



Faculty of Health, Science and Technology
Geo-Science

Syllabus

Digital photogrammetry and visualization in 3D

Course Code:	NGGB48
Course Title:	Digital photogrammetry and visualization in 3D <i>Digital fotogrammetri och 3D-visualisering</i>
Credits:	7.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has less than 60 credits in first-cycle course/s as entry requirements (G1F)

Major Field of Study:

MAT (Surveying and Mapping)

NGA (Physical Geography)

Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2018-08-23, and is valid from the Spring semester 2019 at Karlstad University.

Prerequisites

Completed 45 ECTS credits for courses on the engineering programme Surveying Technology and Geographical IT, or Surveying and Mapping, or equivalent

Learning Outcomes

Upon completion of the course, students should be able to

- explain and describe basic photogrammetric concepts and data,
- plan and perform aerial photography with UAS,
- apply photogrammetric methods for producing photogrammetric material,
- explain relevant concepts and standards for 3D visualisation,
- use programs to create different 3D models (height, city and building models).

Content

Digital photogrammetry

- Photogrammetric sensors and systems
- Photogrammetric survey: geometric properties, error estimates and correction
- Photogrammetric products: maps, height models and orthophotos
- Photogrammetric digital data standards
- Processing, resampling compression, measuring in and image matching of digital images
- Quality aspects of aerial measuring and planning
- Planning and performing data collection with UAS

3D visualisation

- Collecting 3D data

- Representing 3D data
- Data formats and standards
- Analysing 3D data
- Software
- Height models, city models and building models
- Building Information Modelling (BIM).

Reading List

See separate document.

Examination

Assessment is based on individual hand-in assignments and a project report.

Grades

One of the grades 5 (Pass with Distinction), 4 (Pass with Some Distinction), 3 (Pass), or Fail (U) is awarded in the examination of the course.

Quality Assurance

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate

A course certificate will be provided upon request.

Additional information

The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.