



Course syllabus

# Geodetisk mätningsteknik Geodetic Surveying

VGMF15, 5 credits, G2 (First Cycle)

Valid for: 2023/24 Faculty: Faculty of Engineering, LTH Decided by: PLED V Date of Decision: 2023-03-21

## **General Information**

Main field: Technology. Compulsory for: V3 Language of instruction: The course will be given in English

### Aim

The course aims to give basic knowledge about concepts and methods used in geodetic surveying, photogrammetry, and saltellite positioning.

### Learning outcomes

*Knowledge and understanding* For a passing grade the student must

be able to:

- explain theory of geodetic reference systems
- describe horizontal and height reference systems
- explain surveying methods used for point positioning and mapping
- describe basic principles in photogrammetry and GPS

### Competences and skills

For a passing grade the student must

be able to:

- apply knowledge in surveying for construction and infrastructure projects
- apply standard surveying methods for solving problems in plane and height dimensions

· perform geodetic adjustment computations using the Least-Squares method

#### Judgement and approach

For a passing grade the student must

be able to:

• understand the significance of and be able to asses geodetic analyses, projecting and planing

#### Contents

Basic classical surveying calculations in plane and height coordinate systems. Geodetic adjustment theory and accuracy analysis using the Least-Squares method. GPS and photogrammetry concepts, definitions and applications.

### **Examination details**

**Grading scale:** TH - (U,3,4,5) - (Fail, Three, Four, Five) **Assessment:** Written final examination, project work, and complusory fieldwork.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

### Admission

Assumed prior knowledge: FMAB20 Linear Algebra OR FMA420 Linear Algebra. The number of participants is limited to: No The course overlaps following course/s: VGM630, VVBF05, VGMA05

## **Reading list**

- Charles D. Ghilani: Elementary surveying: an introduction to geomatics. Pearson, 2017, ISBN: 978-0134604657.
- J. Uren and B. Price: Surveying for engineers. Palgrave Macmillan, 2010, ISBN: 978-0230221574.

### **Contact and other information**

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