



Course syllabus

Faculty Board of Science and Engineering
School of Computer Science, Physics and Mathematics

1TG221 Teknik, natur och samhälle, 7,5 högskolepoäng
Technology, Science and Society, 7.5 credits

Main field of study

Technology

Subject Group

Other Subjects within Technology

Level of classification

First Level

Progression

G1F

Date of Ratification

Approved by the Board of the School of Computer Science, Physics and Mathematics
2009-12-01

Revised 2011-08-20. Literature list is revised.

The course syllabus is valid from autumn semester 2011

Prerequisites

1TG121, Technology in School and Society, 7,5 hec, or the equivalent.

Expected learning outcomes

Having completed the course the student is expected to be able:

- to describe the transformation of energy in nature, technology and society qualitatively and quantitatively
- to analyze the flow of energy and the transformation of energy important to the earth's balance of energy
- to plan, introduce and allow pupils to work with practical problem solving, including problem identification, construction and evaluation following various teaching models and methods according to the pupils' differences
- to describe and reflect upon the different didactic choices with regard to local and national governing documents.

Content

The course should equip the student with basic knowledge of different energy forms and of methods for measuring and transforming energy. The course should also provide knowledge of the role of energy in society and industry, and contribute towards an increased understanding of an optimal and sustainable utilisation of energy.

The course includes the following elements:

- the earth's energy balance, the greenhouse effect, ultraviolet radiation and the ozone layer
- the concept of energy: forms of energy, transformations, transportation, stored energy, saved energy and quality
- technical applications.

Local and national governing documents are important sources used in the course. Didactic theories are integrated in all course moments.

Type of Instruction

The course is a distance tuition course via the Internet. The students are expected to work individually and in groups. At the start of the different modules of the course the course leader/teacher presents specific reading tasks, study assignments and presentation models.

Work assignments may be presented collectively in the form of group conferences and commented on by the course leader/teacher. The work assignments may also be individually designed.

Attendance at examinations and seminars is obligatory.

Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).

On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts.

Assessment takes place through oral and/or written tests and/or presentations of compulsory assignments, as well as through participation in web-based seminars. The main form of examination is decided at the start of the course.

Students who do not pass the regular examinations are offered a new chance in close connection to time of the regular examination.

Course Evaluation

A written course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The course evaluation will be filed at the department.

Other

Having completed the training the student will receive a degree certificate upon request from the Graduation Office at the Division of Student Affairs.

Students who receive a passing grade in the course may download a course certificate through the Student Portal. Otherwise they may request a course certificate from the school secretary.

Required Reading and Additional Study Material

Required reading

Skolverket, Läroplan för det obligatoriska skolväsendet, <http://www.skolverket.se/sb/d/4166/a/23894>. Pages 19 (19).

Skolverket, Kursplan och betygskriterier för ämnet Teknik, <http://www.skolverket.se/sb/d/4166/a/24751>. Pages 7 (7).

Areskoug M, Ekborg M, Pettersson C, Ring Å, Klimat-X, Malmö högskola. 2003. Pages 23 (23). <http://www.klimat-x.se/>

Areskoug M & Eliasson P. Energi för hållbar utveckling. Ett historiskt och

naturvetenskapligt perspektiv. Studentlitteratur 2007. Pages 335 (335).

Kungliga Ingenjörsvetenskapsakademien och Kungliga Vetenskapsakademien.
Energi – möjligheter och dilemman, <http://www.iva.se/energiboken>. 2009
Pages 112 (112).

Litterature partly in Compendiums and through downloading via webpages:
<http://energikunskap.se/>
<http://www.teachers4energy.eu/>
Pages 100 (app).

Reference Literature

Areskoug, Mats, Miljöfysik. Miljöfysik - Energi för hållbar utveckling. Studentlitteratur,
2006. Pages 255 (364).