



# MJ2475 Theory and Methodology of Science for Energy Research 6.0 credits

Vetenskapsteori och -metodik för energiforskning

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 MJ2475 valid from Autumn 2013

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Mechanical Engineering

## Specific prerequisites

Bachelor degree or three year university level education in areas relevant for the course in question.

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

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

- understand, describe and compare fundamental concepts of theory and methodology of science and relate them to energy research problems of different nature;
- critically discuss theories and methodologies used in scientific articles and reports;
- identify and propose the application of specific methodologies for analyzing energy problems and research topics.

## Course contents

The aim of the course is to introduce theory and methodology of science to Master's students and prepare them for the development of their Master's thesis. The course introduces basic concepts and understanding of methodological and underlying philosophical issues that arise in science. Furthermore, the course invites to reflection on research issues within the student's own area of interest. The course works as a scientific initiation for applied research in energy related topics. Critical assessment of methods and results of research are exercised within the scope of the course, which can help students to evaluate and analyze research materials and evidence.

The course includes the following main activities:

- review of research literature on basic concepts and methodologies of science;
- seminars to discuss concepts, approaches and methodologies in scientific energy articles;
- definition of concepts and methodologies to address research questions and discussion of their application in specific research topics.

## Course literature

Kurslitteratur kommer att specificeras i början av varje kurstillfälle.

Course literature will be specified at the start of each course round.

## Examination

- INL1 - Written Analysis, 1.0 credits, grading scale: P, F

- INL2 - Problem and Method Formulation, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- SEM1 - Participation in literature seminar, 0.5 credits, grading scale: P, F
- SEM2 - Participation in literature seminar, 0.5 credits, grading scale: P, F
- SEM3 - Participation in literature seminar, 0.5 credits, grading scale: P, F
- TEN1 - Exam, 2.0 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.

## **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.