



# AG1817 Map Projections and Reference Systems 6.0 credits

Kartprojektioner och referenssystem

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

## Establishment

## Grading scale

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

## Education cycle

First cycle

## Main field of study

The Built Environment

## Specific prerequisites

AH1816 Geodetic surveying II or equivalent

## Language of instruction

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

## Intended learning outcomes

Student should understand different types of map projections and be able to do computations between geodetic and map projection coordinates. Student should also obtain insights on how geodetic reference systems are built and be able to transform coordinates between different reference systems.

## Course contents

Spherical geometry and reference ellipsoid. Geodetic coordinates and geodetic lines. General projection theory. Azimuthal projections, conical projections and cylindrical projections. UTM. Astronomy and concept of time. Geodetic triangulation. Geoid and height system. Earth rotation. Celestial and terrestrial reference systems (ITRF, WGS 84, SWEREF 99. 3D coordinate transformation using Helmert-model. estimation of transformation parameters.

## Disposition

Lectures 24 hours

Laborations 32 hours

## Course literature

H Fan (2013). Theoretical geodesy. Division of Geodesy and Geoinformatics, KTH.

## Examination

- ÖVN1 - Exercises, 2.0 credits, grading scale: P, F
- TEN1 - Written Examination, 4.0 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

Student should pass a written examination and get all exercise assignments approved by the course coordinator.

## 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.