MJ2441 Design of Photovoltaic and Hybrid Systems 5.0 credits

Design av solcell och hybridsystem

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

Establishment

Course syllabus for MJ2441 valid from Spring 2015

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Photovoltaics, 5 credits, second cycle
Solar radiation and other energy resources, 2.5 credits, second cycle

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:

select components for PV (photovoltaic - solar power) and hybrid systems for electricity generation

account for main types and concepts for PV and hybrid systems

independently dimension PV and hybrid systems using basic design rules and calculations

use computer programs for dimensioning, optimisation and performance studies of common types of PV and hybrid systems

critically analyse and evaluate design and performance of components and complete PV and hybrid systems

account for environmental and market economy aspects of PV and hybrid systems

Course contents

The course deals with power generation with solar cells in Internet-connected and free-standing systems and in hybrid systems, where other types of dynamos, particularly wind power and diesel generators are included The studies include design, measurement and performance evaluation of components and complete systems. Simulations and design studies with the computer programs PVsyst and Homer are included in the system studies that are concluded with systems analysis and evaluation In the course, elements of planning of plants are also included

Course literature

Compendium from the institution, 90 pages.
Referenslitteratur
Deutsche Gesellschaft fOr Sonnenenergie. (2007) Planning and installing photovoltaic systems: a guide for installers, architects, and engineers. 2 uppl. Earthscan. ISBN 1844074420
Green, M. A., Watt, M. E., Wenham, S. R. , Corkish, R .. (2007)Applied photovoltaics. 2 uppl. London : Earthscan. (323 s). ISBN 978-1-84407-401-3

Examination

- INL1 - Written Assignment, 2.5 credits, grading scale: P, F
- TEN1 - Written Exam, 2.5 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.

Other requirements for final grade

Written homework exercises concerning the Project; 2.5 credits (PF)
Written examination; 2.5 credits (AF)

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.