AG1819 GPS and Image Based Surveying 6.0 credits

GPS och bildbaserad mätning

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for AG1819 valid from Autumn 2017

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

No additional entry requirements for students admitted to the Degree Programme in Civil Engineering and Urban Management (CSAMH) Other students: Mathematics D

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After the course, the students should be able to:

- Identify which satellite observations can be used for positioning and explain how they can be used for calculation of position and speed of a receiver
- Identify components of GNSS and explain their function
- Plan, carry out and process GNSS observations by means of advanced geodetic receivers in order to establish geodetic networks, perform detail surveying and setting-out and to determine trajectory of a vehicle
- Evaluate quality of coordinates determined by GNSS observations
- Transform the coordinates into given reference system
- Explain principles of image-based topographic measurement
- Combine GNSS and terrestrial observations

Course contents

- Basic principles of positioning by means of satellites
- Components in satellite positioning systems and their function: satellites, control stations, receivers
- GNSS positioning and surveying methods, error sources and their elimination
- Detail surveying and setting-out with GNSS
- Image-based topographic measurement
- Combination of terrestrial and GNSS measurements
- Transformations: connection of GNSS measurements to local reference systems

Disposition

Lectures 16 hours

Laboratory work: 32 hours

Course literature

Hofmann-Wellenhof, Lichtenegger, Wasle (2008). GNSS. Springer. Wien, New York

Examination

- TEN1 - Examination, 2.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory work, 3.5 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

- written examination, TEN1, 2.5 credits, AF
- approved laboratory reports, LAB1, 3.5 credits, the PF

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.