



SH262V Elements of the Back-end of the Nuclear Fuel Cycle: Geological Storage in Precambrian Bedrock 7.5 credits

Kärnbränslecykeln: Geologiskt slutförvar i prekambrisk berggrunden

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

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

Establishment

Course syllabus for SH262V valid from Spring 2014

Grading scale

P, F

Education cycle

Second cycle

Main field of study

Engineering Physics

Language of instruction

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

Intended learning outcomes

Upon completion of the course students are expected to be able to:

- understand environmental and radiological issues related to nuclear fuel cycle and spent nuclear fuel
- create and present a geological map of a limited area
- create and present a tectonic map of limited area
- present a 3dimensional geological presentation of the mapped area
- describe the Precambrian rocks and minerals in the mapped area
- describe the distribution of soils in the mapped area
- compile a summary of the hydrogeological conditions in the mapped area
- present the KBS method for storing nuclear waste in Precambrian rocks
- compile a summary of the social aspects of storing nuclear waste

Course contents

- Nuclear energy and nuclear fuel cycle primer
- Petrology and mineralogy
- Plate tectonics
- Metamorphism
- Quaternary geology
- Hydrogeology in soil
- Hydrogeology in fractured bedrock
- Hydrogeochemistry
- The KBS method
- Social aspects of storing of nuclear waste

Fieldwork and laboratory work at Äspö Hard Rock Laboratory

Specific prerequisites

A completed bachelor's degree in engineering or natural sciences and documented proficiency in English corresponding to English B/English 6.

Course literature

Scientific reports and articles related to geological storage handled to the students at the beginning of the course and available on the course web-page

Examination

- EXA1 - Examination, 4.0 credits, grading scale: P, F
- PRO1 - Laboratory Projects, 3.5 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.

Examination is based on an individual knowledge test and the written and oral presentation of an individual field work project at Äspö Laboratory

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.