MJ2411 Renewable Energy Technology 6.0 credits

Förnybar energi

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 MJ2411 valid from Autumn 2019

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Language of instruction

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

Intended learning outcomes

Upon successful completion of the course, the student will be able to:

1. Analyze the characteristics of renewable energy sources, and contrast these with fossil fuels
2. Identify and quantify the means of harnessing renewable energy sources in terms of fundamental energy conversion
3. Design renewable energy systems that meet specific energy demands and are sustainble

Course contents

The purpose of this course is to provide an engineering assessment of renewable energy resources, including technologies for harnessing them within the framework of simple to advanced energy systems. Course content is divided into the following blocks:

- Biomass & Biofuels
- Wind Power
- Solar Energy
- Hydropower
- Energy Storage

Specific prerequisites

B.Sc. in Engineering with prerequisite in MJ1112 Thermodynamics 9 ECTS or corresponding knowledge. Minimum 5 ECTS thermodynamics.

Documented proficiency in English B or equivalent.

Course literature

Nick Jenkins and Janaka Ekanayake, Renewable Energy Engineering, Cambridge University Press (2017).

Hans Havtun, Applied Thermodynamics: Collection of Formulas, Studentlitteratur (2014).

Examination

- INLA - Home assignment, 0.5 credits, grading scale: P, F
- INLB - Home assignment, 0.5 credits, grading scale: P, F
- INLC - Home assignment, 0.5 credits, grading scale: P, F
- INLD - Home assignment, 0.5 credits, grading scale: P, F
- KONA - Partial exam, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- KONB - Partial 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.

Final grade determined as weighted average of KONA and KONB

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.