MJ1141 Energy Systems and Sustainability 9.0 credits

Energisystem och hållbar utveckling

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

Establishment

Course syllabus for MJ1141 valid from Autumn 2013

Grading scale

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

Education cycle

First cycle

Main field of study

Mechanical Engineering, Technology

Specific prerequisites

MJ1112 Applied Thermodynamics, MJ1145 Energy systems, Industrial Managment, advanced course (ME1301); Knowledge Formation in Technology and Natural Science (ME2302);

Language of instruction

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

Intended learning outcomes

On completion of the course, stundents should be able to:

- descrive the differnt parts of the energy system (technologies and actors) based on a divisin into three parts: energy use, distribution, and supply.

- quantatively describe the importance of the various functions and services in society that require use of primary energy.

- be able to identiy and discuss challenges in the energy system in Sweden, The Nordics and in Europe

- be able to explain the nature and idea of different policy actions and tools to introduce new technolgies an more renewable energy in the energy system.

- be able to describe how the Swedish energy system has changed since the 70-ties and identify the important strategic descitions that has been taken that has decided our current energy system

- be able to present project work in written and oral form

- be able to identify and discuss broad sustainablity cahllenges in todays society

- critically evaluate and reflect on energy realted sustainability issues

- be able to identify and values the effect of differnt choices of technology in the different parts of the energy system

- be able to describe typical conflicting goals in the energy system

Course contents

Disposition

The course is built in four different parts:

The Energy System, deepened system theory

The Energy System, innovation and business

The Energy System, strategic thinking and planning

Energy och sustainability

Course literature

Möjliheter och dilemman, IVA´s Energibok

Diverse rapporter och artiklar

Fördjupad litteratur om systemanalys och system teori.

Litteratur om energy policy och energimarknad

Den exakta litterturen meddelas vid kursstart

Examination

- SEM1 - Seminar, The Energy System, 1.0 credits, grading scale: P, F
- FÄL1 - Field Exercise, Study Visits, 1.0 credits, grading scale: P, F
- PRO1 - Project, Strategies, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- SEM2 - Seminar, Sustainability and Energy, 1.0 credits, grading scale: P, F
- TEN1 - Oral exam, Sustainability and Energy, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- SEM3 - Seminar, The Energy System, Case, 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.

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

Credit distribution: Period 1 = 6 hp: Period 2 = 3 hp

Fäl = 1 hp, Pro = 2 hp, Sem 1 = 1 hp, Sem 2 = 1 hp. Sem 3 = 2 hp

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.