



# AF1714 Indoor Surveying 7.5 credits

Mätteknik, byggnads- och fastighetsdokumentation

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 AF1714 valid from Autumn 2012

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Technology

## Specific prerequisites

Students in year 3 of the Bachelor of Science in Engineering programme Constructional Engineering and Design

AF1730 Building Information Modeling  
HS1005 Surveying and Mathematical Statistics  
HS1009 Urban planning  
or equivalent courses

## Language of instruction

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

## Intended learning outcomes

Upon completion of the course, students shall be able to:

- Account for different concepts of area and volume in construction
- Take manual measurements using a distomat
- Use measurement data generated with manual measurement to create three-dimensional digital documentation
- Handle a laser scanner and perform laser scanning of objects such as internal and external structural walls with details
- Manage data from a laser scanner and produce models of a scanned object in software designed for this purpose
- Process data from laser scanning in a CAD programme to produce a complete drawing
- Perform modulation in Revit
- Perform an inventory and record technical information on materials and properties for operation and maintenance, energy declaration, environment, fire and safety
- Perform an inventory and record legal documentation regarding a property with importance for management and real estate development
- Understand the fundamentals of real estate law

## Course contents

- Concepts of area and volume in construction
- Basic management of a laser scanner
- Planning and implementation of indoor surveying using a laser scanner
- Transfer to and editing of data in a program for processing laser scanner data
- Creation of 3D CAD models based on data from a laser scanner
- Handling of total stations
- Processing the produced CAD models in a CAD programme for creating dimensioned drawings
- Modulation in Revit
- Analysis and comparison of the methods regarding costs, time and the precision of the results
- Techniques and methods for taking inventory and recording technical information on construction materials and installations, and their properties for operation and maintenance, energy declaration, environment, fire and safety

- Technology to perform inventory and record documentation related to legal issues and property law regarding a specific building and property of importance for management and real estate development
- Basic real estate law

## Disposition

The course will be taught in regular lectures as well as in the computer lab. There will also be an element of measuring with both laser and manual methods.

## Course literature

Kompendier inom respektive delämne

## Examination

- LABA - Laboratory work, 3.0 credits, grading scale: P, F
- TENA - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- ÖVNA - Exercises, 1.5 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.

A laser measurement as well as a manual measurement (using a distometer) will be carried out as an exercise. The exercise (ÖVNA) represents 1.5 credits.

The measurement results are processed in the computer lab, which should lead to the production of tender documents containing property documentation and legal information for a redevelopment project. This examination (LABA) represents 3.0 credits.

A written examination of all the theoretical modules of the course must be taken. The examination (TENA) represents 3.0 credits.

## Other requirements for final grade

To receive a final grade for this course, participation in the measurement exercise is required, as well as a passing grade on the tender document and cost estimations based on the measurements taken. Grade E or higher on the examination is also required. Overall course grade is based on grading scale A-F.

## 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.