



MJ2531 Transformation in Energy Policy and Climate Agenda

5.0 credits

Transformation i energipolitik och klimatagenda

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 official course syllabus is valid from the spring semester 2025 in accordance with the decision by the Head of the ITM School: M-2023-2167. Date of decision: 2023-10-13

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Language of instruction

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

Intended learning outcomes

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

1. Explain energy and climate policy in different sectors and development contexts (developed and developing countries) that aims for a carbon-neutral and climate-resilient future.
2. Critically evaluate energy policy, its implementation/measures and results for a system change towards sustainable development.
3. Calculate the effect of mitigating alternatives (climate policy measures) by means of transparent and harmonised procedures for reporting of greenhouse gases.
4. Evaluate synergies between energy and other sectors and the role of sector policy for handling energy use and emissions in different sectors. Evaluate synergies between energy and other sectors and the role of sector policy for handling energy use and emissions in different sectors.

Course contents

- Understand climate-change policies in energy planning perspective

Factors that influence the design of energy policy such as the historical development of energy systems, development ideologies, socio-economic changes and objectives, technology alternatives, and resource availability are analysed in international and national contexts and in different sectoral development contexts.

- Tools for evaluation of energy and climate policy (evaluate policies, their implementation and results by means of indicators)

The students learn about regulating and economic control instruments that are used in energy policy – which contribute to the climate objectives. Which types of political instruments do countries use to promote sustainable energy systems (i.e. monetary incentives, regulations, research etc)? The students analyse energy policy in the context of European and developing countries. The effects of energy policy (economic, technical, social, environmental sustainability) are assessed by means of various indicators.

- Transparent and harmonised reporting of greenhouse gases for limitation of climate changes

Students will be introduced to a simple modelling tool where they will be asked to feed in data and make an analysis related to reduction of greenhouse gas emissions. The aim of this exercise is to learn how the calculation tool for greenhouse gases (GHG) is used to estimate greenhouse-gas emissions from energy production systems in a life-cycle approach. This will also give practical knowledge and understanding of transparent and harmonised reporting procedures for greenhouse gases.

Examination

- PROA - Project, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- PROB - Project, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- SEM1 - Seminar, 1.0 credits, grading scale: P, 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.