



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

Course syllabus for AG1808 valid from Autumn 2014

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 of and an early 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 background to and perspectives on global warming is introduced in the course but also possible solutions to the problem. Furthermore, the course highlights areas that introduce the student to the academic tradition. One example is communication skills in different forms. Another 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.

After completing the course, you should be able to:

- In your own words, describe the main features of the Swedish energy system
- In your own words, describe the main features and motives for the Swedish environmental objectives, as a reflection of important environmental problems
- In your own words, and from a natural scientific perspective, describe the process behind global warming and critically analyse in what ways this global warming has been affected by anthropogenic aspects
- In your own words, describe the definition of and discuss possibilities and obstacles with the aim for Sustainable development.
- Analyse the development in the energy and environmental areas in relation to Sustainable development
- For a systems perspective, analyse different technical solutions to minimise global warming
- In a smaller group, contribute to and present, orally and in written text, a given project assignment focussing on the subjects Energy and Environment
- From the knowledge for separate courses during the first year of the programme, give solutions and motives to how this knowledge can be used to approach possibilities and difficulties in the Energy and environmental areas, with a special focus on global warming.

Course contents

The entire course involves two parts. The first part awards 7,5 credits and is given during period 1. The part consists of three sub-parts, that interacts throughout the course:

The first sub-part is the introduction to the academic environment. Here, subjects such as scientific perspectives and possible job opportunities are discussed together with lectures on systems thinking and the importance of using different knowledge to solve engineering problems. In this introduction, requirements of how to write scientifically are also presented and used during a project assignment.

The second sub-part of the 7,5 credit course is related to the programme profile, energy and environment. In this part insights and introductions to energy systems and sustainable development are presented and discussed. Global warming is used to introduce problems and challenges. The role of the Engineer to find solutions to minimise global warming are discussed at several occasions during the course. The Departments and Divisions that are strongly connected to the Programme profile will participate and link to their specific areas.

A study visit is also included and links to the role of the Engineer to develop solutions for a sustainable development when it comes to energy and the environment.

The third sub-part is a project assignment where the students go into depth in the energy and environmental areas. The assignment is presented orally and in written text. A critical review is also included. The assignment is passed when a critical review is handed in together with a revised project report.

Part two of the course awards 1,5 hp and consists of a seminar series where the separate courses and the programme profile are linked. This part is given during periods 2-4.

Please note that the course is given during the entire first year of the programme.

The course is taught in Swedish.

Course literature

"Kungliga ingenjörsvetenskapsakademien och Kungliga Vetenskapsakademien (2012) Energi – möjligheter och dilemman. Tredje reviderade upplagan. Kungl. Ingenjörsvetenskapsakademien (IVA), Stockholm. 127 sid. Tillgänglig på <http://www.iva.se/PageFiles/o/Energiboken-2012.pdf>

Gröndahl F. och Svanström M. (2011) Hållbar utveckling – en introduktion för ingenjörer och andra problemlösare. Liber ISBN 9-7891-47-09348-9

Ytterligare litteratur meddelas vid kursstart"

Examination

- INL1 - Reflection Assignment, 1.5 credits, grading scale: P, F
- PRO1 - Project, 3.5 credits, grading scale: P, F
- TEN1 - Examination, 4.0 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

Written exam (TEN1; 4 hp)

Project assignment , (PRO1; 3,5 hp)

Portfolio (INL1; 1.5 hp)

Pass or at least the Grade E is required on all exams in order to receive a final grade.
Compulsory participation in Studieframgång; 1 lecture and 2 seminars and pass MatLab.

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.