MJ2615 Introduction to Industrial Ecology, larger course 7.5 credits

Introduktion till industriell ekologi, större kurs

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

Establishment

The course syllabus is valid from Autumn 2023 according to the Head of school decision: A-2023-0461, 3.2.2. Decision date: 2023-03-27

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 150 higher education credits in science or technology.

Courses from upper secondary school corresponding to the courses Eng B/6 according to the Swedish upper secondary school system or equivalent.

Language of instruction

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

Intended learning outcomes

The course presents the developments in research and application in the field of industrial ecology and discusses the role of industrial ecology in strategic sustainable development on a global scale, as well as for strategies for manufacturing industries.

After completion of the course the students should be able to:

- explain the concept of sustainable development and the role of industrial ecology (IE) in supporting it;
- explain the importance of ecological metaphors in the analysis of industrial systems;
- explain the sustainability issues related to current patterns of sustainable consumption and production, reflecting on ethics and inequality from a global perspective;
- apply IE principles to understand environmental and socio-economic consequences of material and energy flows through systems; and
- search information from scientific literature related to IE and summarize and analyse in written reports;
- demonstrate newly-gained knowledge by critically discussing, orally and in a written format, the importance of IE approaches when analyzing and improving the sustainability performance of a technical system.

Course contents

In this course the key concepts and the historical development of industrial ecology will be critically analysed. System tools to support industrial ecology will be briefly reviewed. Examples will be given how industrial ecology have been and can be used to develop long term strategies for the development of technology and for the industrial sector. The interaction between production and consumption as well as IE as a concept for creating the way for making material and energy use more effective than current practice in countries in the North will be discussed.

Examination

- PRO3 - Project, 3.0 credits, grading scale: P, F
- SEM6 - Assignment + Attendance, 0.5 credits, grading scale: P, F
- SEM7 - Assignment + Attendance, 0.5 credits, grading scale: P, F
- SEM8 - Assignment + Attendance, 0.5 credits, grading scale: P, F
- TEN3 - 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.

If the course is discontinued, students may request to be examined during the following two academic years.

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.