



AE1101 Natural Resources Theory 6.0 credits

Naturresursteori

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

Establishment

Course syllabus for AE1101 valid from Autumn 2010

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

AI1137 or AI1136 Introduction to the Planning and Building Process, and SH1010 Physics for the built environment

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:

- describe the major biogeochemical cycles with the help of conceptual models and explain the recycling technology in which this knowledge is realized
- describe and evaluate scientific criteria with different soil and water resources in relation to their use in building society
- analyze the sensitivity and resilience of ecological systems and calculate the environmental impact of the use of stock, renewable and flow resources
- using models of material and energy flows in society with special reference to water supply and sewage system, and create sustainable scenarios for different types of future use of natural resources.

Course contents

Bio-element cycling: Oxygen, carbon, nitrogen, phosphorus, sulfur and other natural cycles. Circulating flows in which water-borne pollutants through the atmosphere and sewerage systems are exemplified. Wastewater treatment and water supply - the double loop. Strategic and technical natural resource planning and introduction of technologies for evaluation and studies of material flows, such as the LCA, with examples from the construction sector. Methods for ecological sustainability analysis of different types of exploits, such as rock and gravel quarries, hydroelectric power plants and wind turbines. Waste as a resource in the loop as waste hierarchy in relation to environmental quality. Risks related to reuse, recycling and energy recovery from waste, eg recycling poisoning.

Course literature

- Natural Resources Theory – Compendium (In Swedish)
- Exercise compendium of natural resource theory (In Swedish)
- Excursion Guide – Lake Mälaren around
- In addition, relevant literature is dependent on the selected project task

Examination

- FÄL1 - Excursion, 0.0 credits, grading scale: P, F
- ÖVN1 - Exercises, 1.5 credits, grading scale: P, F
- PRO1 - Project, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 3.0 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.

Other requirements for final grade

One written examination (TEN1; 3 cr), approved compulsory exercises (ÖVN1; 1,5 cr), compulsory project report (PRO 1; 1,5 cr) and excursion (FÄL1; 0 cr).

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.