



AE1502 Environmental Systems Analysis for Energy and Environment 7.5 credits

Miljösystemanalys för energi och miljö

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

Establishment

The official course syllabus is valid from spring semester 2027 as decided by the Director of First and Second Cycle Education. Decision date: 2026-10-06.

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Basic knowledge in natural resources, environment and sustainable development that corresponds to the content of the courses

AL1351 Energy, Environment and Sustainable development (4.5 credits)

MJ1508 Ecology and Environmental Effects (7.5 credits)

Intended learning outcomes

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

- describe basic theory of environmental systems analysis and systems analysis
- describe, analyse and understand a selection of environmental systems analytical tools and their application in different decision situations in society
- describe and understand different mitigation measures for avoiding or minimising environmental impact and thereby contribute to a sustainable development

Course contents

The course focuses on environmental systems analytical tools and include basic theory and concepts within environmental systems analysis and systems analysis. A selection of different environmental systems analysis tools are considered, that can be applied on different decision situations within e.g. policy, planning, projects, management and technologies from a sustainability perspective, with a systems analytical approach. Examples of tools that will be discussed are environmental impact assessment, strategic environmental assessment and integrated assessment, multi criteria decision aid, life cycle analysis, material flow analysis, environmental management systems, cost-benefit analysis and position analysis. The relation of the tools to different system borders, decision situations and actors will be considered, together with their range of application and limitations.

The course is given in form of lectures, seminars and laborations. In addition, a project task is included that will be reported in a seminar and in a written report. The lectures present basic theory, concepts and trends together with a discussion of the concept of a systems perspective and of the different environmental systems analytical tools. The exercises are related to the energy field and/or development projects where one or more tools are applied. The project task provides an opportunity to learn more about one or several environmental systems analytical tools.

Examination

- ÖVNB - Exercise, 1.5 credits, grading scale: P, F
- ÖVNC - Exercise, 1.0 credits, grading scale: P, F
- PROB - Project, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- TENA - Written Exam, 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.

Transitional regulations

Students admitted to a previous version of the course may be examined according to the former modules for up to two years.

Thereafter, assessment will take place through the new modules and a supplementary assignment.

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.