



# MJ2659 Technology and Ecosystems, Larger Course 7.5 credits

Teknik och ekosystem, större kurs

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 MJ2659 valid from Autumn 2018

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Environmental Engineering, Mechanical Engineering

## Specific prerequisites

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

## 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 such as ecosystems, ecosystem services and ecological carrying capacity in relation to technological development, population growth, welfare and sustainable development.
- Describe and explain today's most important global environmental threats such as global warming, acidification, eutrophication, depletion of the ozone layer, environmental hazards, reduced biodiversity, water shortage and deforestation.
- Describe and explain the environmental impact of the individual's daily life of e.g. consumption, energy usage and utilization of transport.
- Describe and explain changes and conflicts around global natural resources, such as rainforest losses and the lack of drinking water.
- Analyze the environmental impacts within a sociotechnical system, using relevant system description and delimitations. Present the work verbally and in writing according to accepted scientific methodology.

## Course contents

- • Concepts such as ecological carrying capacity, ecosystems, ecosystem services and its relation to technological development, population growth, prosperity and sustainable development. • Today's most important global environmental threat, such as global warming, acidification, eutrophication, depletion of the ozone layer, environmental hazards, biodiversity, water shortage and deforestation. • Trends, changes and conflicts around global natural resources, such as the rainforest's deforestation and the lack of drinking water. • Environmental impact from the individual's daily life of consumption, energy usage and utilization of transport. • Environmental impact from a product, process or service from a system perspective.

## Disposition

- Lectures – 20 hrs (2hrs\*10 lectures)
- Seminars • 2 + 2 hrs/ intro + feedback (PRO 1 + 2) • 4 + 4 hrs presentation of project work (PRO 1+ 2)
- Literature Assignment (Essay)
- Group Project & Written report
- Written examination – 4 hrs

# Course literature

Will be announced at the start of the course.

## Examination

- LIT1 - Literature Assignment, 1.0 credits, grading scale: P, F
- PRO1 - Project 1, 2.0 credits, grading scale: P, F
- PRO2 - Project 2, 1.5 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

LIT1 - Literature Assignment, 1.0 credits, grade scale: P, F

PRO1 - Project, 2.0 credits, grade scale: P, F

PRO2 – Project, 1,5 credits, grade scale P, F

TEN1 - Examination, 3.0 credits, grade scale: A, B, C, D, E, FX, F

## 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.