AG2927 Geodata Quality and Adjustment Theory 7.5 credits

Geodatakvalitet och felteori

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

Establishment

Grading scale

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

Education cycle

Second cycle

Main field of study

The Built Environment

Specific prerequisites

Basic knowledge in mathematical statistics as well as linear algebra

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 student should

- understand different quality aspects of geodata and its importance for GIS-applications
- be able to evaluate geodatabases and design appropriate measures for quality assurance actions
- be familiar with measurement error and computation of error propagation
- be able to apply the least squares method to adjust measurement data

Course contents

- Different quality aspects in geodata
- Quality assurance actions
- Quality of measurement data: precision, precision and reliability
- Measurement error and the law of error propagation
- Error ellipse and error ellipsoid
- The least-squares method
- Condition adjustment
- Adjustment elements
- Generalised matrix inverses and free network adjustment
- Gross error detection, local redundancy and reliability

Disposition

Lecture 20 hours

Laboratory work: 40 hours

Course literature

H. Fan (2017). Theory of errors and least squares adjustment. Avdelningen för geodesi och satellitpositionering, KTH.

Examination

- ÖVN1 - Exercise, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, 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

Passed written examination (TEN1), 4.5 cr

Passed laboratory reports (ÖVN1), 3.0 cr

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.