



# MJ2511 Energy Management

## 7.5 credits

### Energy Management

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

On 15/10/2021, the Dean of the ITM school has decided establish this official course syllabus to apply from spring term 2023, registration number: M-2021-2016.

### Grading scale

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

### Education cycle

Second cycle

### Main field of study

Mechanical Engineering

### Specific prerequisites

Degree of Bachelor of Science. Preferably knowledge in thermodynamics (equivalent to MJ1112), heat transfer (equivalent to MJ1401), renewable energy (equivalent to MJ2411) and systems modeling.

# 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. Analyse and model large and complex energy systems on district/city level in a methodological way.
2. Examine uncertainties, through scenarios and sensitivity analysis, connected to future cities and districts.
3. Evaluate the cost efficiency for sustainable energy systems by applying appropriate economic methods.
4. Develop and evaluate innovative business models that handle local socio-techno-economic challenges in city scale

## Course contents

- Systems thinking and systems analysis
- Energy economy
- Uncertainty and scenario analysis
- Energy challenges for future cities and districts involving several interested parties and multiple optimisation criteria. modelling and simulation of energy systems at district and city level
- Innovative business models for energy systems

## Examination

- PRO1 - Project work, 6.0 credits, grading scale: A, B, C, D, E, FX, F
- SEM1 - Seminar, 1.5 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.

