MJ2658 Technology and Ecosystems for CENMI 6.0 credits

Teknik och ekosystem för CENMI

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 MJ2658 valid from Autumn 2013

Grading scale

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

Education cycle

Second cycle

Main field of study

Environmental Engineering

Language of instruction

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

Intended learning outcomes

The whole society is built up by different technical systems and processes used in different sectors of the society. This course will provide deep knowledge about natural resources and environmental consequences from technical systems, technical processes and human behavior in society.

After passed course the student should be able to:

- Describe and explain concepts of ecological carrying capacity, ecosystems and ecological services in relation to technology development, human population growth, affluence and sustainable development.
- Describe and explain todays most important global environmental threats (substances, sources, driving forces, ecosystem impacts) as e.g. climate change, acidification, eutrophication, ozone depletion, organic pollutants, biodiversity, water supply and deforestation.
- Describe and explain environmental impact from behaving in daily life in consumption and transports.
- Describe and explain changes and conflicts concerning global natural resources such as decreasing rainforests and lacking water resources.
- Discuss and analyze environmental effects in relation to development in technology, science and lifestyles in modern society.
- Analyze environmental impact from products, processes or services with a life cycle approach and present the analysis in an oral and written report.

Course contents

- Concepts of ecological carrying capacity, ecosystems and ecological services in relation to technology development, human population growth, affluence and sustainable development.
- Todays most important global environmental threats (substances, sources, driving forces, ecosystem impacts) as e.g. climate change, acidification, eutrophication, ozone depletion, organic pollutants, biodiversity, water supply and deforestation.
- Changes and conflicts concerning global natural resources such as decreasing rainforests and lacking water resources.
- Environmental impacts from our daily life behavior.
- Analyzing environmental impacts from products, processes or services based on life cycle thinking.
- Ecological footprint – evaluation of carrying capacity.

Disposition

- Lectures – 20 hrs (2hrs*10 lectures)
- Seminars - 2hrs/ intro + feedback, 4 hrs presentation of project work
- Literature Assignment (Essay)
- Group Project & Written report
- Written examination – 4 hrs

Specific prerequisites

At least 100 academic credits (ECTS) in a program of engineering or natural science or course MJ 2613 or corresponding knowledge including documented proficiency in English B or equivalent.

Course literature

Meddelas vid kursstart

Examination

- LIT1 - Literature Assignment, 1.0 credits, grading scale: P, F
- PRO1 - Project, 2.0 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.

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.