



# MJ2412 Renewable Energy Technology, Advanced Course 6.0 credits

Förnybar energi, fortsättningskurs

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 22/04/2022, the Dean of the ITM School has decided to establish this official course syllabus to apply from spring term 2022 (registration number M-2022-0607).

## Decision to discontinue this course

The course is discontinued at the expiration of the autumn semester 2024 according to a decision by the Dean of the ITM School : M-2022-0607. Decision date: 22/04/2022. The course is given for the last time during spring semester 2022. Final opportunity for examination will be given during spring semester 2024.

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

## Specific prerequisites

MJ2411 Renewable Energy, 6 credits 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 student should be able to:

1. Compare the environmental and societal effects that are caused by renewable and fossil based energy systems.
2. In detail describe the basic principles and the principal properties for wind power, bioenergy and solar energy.
3. Describe the technical principles to utilise and convert these three renewable sources
4. Design and dimension technical solutions based on wind, bio or solar energy that meets a specific energy requirement, that is economically justifiable, that have minimum effect on the environment, and that is the most appropriate based on local conditions

## Course contents

The course intends to give a deeper insight into three of the renewable energy sources and energy storage that was brought up at a general level in the course renewable Energy, MJ2411: Solar energy, wind energy and bioenergy. These renewable sources and energy storage are considered to be the most important in the future energy system and contribute to reduction of the emissions of greenhouse gases. After the course, students can analyse and design energy systems that are based on wind, sun or bioenergy and that can meet a predetermined need of electricity/heat/cold with energy storage

1. Solar energy
2. Wind power
3. Bioenergy
4. Energy storage

## Examination

- LABA - Laboratory Exercise, 1.5 credits, grading scale: P, F
- PRO1 - Project, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- TENA - Written exam, 3.0 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.