

Systems and Management I, 4.0 credits

System och management I, 4.0 hp

Third-cycle education course

6FIEI16

Department of Management and Engineering

Valid from: First half-year 2025

Approved by
Head of Department

Approved
2017-03-26

Revised by
Head of Department

Revised
2025-06-21

Registration number
IEI-2025-00367

Entry requirements

Admitted to doctoral studies. PhD students at IEI have priority for the course. PhD students must be admitted to a relevant subject area. Target groups are PhD students admitted to the research subject of Sustainable Systems.

Specific information

The aim of this course is to develop a common base of reference for the PhD students in Sustainable Systems and support them to develop advanced knowledge and understanding of systems approaches in studies of energy systems and environmental management and engineering.

Learning outcomes

After successful completion of the course the PhD student shall be able to:

- present, compare, use and reflect upon different system approaches, theories and tools in general and related to energy systems and environmental management and engineering in various contexts
- discuss, compare and reflect upon different scientific methodologies and approaches, including different theoretical schools, and different methods for data collection and analysis
- describe, compare and reflect upon the concepts multi-, inter- and trans-disciplinary
- discuss the individual student's research assignment in relation to theory of science, systems theory and inter- and disciplinary science

Contents

The course addresses in particular system approaches and approaches related to energy systems and environmental management and engineering. The course will include a broad introduction to systems approaches with examples of many different types of analysis and application areas as well as system-based theoretical schools, but focus in particular on how system approaches have been used in connection with analyses of resources, energy and environment. Management will be primarily addressed in relation to resource, environmental and energy issues. With a starting point in technology science (teknikvetenskapliga perspektivet), the course will include both technical and social science perspectives in relation to systems and management. This will include also introduction of various methods of data collection and analysis as well as challenges in relation to combining methods. A variety of scientific approaches related to the broad field of environmental and energy studies, which can be based in varied theoretical schools with their diverse ontologies and epistemologies will be introduced. Methods and challenges related to interdisciplinary and transdisciplinary science will also be addressed.

Educational methods

The course consists of series of seminars and lectures.
The course is held in English.

Examination

- Group assignment
- Obligatory attendance and active participation in all parts of the course
- Opposition to other group assignments within the course
- Individually writing a reflection document

Grading

Two-grade scale

Course literature

To be announced at the start of the course.

General information

The course considers equal opportunities and aims to utilize the resources that students with diverse backgrounds, life situations, and competencies contribute to the education.

The reading list and schedule are determined separately.

The course coordinator must conduct a course evaluation after each course session.

The results of the course evaluation must be communicated to the participants of the current and upcoming course sessions, as well as to the Research Education Council at IEI.