AH2917 Advanced Theory of Errors 7.5 credits

Advanced Theory of Errors

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

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

Establishment

Course syllabus for AH2917 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Built Environment

Specific prerequisites

AH2921 Adjustment theory

Language of instruction

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

Intended learning outcomes

After completing this course, students should be able to

- calculate different types of generalized matrix inverses
- make free network adjustment and understand its geodetic implications
- estimate variance-covariance components
- search for gross errors using the method of data snooping

Course contents

- Gralized matrix inverses, minimum-norm inverses, least squares inverses and minimum-norm least squares inverses
- Free network adjustment and its interpretations
- Variance-covariance components. Helmert's method and BQUE.
- Gross error detection. Data snooping
- Local redundancies. Concept of reliability

Project work is to adjust and analyze a two-dimensional trangulation network. The work and the results must be presented in a project report.

Disposition

Lectures: 16 h

Project work: 60 h

Course literature

Fan, H. (2006). Theory of Errors and Least Squares Adjustment. KTH.

Examination

- PRO1 - Project, 7.5 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.

Other requirements for final grade

Approved project report (PRO1; 7.5 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.