FAG3105 Active Remote Sensing 7.5 credits

Aktiv fjärranalys

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

Establishment

Course syllabus for FAG3105 valid from Autumn 2018

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

AG1321 Remote Sensing Technology or equivalent

AG2413 Digital Image Processing and Application or equivalent

Language of instruction

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

Intended learning outcomes

This course intends to provide an overview of active remote sensing systems, namely radar and Lidar, the ways in which these active systems are used to acquire data, how these data may be analyzed digitally and how the information is used in monitoring natural and built environments.

Course contents

1) Introduction to Active Remote Sening, Properties of Microwaves vs Visible & Infrarad

2) Radar and LIDAR Interactions with Manmade and Natural Objects

3) The Radar/Lidar Equation

4) Radar Polarimetry and Interferometry

5) LIDAR systems

6) Radar systems

7) LIDAR data processing

8) Radar data processing

9) Application examples

At the end of the course, students should be able to

- understand the principles of active remote sensing systems

- have a basic understanding of polarimetry and interferometry

- process and handle radar data

- process and handle differnt forms of LiDAR data (waveform, discrete)

- interpret the information contained in radar and LIDAR data and use them in meaningful

Course literature

Principles and applications of imaging radar (Manual of remote sensing, Volume 2)

LiDAR Remote Sensing and Applications

Examination

- LAB1 - Laboratory work, 3.0 credits, grading scale: P, F
- PRO1 - Project work, 4.5 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.

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

Other requirements for final grade

- LAB1 - Laboratory Work, 3.0 credits, grade scale: P, F
- PRO1 - Project, 4.5 credits, grade scale: P, 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.