



# **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.

## **Establishment**

On 22/04/2022, the Dean of the ITM School has decided to establish this official course syllabus to apply from autumn term 2022 (registration number M-2022-0620).

## **Grading scale**

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

## **Education cycle**

Second cycle

## **Main field of study**

Mechanical Engineering

## **Specific prerequisites**

Degree of Bachelor or at least three years of first-cycle courses on course relevant subjects.

Documented knowledge in English B or the equivalent.

# 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 students should be able to:

1. Discuss theories and methods for research design critically.
2. Describe and analyse the choice of research methods in relation to research goals and interpret result.
3. Design, justify and communicate the complete research proposal according to scientific principles.
4. Demonstrate ability to identify methods, technologies and tools to carry out robust energy research.
5. Identify and discuss how one should handle sustainability and ethical dimensions when designing and developing research projects in energy research.

## Course contents

The course introduces the Master students to theory and methods in the science and prepares them to develop their Master thesis in accordance with KTH requirements. The course introduces basic concepts and understanding of philosophic and methodological problems that arise in research and encourages reflection over research subjects and procedures in the student's own study field. The course functions as a scientific initiation for applied research in energy-related subjects in particular. The course also introduces critical assessment of methods and results of research that can help students to evaluate and analyse research material.

## Examination

- INLA - Hand in assignment, 1.0 credits, grading scale: A, B, C, D, E, FX, F
- INLC - Hand in assignment, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- SEMA - Seminars, 0.5 credits, grading scale: P, F
- SEMC - Seminars, 0.5 credits, grading scale: P, F
- TENB - Written exam, 2.5 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.

To pass the course, it is required that student is present in all seminars and carry out all course components (INLA, INLC, SEMA, SEMC and TENB).

## **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.