AG2411 GIS Architecture and Algorithms 7.5 credits

GIS Architecture and Algorithms

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

Establishment

Course syllabus for AG2411 valid from Autumn 2019

Grading scale

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

Education cycle

Second cycle

Main field of study

The Built Environment

Specific prerequisites

For admitted students to the Master of Science in Civil Engineering and Urban Management (CSAMH) or the Master of Science in Transport and Geoinformation Technology (TTGTM): AG2412 Geovisualisation or an equivalent course.

For other students:

- A completed bachelor's degree in civil engineering, urban planning, geomatics, geography, engineering physics, computer science, statistics, economics, and/or mathematics, including at least 6 university credits (hp) in each of the following or their equivalents: Programming, Linear Algebra, Calculus in One Variable, and Probability & Statistics

- Documented proficiency in English corresponding to English B
- At least one course on GIS or a relevant subject

Language of instruction

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

Intended learning outcomes

After completing the course the students should:

- be familiar with the architecture of a GIS system,
- have knowledge about the theory behind the most common algorithms in geographic information science,
- have knowledge about methods to handle geometric data in databases,
- have the skill of performing own modelling of geographic data using UML,
- have the confidence and skill to develop their own programming to implement new GIS applications,
- know the basic standards in GIS.

Course contents

- Basic GIS algorithms
- Modelling of systems (UML)
- Toolkits, libraries, etc

Disposition

Lectures 20 h
Laboration 32h
Project 16 h

Course literature

Worboys, M. F., and M. Duckham, 2004. GIS: A Computing Perspective, 2nd edition. Taylor & Francis.

Harrie, L., 2009. Lecture notes in GIS Algorithms, Lund University.

Examination

- PRO1 - Project, 3.0 credits, grading scale: A, B, C, D, E, FX, F

- LAB2 - Laboratory 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

Approved laborations (LAB1; 4,5 cr) (P/F)

Project, (PROJ; 3.0 cr), A/B/C/D/E/FX/F

Participation i final presentation session

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.