile GIS with smartphones, Satellite Geodesy and Spatial Georeferencing.

The Master program in Geomatics (M.Sc.) started in 2001 and exists with an experience of 23 years in training students from all over the world. Although graduates of diverse backgrounds are accommodated within one joint program, the choice of elective modules allows for following individual interests in the fields of geomatics, and thus for a specialization.

In the double-degree M.Sc. program with UPV Valencia, students have the opportunity to spend one year at HKA (Germany) and and foreign partner universities.

In Germany Geomatics M.Sc. graduates can pursue a career in the higher civil service (Höherer Verwaltungsdienst). The M.Sc. degree also qualifies for PhD programs, e.g. at the Promotionsverband Baden-Württemberg, Faculty III.

