AL2301 Applied Hydrogeology 7.5 credits

Tillämpad hydrogeologi

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

Establishment

Course syllabus for AL2301 valid from Autumn 2019

Grading scale

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

Education cycle

Second cycle

Main field of study

Environmental Engineering, The Built Environment

Specific prerequisites

Open to programme students from KTH with at least 180 credits, or other applicants with a bachelor's degree, including at least 5 credits in hydrology and 5 credits in fluid mechanics. In addition, second cycle courses for at least 30 ECTS credits are required.

Language of instruction

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

Intended learning outcomes

After passing the course, the student should be able to:

â€¢Create a conceptual hydrogeological model for a catchment area

â€¢Develop a numerical hydrogeological model for a catchment area

â€¢Perform flow and contaminant transport modelling of subsurface water for scenario analyses

â€¢Identify and quantify crucial parameters for contaminant transport with groundwater

â€¢Interpret field measurements and experimental data

â€¢Identify water quality problems and suggest appropriate treatment techniques for private water supplies/wells.

Course contents

The main focus of the course is on drinking water resources, and the study site used in most exercises is a real-case site that is evaluated as potential water supply for a municipality. The overall goal of the course is that the student after passing the course should be able to manage a water resource problem, more specific to evaluate an eskers potential as a water supply.

The lectures cover subjects as hydrogeological environments, natural and artificial groundwater recharge, groundwater flow theory, transport processes, boundary conditions and contamination hydrogeology. Moreover, groundwater chemistry, water quality issues and treatment techniques for small-scale water supplies are treated.

The exercises include hydrogeological conceptual modelling, pumping test analysis, numerical hydrogeological modelling for transport and scenario analyses.

Examination

- ÖVN1 - Homework Assignment, 1.0 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN2 - Exercises, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 3.5 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.

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.