

Geoinformatics

Basic information of the minor

Code: ENG3057

Extent: 25 cr

Language: English

Teacher in charge: Petri Rönholm

Target Group: The minor is open to all master's level students at Aalto University.

Application procedure: None

Quotas and restrictions: No

Prerequisites: The students are required to check in WebOodi that they fulfil the prerequisites for each course. In preparing their study plan, the students are required to check that they fulfil the prerequisites for each course i.e. to take the courses in the right order.

Content and structure of the minor

Background:

Global issues, such as distribution of natural and water resources, urban development and sprawl, security and energy needs all involve a significant spatial component. These issues offer fascinating challenges for geoinformatics experts who can measure and handle huge data volumes and analysis of complex geospatial problems. Geoinformatics (GIS) is a truly multidisciplinary discipline: the research and applications comprise a wide range of themes from local to global scales, and from human-centered to natural environments. The rapid expansion of geo-technologies from GIS experts to the global public has created a wide job market for geoinformatics professionals.

Learning outcomes:

Upon completion of the Minor in Geoinformatics, the student can apply the methods and processes in spatial data acquisition. The student can manage geoinformation and create cartographic products and also organize the use of spatial data in various problem solving and decision support situations. The student understands and can apply spatial data management tools, spatial algorithms and relevant software. Understanding user requirements as well as assessment of uncertainty, accuracy and reliability concerning geo data, methods and processes are other key learning outcomes.

The minor will be 25 ECTS and will comprise five courses (each 5 ECTS) from the lists below.

Structure of the minor

| Code | Name | Credits |
|--|---|---------|
| A. One compulsory course for all students taking this minor: | | |
| GIS-E1020 | From measurements to maps | 5 |
| B. One or two courses from the following list: | | |
| GIS-E1010 | Geodesy and Positioning | 5 |
| GIS-E1030 | Introduction to Spatial Methods | 5 |
| GIS-E1040 | Photogrammetry, Laser Scanning and Remote Sensing | 5 |
| GIS-E1070 | Theories and Techniques in GIS | 5 |
| C. Two or three courses from the following list: | | |
| GIS-E1060 | Spatial Analytics | 5 |
| GIS-E3010 | Least-Squares Methods in Geoscience | 5 |
| GIS-E3020 | Digital Image Processing and Feature Extraction | 5 |

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| GIS-E3030 | Advanced Laser Scanning | 5 |
| GIS-E3040 | Advanced Photogrammetry | 5 |
| GIS-E3050 | Advanced Remote Sensing | 5 |
| GIS-E4020 | Advanced Spatial Analytics | 5 |
| GIS-E4030 | GIS Development | 5 |
| GIS-E5030 | Physical Geodesy | 5 |
| GIS-E5040 | Mathematical Geodesy | 5 |

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