

Translation

Examination Regulations
for the Consecutive Master's Degree Program

“Geodetic Engineering”

at the Faculty of Agricultural, Nutritional, and Engineering
Sciences of the University of Bonn

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Please note that only the original German version is legally
binding.

**Examination Regulations for the
Consecutive Master's Degree Program**

Geodetic Engineering

**of the Faculty of Agricultural, Nutritional, and Engineering Sciences
at the University of Bonn**

dated August 20, 2025

By virtue of § 2, paragraph 4 and § 64, paragraph 1 of the Higher Education Act of North Rhine-Westphalia (*Hochschulgesetz, HG*) of September 16, 2014 (Legal and Regulatory Gazette of North Rhine-Westphalia (GV NRW), p. 547), most recently amended by Article 2 of the Act to Strengthen Bochum as a University Location in the Field of Health and to Change Additional Higher Education Legal Provisions (*Gesetz zur Stärkung des Hochschulstandorts Bochum im Bereich des Gesundheitswesens und zur Änderung weiterer hochschulrechtlicher Vorschriften*) of December 19, 2024 (GV NRW, p. 1222), the Faculty of Agricultural, Nutritional, and Engineering Sciences at the University of Bonn issues the following Regulations:

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§ 1
Scope

(1) Students who commence their studies within the consecutive master's degree program Geodetic Engineering at the University of Bonn after entry into force of these Examination Regulations are subject to these Examination Regulations (MPO-GE-2025).

(2) The Examination Regulations for the Consecutive Master's Degree Program Geodetic Engineering of the Faculty of Agriculture at the University of Bonn dated October 16, 2020 (Official Announcements of the University of Bonn, 50th year, no. 72, dated October 21, 2020), in the following referred to as MPO-GE-2020, will expire at the end of the day on September 30, 2027. Examinations in accordance with MPO-GE-2020 will be admissible until March 31, 2027.

(3) Students who commenced their studies under MPO-GE-2020 prior to the coming into force of these Examination Regulations and have not yet completed all necessary examinations can submit a written, irrevocable request to adopt these Examination Regulations. Students who continue their studies under MPO-GE-2020 and do not graduate by March 31, 2027 shall adopt these Examination Regulations ex officio at the end of the day on March 31, 2027. In this case, any work that has already been completed will also be considered to have been completed according to these Examination Regulations as long as there are no significant differences regarding the competences to be acquired; any failed examination attempts are still counted. For examination procedures in modules that

- were started according to MPO-GE-2020;
- were carried out in modules that are no longer offered in their previous form according to MPO-GE-2025; and
- are not completed by March 31, 2027,

at least one resit examination attempt for the module examination according to MPO-GE-2020 will be made possible as long as not all possible attempts for repeating the module examination have been exhausted; details are regulated by the examination board.

(4) The Examination Organization Regulations of the Faculty of Agricultural, Nutritional, and Engineering Sciences (POO-AEI), as amended, govern the subject-specific and administrative organization of examination procedures in this degree program.

§ 2
Academic degree

Candidates who successfully complete the master's examination for the Geodetic Engineering degree program shall be awarded a Master of Science (MSc) degree by the Faculty of Agricultural, Nutritional, and Engineering Sciences at the University of Bonn.

§ 3
Degree program admission requirements

(1) The consecutive master's degree program Geodetic Engineering is open to applications from graduates from a university undergraduate degree program in the field of geodesy or a related field.

(2) The university degree in paragraph 1 must provide proof of the following qualifications:

- A total of at least 24 ECTS CP in at least two of the following fields:
 - Mathematics
 - Physics
 - Programming

and

- A total of at least 48 ECTS CP in at least two of the following six fields:
 - Field 1: physical geodesy, space geodesy, geodynamics and earth systems research
 - Field 2: data analysis, modeling and scientific computation in the geosciences context
 - Field 3: photogrammetry, remote sensing, computer vision and robotics
 - Field 4: geodetic measuring technology, engineering geodesy and satellite measuring technology
 - Field 5: algorithmics, spatial databases, geoinformation and geoinformation systems
 - Field 6: urban development, land division, real estate valuation and land management
- (3) Applicants must have English proficiency at least at the level B2/C1 of the Common European Framework of Reference for Languages (CEFR); a recognized language test (e.g. TOEFL iBT 90/120, IELTS 6.5/9, Cambridge Certificate, PTE Academic) or an equivalent qualification can be used as proof. When enrolling, applicants do not need to show proof of German skills.
- (4) This does not affect admission restrictions due to capacity limits (*numerus clausus*).
- (5) A selection of successful applicants required due to admission restrictions is subject to the Regulations on Selection Procedures for Degree Programs with Admission Restrictions at the University of Bonn, as amended at the time of application filing.

§ 4

Standard period of study, range of courses, program structure, language of instruction/examinations and start of the degree program

- (1) This degree program is only open to full-time students. The standard period of study, including the master's thesis, is four semesters (120 ECTS CP).
- (2) The degree program includes
1. 60 ECTS CP for compulsory modules, consisting of
 - 18 ECTS CP for general compulsory modules; and
 - 42 ECTS CP for profile-specific compulsory modules (including 24 ECTS CP for project modules);
 2. 30 ECTS CP for elective modules; and
 3. 30 ECTS CP for the master's thesis.
- Details on modules, admission to courses and the amount of ECTS credit points per module are set forth in the module structure (Annex) and in the respective module description in the module guide.
- (3) The profile-specific compulsory modules (including project modules) and elective modules are assigned to the following degree profiles:
- Mobile Sensing and Robotics (MSR)
 - Geodetic Earth System Science and Data Analysis (GES) or
 - Geoinformation and Spatial Development (GSD)
- (4) Students must choose one of the degree profiles in paragraph 3 as their major profile and another as their minor profile at the beginning of the first semester. Students may only change their choice once in the first semester by submitting a written request, which is irrevocable, before the first examination in one of the degree profiles.
- (5) Students must earn the following number of credit points for profile-specific compulsory modules:
- 36 ECTS CP in the major profile (including 24 ECTS CP for project modules) and
 - 6 ECTS CP in the minor profile
- (6) For elective modules,
- at least 18 ECTS CP and at most 30 ECTS CP must be earned in the major profile;
 - up to 12 ECTS CP can be earned in the minor profile.

- (7) The language of instruction and examinations is English.
- (8) The degree program starts in the winter semester of each year.
- (9) A vocational internship is recommended to complement the academic training.

§ 5

Module examinations—registration and withdrawal

- (1) Students who have withdrawn from a module examination in accordance with § 12, paragraph 3 or paragraph 5 of the POO-AEI must register electronically again with the examination board for the module examination. In justified cases, registrations may be submitted in writing.
- (2) Students should register to resit a failed module examination on the next scheduled examination date themselves.
- (3) In all other respects, the provisions of § 12 of the POO-AEI shall apply.

§ 6

Resitting examinations

- (1) Examinations that have been failed may only be repeated twice. If the options for resitting an examination in a module have been exhausted, the candidate shall have failed their final attempt at the module. Rules for repetition of the master's thesis are defined in § 24, paragraph 7 of the POO-AEI. If teaching units export elective modules in this degree program, they can set deviating regulations on the number of possible attempts in separate service agreements; these deviating regulations are to be announced according to § 8, paragraph 8 of the POO-AEI.
- (2) Students who fail their final attempt to pass a compulsory module lose their right to examination and are deregistered from the degree program by the Student Registry once the notification that the final attempt at the master's examination has been failed has come into force.
- (3) If the final attempt at an elective module has been failed, the student may choose another elective module not chosen before to compensate. Such compensation is only possible a total of four times. Students who used all compensation options without success shall lose their right to examination and are deregistered from the degree program by the Student Registry once the notification that the final attempt at the master's examination has been failed has come into force.
- (4) Examinations graded "sufficient" or higher cannot be repeated.
- (5) Repeating examinations according to § 19 of the POO-AEI that were taken as part of a course is typically only possible if the respective course is repeated; it is recommended that the required coursework is also repeated for this course.

§ 7

Pass requirements for the master's examination

- (1) Candidates shall have passed the master's examination when they have passed all necessary modules as per § 4, paragraph 2, including the master's thesis, with a grade of "sufficient" or higher and have thus been awarded a total of 120 ECTS CP.
- (2) The master's examination shall be deemed failed at the final attempt when
 - a compulsory module has been failed at the final attempt according to the provisions of § 6, paragraphs 1 and 2; or

- an elective module has been failed at the final attempt according to § 6, paragraph 1 and paragraph 3, sentence 1, and the compensation options have been used without success in accordance with § 6, paragraph 3, sentence 2 and 3; or
- the master's thesis has been graded "insufficient" in the second attempt in accordance with § 24, paragraph 7 of the POO-AEI.

§ 8

Entry into force and publication

These Examination Regulations shall enter into force on October 1, 2025. Public notice of these Regulations will be given in the Official Announcements of the University of Bonn.

H. Schoof

The Dean
of the Faculty of Agricultural, Nutritional, and Engineering Sciences
at the University of Bonn
University Professor Dr. Heiko Schoof

Executed pursuant to the resolution adopted by the Faculty Council of the Faculty of Agricultural, Nutritional, and Engineering Sciences on July 2, 2025 and the resolution passed by the Rectorate on July 22, 2025.

Bonn, August 20, 2025

M. Hoch

The Rector
of the University of Bonn
University Professor Dr. Dr. h.c. Michael Hoch

Annex: Module structure for the consecutive master's degree program Geodetic Engineering

Module structure key:

- The Course Type column shows the type of a course within the module.
- The abbreviations for the types of courses are: LC = lab course, prE = practical exercise, S = seminar, E = scientific exercise, L = lecture.
- In the Course Type column, courses marked with (A) are those for which, according to § 13, paragraph 6 of the POO-AEI, regular attendance is set as a requirement for participating in the module examinations or as a criterion for acquiring credit points. In these cases, compulsory attendance is an additional requirement to other listed assessments.
- In the Admission Requirements column, the requirements for participating in a module are listed.
- The Program-Related Semester/Duration column assigns the module to a specific program-related semester (PRS) and shows the duration (D) of the module (in semesters).
- The Coursework column shows whether coursework must be completed to be admitted to certain examinations pursuant to § 13, paragraph 4 of the POO-AEI or to acquire ECTS credit points in modules without an examination.
- The Examination(s) column shows the number of examination (components) and, if an examination has components, the weighting (W) of those components for awarding credit points. Examinations that are assessed by two examiners in accordance with § 13, paragraph 7, no. 3 of the POO-AEI are marked with (2E).

Further details on individual modules, especially regarding the courses offered within or required for completion of a module, the subject of the examination (content), qualification objectives and on specific coursework and examination forms are described in the respective module description in the module guide, which the examination board will make available electronically before the beginning of the respective semester, pursuant to § 4 of the POO-AEI.

A.1 General Compulsory Modules (18 ECTS CP)

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-01	Coordinate Systems	L, E	None	PRS: 1 st D: 1	<p>Subject of examination: Local and global coordinate systems, transformations, reference systems and reference frames, coordinate systems in cartography and GIS</p> <p>Qualification objective: In-depth understanding and use of different 3D coordinate systems</p>	Written and/or oral requirements	1	3
MGE-02	Global Navigation Satellite Systems	L, prE(A)	None	PRS: 1 st D: 1	<p>Subject of examination: Satellite navigation systems, GNSS signals and receiver technology, positioning methods, applications</p> <p>Qualification objective: In-depth knowledge of the physical, functional and stochastic characteristics of satellite-based positioning methods and systems</p>	Written and/or oral requirements	1	3
MGE-03	Statistics and Adjustment Theory	L, E	None	PRS: 1 st D: 1	<p>Subject of examination: Least squares estimation, regression analysis, probability theory, best linear unbiased estimator, confidence regions, hypothesis testing</p> <p>Qualification objective: In-depth understanding of parameter estimation and hypothesis testing concepts</p>	Written and/or oral requirements	1	3
MGE-04	Computational Foundations of GIS	L, E	None	PRS: 1 st D: 1	<p>Subject of examination: Basics of geoinformation systems, models, referencing objects, metric spaces, topological spaces and topological relationships, object-oriented modeling, spatial databases and queries, geometric algorithms for spatial analysis</p> <p>Qualification objective: In-depth understanding of how to use geoinformation systems to analyze spatial data; handling and designing spatial databases</p>	Written and/or oral requirements	1	3

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-05	Geodetic Earth Observation	L, E	None	PRS: 1 st D: 1	<p>Subject of examination: Concepts of global reference systems and reference frames, earth rotation, concepts for reference ellipsoids, geoids and gravity fields, satellite orbits for geodesy and remote sensing, basics of space geodetic observation techniques, atmosphere; time measurement systems; space environment</p> <p>Qualification objective: In-depth understanding of the concepts of global geodesy and geodetic earth observation</p>	Written and/or oral requirements	1	3
MGE-06	Profile Fundamentals	GS	None	PRS: 1 st D: 1	<p>Subject of examination: Selected course content chosen according to student skills for the desired profile</p> <p>Qualification objective: Supplementary learning objectives based on student skills for the desired profile</p>	The credit points are awarded for fully completed exercises.	None	3

A.2 Profile-Specific Compulsory Modules (42 ECTS CP, of which 36 ECTS CP are in the major profile—including 24 ECTS CP for project modules—and 6 ECTS CP in the minor profile)

Mobile Sensing and Robotics (MSR) degree profile

a) as major profile (project modules: MGE-MSR-P-I and MGE-MSR-P-II)

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-MSR-01	Sensors and State Estimation	L, prE(A)	None	PRS: 1 st D: 1	Subject of examination: State estimation, smoothing and filtering methods for determining motion and pose Qualification objective: Detailed, comprehensive, specialized knowledge of the state-of-the-art in geodesy and robotics with a focus on probabilistic estimation techniques	Written and/or oral requirements	1 (2E)	6
MGE-MSR-02	Advanced Techniques for Mobile Sensing and Robotics	L, prE(A)	None	PRS: 2 nd D: 1	Subject of examination: Advanced state estimation, smoothing and filtering methods for motion estimation and mapping the observed environment, SLAM, 3D measurement techniques Qualification objective: Specialized technical skills for also solving strategic problems in the area of geodesy and robotics with a focus on mapping techniques	Written and/or oral requirements	1 (2E)	6
MGE-MSR-P-I	Mobile Sensing and Robotics – Part I	LC(A)	Module MGE-06 and three other general or profile-specific compulsory modules from the MSR degree profile	PRS: 2 nd D: 1	Subject of examination: Analysis, specification and handling of special interdisciplinary research-related topics and questions in the area of the Mobile Sensing and Robotics profile Qualification objective: Define objectives for new research and application-oriented tasks in the fields of geodesy and robotics and apply appropriate methods; independently acquire the knowledge required for this	Written and/or oral requirements	1	12

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-MSR-P-II	Mobile Sensing and Robotics – Part II	LC(A)	Module MGE-MSR-P-I	PRS: 3 rd D: 1	<p>Subject of examination: In-depth analysis, specification and handling of special interdisciplinary research-related topics and questions in the area of the Mobile Sensing and Robotics profile</p> <p>Qualification objective: Responsibly lead groups for complex tasks in the areas of geodesy and robotics and act as a representative for the results of their work; lead area-specific and cross-area discussions</p>	Written and/or oral requirements	2 (W: 50%/50%)	12

b) as minor profile

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-MSR-01	Sensors and State Estimation	L, prE(A)	None	PRS: 1 st D: 1	<p>Subject of examination: State estimation, smoothing and filtering methods for determining motion and pose</p> <p>Qualification objective: Detailed, comprehensive, specialized knowledge of the state-of-the-art in geodesy and robotics with a focus on probabilistic estimation techniques</p>	Written and/or oral requirements	1 (2E)	6

Geodetic Earth System Science and Data Analysis (GES) degree profile

a) as major profile (project modules: MGE-GES-P-I and MGE-GES-P-II)

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-GES-01	Satellite Geodesy and Earth System	L, E, prE(A)	None	PRS: 1 st D: 1	<p>Subject of examination: Satellite and space geodesy methods, use of the main satellite techniques for earth system research</p> <p>Qualification objective: Detailed, comprehensive, specialized knowledge of the state-of-the-art in physical geodesy and geodetic observations</p>	Written and/or oral requirements	1 (2P)	6
MGE-GES-02	Advanced Data Analysis	L, E	None	PRS: 2 nd D: 1	<p>Subject of examination: In-depth investigation into the methods of physical geodesy and geodetic observations, applying the most important data analysis methods to problems in physical geodesy as well as geodetic observations and a combination of the two</p> <p>Qualification objective: Specialized technical skills for also solving strategic problems in the area of physical geodesy and geodetic observations</p>	Written and/or oral requirements	1 (2E)	6
MGE-GES-P-I	Geodetic Earth System Science and Data Analysis – Part I	LC(A)	Module MGE-06 and three other general or profile-specific compulsory modules from the GES degree profile	PRS: 2 nd D: 1	<p>Subject of examination: Analysis, specification and handling of special interdisciplinary research-related topics and questions in the area of the Geodetic Earth System Science and Data Analysis profile</p> <p>Qualification objective: Define objectives for new research and application-oriented tasks in the fields of physical geodesy and geodetic observations and apply appropriate methods; independently acquire the knowledge required for this</p>	Written and/or oral requirements	1	12

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-GES-P-II	Geodetic Earth System Science and Data Analysis – Part II	LC(A)	Module MGE-GES-P-I	PRS: 3 rd D: 1	<p>Subject of examination: In-depth analysis, specification and handling of special interdisciplinary research-related topics and questions in the area of the Geodetic Earth System Science and Data Analysis profile</p> <p>Qualification objective: Responsibly lead groups for complex tasks in the areas of physical geodesy and geodetic observations and act as a representative for the results of their work; lead area-specific and cross-area discussions</p>	Written and/or oral requirements	2 (W: 50%/50%)	12

b) as minor profile

Module Number/ Abbreviations	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-GES-01	Satellite Geodesy and Earth System	L, E, prE(A)	None	PRS: 1 st D: 1	<p>Subject of examination: Satellite and space geodesy methods, use of the main satellite techniques for earth system research</p> <p>Qualification objective: Detailed, comprehensive, specialized knowledge of the state-of-the-art in physical geodesy and geodetic observations</p>	Written and/or oral requirements	1 (2E)	6

Geoinformation and Spatial Development (GSD) degree profile

a) as major profile (project modules: MGE-GSD-P-I and MGE-GSD-P-II)

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-GSD-01	Urban Development	L, E	None	PRS: 1 st D: 1	<p>Subject of examination: Current trends, drivers and problem areas in urban development, urban development theory and models</p> <p>Qualification objective: Detailed, comprehensive, specialized knowledge of the state of the art in geoinformation and urban development</p>	Written and/or oral requirements	1	6
MGE-GSD-02	Spatial Decision Support Systems	L, prE(A)	None	PRS: 2 nd D: 1	<p>Subject of examination: Principles of decision support systems, abstraction and algorithmic problem-solving in spatial planning, optimization approaches, application of geoinformation systems in planning tasks</p> <p>Qualification objective: Specialized technical skills for mathematical abstraction, algorithmic problem-solving including for strategic problems in the area of geoinformation and spatial planning</p>	Written and/or oral requirements	1	6
MGE-GSD-P-I	Geoinformation and Spatial Development – Part I	LC(A)	Module MGE-06 and three other general or profile-specific compulsory modules from the GSD degree profile	PRS: 2 nd D: 1	<p>Subject of examination: Analysis, specification and handling of special interdisciplinary research-related topics and questions in the area of the Geoinformation and Spatial Development profile</p> <p>Qualification objective: Define objectives for new research and application-oriented tasks in the fields of geoinformation and spatial planning and apply appropriate methods and technologies; independently acquire the knowledge required for this</p>	Written and/or oral requirements	1	12

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-GSD-P-II	Geoinformation and Spatial Development – Part II	LC(A)	Module MGE-GSD-P-I	PRS: 3 rd D: 1	<p>Subject of examination: In-depth analysis, specification and handling of special interdisciplinary research-related topics and questions in the area of the Geoinformation and Spatial Development profile</p> <p>Qualification objective: Responsibly lead groups for complex tasks in the areas of geoinformation and spatial planning and act as a representative for the results of their work; lead area-specific and cross-area discussions</p>	Written and/or oral requirements	2 (W: 50%/50%)	12

b) as minor profile

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-GSD-01	Urban Development	L, E	None	PRS: 1 st D: 1	<p>Subject of examination: Current trends, drivers and problem areas in urban development, urban development theory and models</p> <p>Qualification objective: Detailed, comprehensive, specialized knowledge of the state of the art in geoinformation and urban development</p>	Written and/or oral requirements	1	6

B. Elective Modules (30 ECTS CP)

Elective modules can be chosen from up to two of the three degree profiles, namely the major and minor profiles selected in accordance with § 4, paragraph 4. Modules worth 18 to 30 ECTS CP must be completed in the major profile and modules worth up to 12 ECTS CP can be completed in the minor profile.

The examination board may approve further elective modules and shall announce them before the beginning of the semester pursuant to § 8, paragraph 8 of the POO-AEI.

Mobile Sensing and Robotics (MSR) degree profile

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-MSR-03	Selected Topics of Mobile Sensing	L, prE(A), S(A)	None	PRS: 2 nd D: 1	Subject of examination: In-depth knowledge of special research-related topics and questions in the area of mobile sensing Qualification objective: Critical understanding of the main theories, principles and methods in the area of mobile sensing; ability to independently acquire more in-depth knowledge	Written and/or oral requirements	2 (W: 75%/25%)	6
MGE-MSR-04	Selected Topics of Robotics	L, prE(A), S(A)	None	PRS: 2 nd D: 1	Subject of examination: In-depth knowledge of special research-related topics and questions in the area of robotics Qualification objective: Critical understanding of the main theories, principles and methods in the area of robotics; ability to independently acquire more in-depth knowledge	Written and/or oral requirements	1	6
MGE-MSR-05	Advanced Research Topics of Mobile Sensing	L, prE(A), S(A)	None	PRS: 3 rd D: 1	Subject of examination: Advanced knowledge of special research-related topics and questions in the area of mobile sensing Qualification objective: Ability to independently collect, evaluate and interpret relevant information in the area of mobile sensing; derive scientifically sound judgments and independently design advanced learning processes	Written and/or oral requirements	2 (W: 75%/25%)	6

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-MSR-06	Advanced Research Topics of Robotics	L, prE(A), S(A)	None	PRS: 3 rd D: 1	<p>Subject of examination: Advanced knowledge of special research-related topics and questions in the area of robotics</p> <p>Qualification objective: Ability to independently collect, evaluate and interpret relevant information in the area of robotics; derive scientifically sound judgments and independently design advanced learning processes</p>	Written and/or oral requirements	1	6
MGE-MSR-07	Advanced Research Topics of Mobile Sensing and Robotics	L, prE(A), S(A)	None	PRS: 3 rd D: 1	<p>Subject of examination: Advanced knowledge of special research-related topics and questions in the area of mobile sensing and robotics</p> <p>Qualification objective: Ability to independently collect, evaluate and interpret relevant information in the area of mobile sensing and robotics; derive scientifically sound judgments and independently design advanced learning processes</p>	Written and/or oral requirements	2 (W: 75%/25%)	6

Geodetic Earth System Science and Data Analysis (GES) degree profile

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-GES-03	Selected Topics of Geodetic Earth System Science	L, prE(A), S(A)	None	PRS: 2 nd D: 1	<p>Subject of examination: In-depth knowledge of special research-related topics and questions in the area of astronomical, physical and mathematical geodesy</p> <p>Qualification objective: Critical understanding of the main theories, principles and methods in the area of astronomical, physical and mathematical geodesy; ability to independently acquire more in-depth knowledge</p>	Written and/or oral requirements	1	6
MGE-GES-04	Selected Topics of Data Analysis	L, prE(A), S(A)	None	PRS: 2 nd D: 1	<p>Subject of examination: In-depth knowledge of special research-related topics and questions in the area of statistics and data analysis</p> <p>Qualification objective: Critical understanding of the main theories, principles and methods in the area of statistics and data analysis; ability to independently acquire more in-depth knowledge</p>	Written and/or oral requirements	2 (W: 75%/25%)	6
MGE-GES-05	Advanced Research Topics of Geodetic Earth System Science	L, S(A)	None	PRS: 3 rd D: 1	<p>Subject of examination: Advanced knowledge of special research-related topics and questions in the area of astronomical, physical and mathematical geodesy</p> <p>Qualification objective: Ability to independently collect, evaluate and interpret relevant information in the area of astronomical, physical and mathematical geodesy; derive scientifically sound judgments and independently design advanced learning processes</p>	Written and/or oral requirements	2 (W: 75%/25%)	6

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-GES-06	Advanced Research Topics of Data Analysis	L, prE(A), S(A)	None	PRS: 3 rd D: 1	<p>Subject of examination: Advanced knowledge of special research-related topics and questions in the area of statistics and data analysis</p> <p>Qualification objective: Ability to independently collect, evaluate and interpret relevant information in the area of statistics and data analysis; derive scientifically sound judgments and independently design advanced learning processes</p>	Written and/or oral requirements	1	6
MGE-GES-07	Advanced Research Topics of Geodetic Earth System Science and Data Analysis	L, prE(A), S(A)	None	PRS: 3 rd D: 1	<p>Subject of examination: Advanced knowledge of special research-related topics and questions in the area of astronomical, physical and mathematical geodesy and statistics and data analysis</p> <p>Qualification objective: Ability to independently collect, evaluate and interpret relevant information in the area of astronomical, physical and mathematical geodesy and statistics and data analysis; derive scientifically sound judgments and independently design advanced learning processes</p>	Written and/or oral requirements	1	6

Geoinformation and Spatial Development (GSD) degree profile

Module Number/ Abbreviation	Module Name	Course Type	Admission Requirements	Program-Related Semester/ Duration	Subject (Content) of Examination and Qualification Objective	Coursework	Examination(s)	ECTS CP
MGE-GSD-03	Selected Topics of Spatial Development	L, E, S(A)	None	PRS: 2 nd D: 1	<p>Subject of examination: In-depth knowledge of special research-related topics and questions in the area of urban development</p> <p>Qualification objective: Critical understanding of the main theories, principles and methods in the area of urban development; ability to independently acquire more in-depth knowledge</p>	Written and/or oral requirements	1	6
MGE-GSD-04	Selected Topics of Geoinformation	L, prE(A), S(A)	None	PRS: 2 nd D: 1	<p>Subject of examination: In-depth knowledge of special research-related topics and questions in the area of geoinformation</p> <p>Qualification objective: Critical understanding of the main theories, principles and methods in the area of geoinformation; ability to independently acquire more in-depth knowledge</p>	Written and/or oral requirements	2 (W: 75%/25%)	6
MGE-GSD-05	Advanced Research Topics of Spatial Development	L, E, S(A)	None	PRS: 3 rd D: 1	<p>Subject of examination: Advanced knowledge of special research-related topics and questions in the area of urban development</p> <p>Qualification objective: Ability to independently collect, evaluate and interpret relevant information in the area of urban development; derive scientifically sound judgments and independently design advanced learning processes</p>	Written and/or oral requirements	2 (W: 75%/25%)	6

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MGE-GSD-06	Advanced Research Topics of Geoinformation	L, prE(A), S(A)	None	PRS: 3 rd D: 1	<p>Subject of examination: Advanced knowledge of special research-related topics and questions in the area of geoinformation</p> <p>Qualification objective: Ability to independently collect, evaluate and interpret relevant information in the area of geoinformation; derive scientifically sound judgments and independently design advanced learning processes</p>	Written and/or oral requirements	1	6
MGE-GSD-07	Advanced Research Topics of Geoinformation and Spatial Development	L, prE(A), S(A)	None	PRS: 3 rd D: 1	<p>Subject of examination: Advanced knowledge of special research-related topics and questions in the area of geoinformation and urban development</p> <p>Qualification objective: Ability to independently collect, evaluate and interpret relevant information in the area of geoinformation and urban development; derive scientifically sound judgments and independently design advanced learning processes</p>	Written and/or oral requirements	1	6

C. Master's Thesis (30 ECTS CP)

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MGE-MT	Master's Thesis	---	All compulsory modules (60 ECTS CP)	PRS: 4 th D: 1	<p>Subject of examination: Analysis and specification of tasks; independently solve a complex task using scientific methods within a specified period of at least four and at most six months; present the results in a written and oral form that satisfies the requirements</p> <p>Qualification objective: Students are able to</p> <ul style="list-style-type: none"> - analyze, specify, structure and solve a complex task using scientific methods within a specified period of time; - write a scientific paper; - prepare an English summary; and - prepare a concise. explicit summary in the form of a scientific poster. 	None	Master's thesis	30