



## Master course Geoinformatics and Geodesy (en)

Requirements of the course / qualification profile of the graduates

The graduates of the Master's program Geodesy and Geoinformatics can solve tasks and problems of geodesy/geoinformatics with engineering methods and have in particular the following qualifications

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Specialization Geodesy

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- Knowledge of the mathematical and physical description of the Earth's field of gravity and the associated geodetic processes
- in-depth knowledge and application of basic and advanced methods of engineering geodesy
- in-depth knowledge on relevant topics of the real estate cadastre and land tenure
- in-depth knowledge in the processing of high precision measurements in the field of mechanical engineering, automotive engineering, shipbuilding and aerospace
- detailed knowledge of the structure and function of measurement equipment as well as physical modelling of the measuring process
- in-depth knowledge of mathematics for the quantitative determination of differential geometrical parameters (curvature surfaces and curves, geodetic basic tasks, etc.) and for solving optimization problems based on statistical methods, test theory, classical and contemporary adjustment theory, the modern time series analysis and the use of filtering methods
- in-depth knowledge of assimilation, modelling and analysis of spatial data as well as the digital signal and image processing and remote sensing
- in-depth knowledge in business administration and production theory as well as a basic knowledge of financing and capital budgeting, accounting and legal and business forms.

Specialization Geoinformatics

Graduates of the Master's program Geodesy and Geoinformatics have particular depth knowledge of advanced methods and technologies of Geoinformatics and their application, as well as basic and specialized methods of engineering geodesy.

They are able to understand demanding mathematical methods, apply them to geodetic and geoinformatical problems and implement their



solution in view and application of social, economic, legal and organizational framework in complex software solutions.

They can on their own understand demanding specialized tasks in geosciences, edit them, communicate interdisciplinary, meet the user requirements appropriately and develop application-ready solutions.

They have the ability to successfully plan complex projects in the field of Geoinformatics and implement them also considering the business perspective.

They can find abstract solutions for spatial problems based on a high level and formal modeling and comprehensively develop spatial data models, assess their quality, harmonize data for further processing and prepare them for a particular application.

The graduates have the ability to analyze functional and organizational processes of spatial data management and map them using established modeling concepts in system architectures to plan in particular complex geographic information systems and adapt them to the respective requirements.

They will be able to develop in-depth knowledge of Geoinformatics and adjacent areas on their own, can develop geospatial concepts and provide users also relevant knowledge in training.

In addition, they are able to work in interdisciplinary teams, chair them, assign tasks to their members and coordinate the activities.

The graduates are familiar with the application of a variety of software solutions in the areas of work listed above or are able to familiarize themselves in order to be capable of filling the qualified jobs in the emerging spatial data market.