



# AG1808 Energy, Climate and The Environment 9.0 credits

Energi, klimat och miljö

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

## Establishment

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Technology

## Specific prerequisites

Requirements needed to be accepted to the Energy and Environment programme

## Language of instruction

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

## Intended learning outcomes

The overall aim of the course is to give an overview and insight to the development in the energy, climate and environmental areas, in order to create a common basis for the students and their further studies within the programme. The course focuses mainly on methods, tools and terminology to understand, manage and solve environmental problems. Furthermore, the course introduce the student to the academic tradition, for example, information retrieval in various forms.

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

- Explain and problematize (discuss different understandings) the concept of sustainable development
- Describe the main features of the Swedish energy system
- Describe the main features and motivation for the Swedish environmental quality objectives and the UN's sustainability goals and explain how they are relevant to engineers
- Analyze the development in energy and the environment areas from a system perspective in relation to sustainable development
- Orally and in writing present, document and discuss problem solving in energy and environment areas.
- Write and read basic matlab code

## Course contents

The entire course involves two sections. The first section awards 7.5 credits and is given during period 1 and 2. The first section consists of three sub-parts that interacts throughout the course:

The first sub-part is an introduction to academic environmental studies. Here, central concepts such as sustainable development are discussed together with the importance of system thinking and different knowledge to solve engineering problems. In this introduction, information retrieval and introduction to scientific writing are also presented and used during a project assignment.

The second sub-part of the course is related to the programme profile; energy and environment. In this part, introduction to energy systems are presented and discussed in relation to how different aspects such as innovation, actors and environmental policy interact to address energy and environmental problems. This knowledge will be used during the project assignment. The departments and divisions that are strongly connected to the programme profile will participate and link to their specific areas.

The third sub-part is a project assignment where the students go into depth in the energy and environmental areas. In the project assignment connections are made between actors, environmental policy and the role of the engineer to address environment-related challenges in the energy sector. The assignment is presented orally and in written text. A critical opposition of another group's work shall also be performed. .

A study visit is also included and links to the role of the engineer to develop solutions for a sustainable development in relation to energy and the environment.

Section two of the course awards 1.5 hp and introduces Matlab. This section is given during period 3.

An important role of the course is to introduce the teachers and departments that under the forthcoming years will be responsible for the programme profile; energy and environment.

## Course literature

Literature is announced at the start of the course

## Examination

- PRO1 - Project, 3.5 credits, grading scale: P, F
- TEN1 - Examination, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- INL2 - Matlab assignment, 1.5 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.

The examination "INL1 Reflection task" is deleted in the revised course plan. Students who have attended earlier versions of the course that need to complement "INL1 Reflection task" shall make a separate assignment, in connection to the learning outcomes it shall examine. They do not have to do the "INL2 Matlab task" according to this revised course plan. These transitional rules apply until 2021.

## Other requirements for final grade

In addition to the above stated assignments and examination, attendance and active participation are required in three seminar sessions, including seminar assignments.

## 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.