HÖGSKOLAN I GÄVLE

Remote Sensing 5 cr

Fjärranalys 5 hp

Set by Faculty of Engineering and Sustainable Development

Version	**Set at**	**Valid from**
	8/22/16	HT2017
	9/5/19	**HT2019**

Level	A1N
Education level	Second cycle
Course identifier	SBA014
Credits	5 cr
Main field of study	Geospatial Information Science, Geomatics, Geography, Surveying Technology
Subject group	Geographic Information Technology and Surveying
Disciplinary domain	Natural sciences 50.0 % Technology 50.0 %

Learning outcomes

After completion of the course the student shall be able to
1. process remotely sensed data to make it useful in geographic information systems
2. perform image enhancement on remotely sensed imagery
3. extract information from remotely sensed data using a variety of manual and automated techniques
4. critically assess the strengths and weaknesses of remote sensing instruments and platforms for a variety of application scenarios
5. develop multi-step remote sensing workflows to solve problems in a variety of application areas
6. apply acquired knowledge and critical thinking skills to solve a real-world problem with appropriate remote sensing data and processing methods
7. clearly and concisely communicate findings from the analysis of remotely sensed data through the written word and graphical products.

Course content

• Key Definitions, resolution concepts within different applications, multisensor applications, time-series analysis, sensor footprint

• General framework for remote sensing workflows, Feature Extraction, Mapping, Object-Based Image Analysis (OBIA) techniques
• Pre-processing of remotely sensed data, data models, formats, spatial and spectral pre-processing techniques. Lidar pre-processing
• Image Understanding and Interpretation: Classification, Detection, Recognition, Identification, Enumeration, Mensuration, Delineation
• Feature Extraction with eCognition
• Change Detection Methods

Teaching Lectures, practicals, and seminars

Prerequisites English language proficiency equivalent to (the Swedish upper secondary school) English course 6/B.
GIS data structures and algorithms, 5 credits, or equivalent

Examination Assignments (practicals), project, and written examination

Grade A, B, C, D, E, Fx, F

Other regulations Degree criteria for final grade will be given by examiner or course responsible latest at the beginning of the course.

Sustainable environment A minor part of the course content deals with sustainable development.

Module

0020	Project	2 cr	Grade: AF
0030	Written examination	1.5 cr	Grade: AF
0040	Assignments (practicals)	1.5 cr	Grade: UG