AL2115 Transdisciplinary Approaches for System Innovations 7.5 credits

Tvärvetenskapliga metoder för innovativa systemåtgärder

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

The course syllabus is valid from spring term 2024 according to Head of school decision: A-2023-2243, 3.2.2.Date for decision: 2023-10-05

Grading scale

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

Education cycle

Second cycle

Main field of study

Environmental Engineering

Specific prerequisites

Admitted to Master's Programme, Sustainable Technology (TSUTM).

Others: Admitted to a program at KTH - Royal Institute of Technology and at least completed 180 ECTS credits. Courses from upper secondary school corresponding to the courses Eng B/6 according to the Swedish upper secondary school system.

Language of instruction

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

Intended learning outcomes

After finishing the course, the student should be able to:

• describe the different types of innovations and reflect on how they relate to various theories of socio-technical changes, e.g. the multi-level perspective of system innovation and transition management;

• describe concepts of complexity and uncertainty in/for socio-technical systems;

• describe core ideas of different schools in future studies;

• reflect on transdisciplinary approaches for system innovation studies, e.g. generation of robust knowledge, consensus building, needs orientation, research society interaction;

• explain and illustrate scenario typologies;

• use various methods and techniques for scenario development, e.g. driver analysis, storytelling, morphological analysis;

• design a transdisciplinary study for sustainable transitions of socio-technical systems;

• implement a participatory backcasting process addressing real-life complex socio-technical challenges.

Course contents

The course “Transdisciplinary Approaches for System Innovations” will provide you with insights on socio-technical processes in system innovations and equip you with participatory methods to facilitate sustainability transitions of socio-technical systems.

During the course you will design and implement a participatory backcasting project addressing a real-life complex socio-technical challenge. In the previous year addressed tarnsitions challenges were

- 2017: “Sustainable KTH Campus 2050”
- 2018: “Sustainable city district Hammarby Sjöstad 2050”
- 2019: "Sustainable urban food production and consumption system in Stockholm by 2050"
- 2020: Mobility system in climate-positive Järfälla municipality by 2050."

The course is divided into 3 themes:

Theme 1. System innovations

Theme 2. Transdisciplinarity

Theme 3. Participatory backcasting (project work in interaction with different societal actors)

Examination

- DEL1 - Attendance, 1.5 credits, grading scale: P, F
- HEM1 - Home assignment, 1.0 credits, grading scale: P, F
- PRO2 - Project work, 5.0 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

Passed examinations

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.