MJ2410 Energy Management 6.0 credits

Energy Management

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

Establishment

Course syllabus for MJ2410 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Bachelor of Science degree or corresponding +

MJ1112 Applied Thermodynamics or corresponding

Language of instruction

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

Intended learning outcomes

This course provides training in forecasting and developing the strategies and settings required for managing and promoting the advancement and use of economically and environmentally sustainable energy systems and technologies

Course contents

The following broad areas are covered in the course:

System analysis, systems thinking and Energy Systems. System analysis and systems thinking. Discussions of consequences of changes of perspective or choice of demarcations etc. Various view on Energy Systems and various research schools to investigate them.

Methods for evaluation of system efficiency, modelling. Evaluation and discussion of various methods for energy system analysis. This part includes examples of different type of energy analysis with relation to thermodynamics. A thorough discussion of modelling problems related to different methods.

Economics. Investment appraisal (analysis). LCC (Life cycle cost), Pay off, Consequences for strategies and choice of technology. Economy of scale (lecture, group discussion, reading).

Emerging technologies. Examples of technology dissemination such as small-scale co-generation, photovoltaics, passive, solar, wind power etc. may be dealt with throughout the course. Swot analysis Efficient end-use or efficient production?

”Knowledge formation”. Knowledge formation in energy technology and energy system technologies. It is our belief that a basic knowledge of knowledge formation within different fields related to energy technology is required in order to understand engineers with different background active in the field.

New market trends. Deregulated Electric market, facility management, outsourcing etc. Use of IT (Information Technology) in Energy systems.

Literature survey . There are many sources for Energy related information. The most common are textbooks, conference proceedings, journals and, of course, the “net”. Some guidelines for literature search are given to support the essay writing part of the course. A lecture at KTH- library is included.

The course includes invited lectures given by experts in relevant fields, from both industry and administration. Practical projects are performed in group work

Course literature

Energy Management. Compendium.

Examination

- SEM1 - Seminars, 1.5 credits, grading scale: P, F
- PRO1 - Project, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 1.5 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

Project (PRO1; 3 cr)
Seminars (SEM1; 1,5 cr)
Written exam (TEN1; 1,5 cr).

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.