Linnæus University

Jnr: 2018/3778-3.1.2.2

Course syllabus

Faculty of Technology
Department of Building Technology

1BY007 Geodesi med GIS, 7,5 högskolepoäng
Geodetic Surveying and Geographic Information System, 7.5 credits

Main field of study
Civil Engineering

Subject Group
Building Technology

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved 2009-07-24
Revised 2019-01-10 by Faculty of Technology. Literature list is revised.
The course syllabus is valid from spring semester 2019

Prerequisites
7.5 credits in Mathematics from within the programme (equivalent to Computational Methods for Technical Applications, 7,5 credits, or Basic Mathematics for engineers, 7,5 credits, or Linear algebra for engineers, 7,5 credits, or Calculus for engineers, 7,5 hp) as well as och Building Technology 1 (6,5 credits) or equivalent.

Objectives
The student is expected to:

- have knowledge about theory within measurement techniques and geodesy
- be able to carry out geodetic measurements and evaluate those in protocols
- be able to carry out geodetic calculations and present those in protocols
- have knowledge about the different sectors and tasks within the building industry for students within the Civil Engineering Programme, Building and Construction and the Building Technology Programme with specialisation in Architectural Engineering

Content

The course comprises the following elements:
Geodesy:

- Geodetic surveying preconditions
- Geodetic and measurement technology concepts
- The use of levelling instruments
- The use of theodolites
- The use of total stations
- Mapping
- Field exercises
- Demonstration of other measurement techniques

GIS:

- Geographic information systems, GIS
- Systems of coordinates, map projections and reference systems
- Spatial data structures
- Data gathering and database techniques

Company contacts:
Site visits and contacts with companies will be performs in accordance with the teacher's instructions.

Type of Instruction

The teaching consists of lectures, calculation exercises and field exercises. The field exercises are mandatory.

Site visits and contacts with companies will be performed in accordance with the teacher's instructions.

Examination

The course is assessed with the grades U, 3, 4 or 5.
The course is divided into field exercises (2,5 credits), contact with companies (1 credits) and written exam (4 credits).

Field exercises are held during the course by group works with mandatory participation and is examined with the grades passed/failed, depending on the submitted protocols. The part contact with companies is examined with the grades passed/failed, depending on the mandatory participation and the submitted reports.

The exam is done in written at the end of the course and includes theory questions and calculation tasks. The written exam is carried out anonymous and is graded with grades U, 3, 4, or 5.

All parts of the course need to be passed in order to pass the course. The final grade will be handed out when all parts are approved. The grade from the written exam also gives the final grade.

Course Evaluation

During the course or in close connection to the course, a course evaluation is to be carried out. The result and analysis of the course evaluation are to be communicated to the students who have taken the course and to the students who are to participate in the course the next time it is offered. The course evaluation is carried out anonymously. The compiled report will be filed at the Faculty.

Required Reading and Additional Study Material

Required reading
Lars Ollvik "Geodesi - introduktion till ingenjörsgeodesi med beräkningsuppgifter", version 4:1, LTH 2015

version 4.1, LTH 2015.

Reference Literature

1. Lantmäteriet m.fl. "Geodetisk och fotogrammetrisk mätnings- och beräkningsteknik", LVM.
2. Börje Silkenäs, Bo Andersson "Geodesi - Grundkurs i geodetisk mätningsteknik", Kompendium, Växjö, senaste upplaga.
3. Samuel A Berg "Geodesi och mätningsteknik", Lärnö AB, 2015.
4. Margareta Nordmark "Ritningsläsning och mätningsteknik. Bygg", Liber, 2008.