



# MJ148X Degree Project in Energy Systems, Sustainability and Industrial Engineering, first cycle 15.0 credits

Examensarbete i Energisystem, hållbar utveckling och industriell ekonomi, grundnivå

This is a translation of the Swedish, legally binding, course syllabus.

## Establishment

On 15/10/2021, the Dean of the ITM school has decided to establish this official course syllabus to apply from spring term 2021 (registration number M-2021-2037)

## Grading scale

P, F

## Education cycle

First cycle

## Main field of study

Mechanical Engineering

## Specific prerequisites

The specific prerequisites for a degree project of 15 credits at undergraduate level are: courses of at least 120 credits from the syllabus years 1-3 must be completed for students in programme where the degree project begins in period 3.

Specific requirements for degree project in Energy systems, sustainable development and industrial engineering:

Have completed the following courses:

MJ1112 Applied Thermodynamics, 9 credits, or the equivalent.

MJ1145 Energy Systems, 7.5 credits, or the equivalent.

MJ1141 Energy Systems and Sustainability, 9 credits, or the equivalent.

Recommended to have completed:

MJ1401 Heat Transfer, 6 credits, but not compulsory

## Language of instruction

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

## Intended learning outcomes

According to KTH's established criteria to pass a degree project for a Bachelor's degree, the student should be able to:

1. demonstrate knowledge of the disciplinary foundation of the chosen subject area, applicable methods and orientation in current research and development and show advanced knowledge within some part of the subject area
2. demonstrate the ability to search, collect and use relevant information critically and identify one's needs of additional knowledge
3. demonstrate the ability to formulate, assess and handle problems and critically discuss phenomena, issues and situations
4. demonstrate the ability to plan and carry out assignments with applicable methods within given time frames
5. demonstrate the ability to account for and discuss information, problems and solutions, orally and in writing in dialogue with different groups
6. demonstrate the ability to make assessments considering relevant scientific, social and ethical aspects
7. show the skills that are required for working independently within some part of the technical field of study
8. show the skills that are required for working independently at the interface between energy systems and sustainable development as well as industrial economics and management in the technical field of study

## Course contents

Course is carried out in project form, either individually or in groups of two technology students. Projects deal with energy and sustainability problems that are commonly found in society, with a focus on sustainable solutions and business development. The objective of the project is to integrate technology with requirements on sustainable social, economic, and environmental development.

Teachers in the course provide appropriate projects at the beginning of the course. Projects can be provided by industry or from a research team, but are mainly carried out at KTH. Teachers are also supervisors for projects.

Work should document in the form of a written report. Normally, it is written in Swedish with an abstract in English. It is allowed to write report in English.

Intermediate and final seminars are compulsory components. At the final seminar, the student should, besides orally presenting his/her work, also review on another student's degree project work. Furthermore, written parts of the report should be handed in during the course, with content as agreed with supervisor.

## Examination

- XUPP - Degree project, 15.0 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.

If the course is discontinued, students may request to be examined during the following two academic years.

The examiner decides, in consultation with KTH's coordinator for disabilities (Funka), about possible adapted examination for students with documented, permanent disabilities. The examiner may permit other examination format for re-examination of individual students.

## Other requirements for final grade

Besides the established KTH criteria for passing a first cycle degree project, the course specific requirements are:

Completed project work with agreed deliveries, attendance at compulsory seminars, presentations at these, critical review, and completion of final report

## 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.