



MJ1502 The Engineer and Sustainable Development 6.0 credits

Ingenjören och hållbar utveckling

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 MJ1502 valid from Autumn 2007

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Language of instruction

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

Intended learning outcomes

The overall aim is to give a survey of Sustainable Development focused on the threats and measures on Sustainable Development based on our life style, as well as the role of the engineer.

After passed course the student should be able to:

- Describe and analyse the concept of Sustainable Development from an environmental, social and economical aspect.
- Describe and analyse the ecological prerequisites for Sustainable Development.
- Reflect on the role of the engineer in Sustainable Development
- State and describe the most important global and national environmental threats and describe the connections between these and our life style.
- Analyse the global and national environmental threats on the ecosystems.
- Propose and motivate strategies and actions, national and international, for different environmental problems, based on a system analysis perspective.
- State and describe the means and tools used in industry and society, in order to minimize the environmental effects originating from a product or activity.
- Independently analyse problems and possibilities of the work done in society and industries for a Sustainable Development.
- Collect information from scientific literature and summarize it in a written report, as well as critically scrutinize another groups report.

Course contents

- Sustainable Development: Ecological prerequisites, definitions and concepts, ways to measure Sustainable Development, the role of globalisation on Sustainable Development.
- Threats to and measures for Sustainable Development coupled to case studies, the role of the engineer and our own life style:
- Global and national environmental threats (climate change, the Baltic Sea, environmental toxic substances)
- Consumer society (patterns of consumption, rebound effects, ecological footprints, resource depletion, transports, waste)
- The role of technology in Sustainable Development (strategies, sustainable energy systems, IPP, system analysis)
- Economical and juridical measures and tools (Sweden's environmental goals, the Environmental Code, ISO 14 000 etc)

The project work and case studies/examples taken up in lectures will be connected to the students main program.

Course literature

- Brandt, N. & Gröndahl, F. Kompendium i miljöskydd, del 4, Miljöeffekter. Industriell ekologi, KTH, 2000.
- Särtryck ur ”Miljöskyddsteknik. Strategier & teknik för ett hållbart miljöskydd”. Red. Per Olof Persson. Industriell Ekologi, KTH, 2005
- Stencilsamling: Verktyg och styrmedel – samling utdrag
- Skoog, P. m. fl. 1995. Kompendium i miljöskydd, del 1, Ekologi. Industriell ekologi, KTH.
- Lecture notes

Examination

- PRO1 - Project, 3.0 credits, grading scale: P, 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.

Other requirements for final grade

To receive the grade “passed” the student is required to pass project work (PRO1; 3cr) and a written examination (TEN1; 3cr).

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.