



Course syllabus

Faculty of Technology

Department of Built Environment and Energy Technology

1BT302 Uthållig energiförsörjning, 7,5 högskolepoäng
Sustainable energy supply, 7.5 credits

Main field of study

Bioenergy Technology

Subject Group

Environmental Care and Environmental Protection

Level of classification

First Level

Progression

GIN

Date of Ratification

Approved 2016-12-07

Revised 2020-03-09 by Faculty of Technology. Objectives, content, examination, assessment methods and literature list are revised.

The course syllabus is valid from autumn semester 2020

Prerequisites

Physics A, Chemistry B. General entry requirements and Chemistry 1, Mathematics 3c, Physics 2 or Chemistry A, Physics B, Mathematics C (Field-specific entry requirements 8/A8).

Objectives

After the course, the student shall

- have a basic understanding of the principles of energy conversion
- have a basic knowledge of different renewable energy sources and be able to explain different technologies used for renewable energy production
- have general knowledge about the global energy system
- be able to perform basic energy engineering calculations linked to various renewable energy production techniques.

Content

The course covers general technology used to utilize the renewable energy sources solar, wind, water and biomass. Fossil energy and nuclear energy are also treated. The course includes a minor in-depth study of a chosen technique.

The role of energy sources in the global energy system is dealt with as well as basic environmental and economic issues.

Basic theory of energy conversion and thermodynamics is treated and applied in

calculations linked to the different technologies.

Type of Instruction

Lectures, guest lectures, calculation tuition, exercises, study visits, projects, seminars and experimental/laborative exercises. Compulsory parts will be specified at the course introductory.

Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail (i.e. received the grade F).

The assessment of student performances usually takes place during special examination periods and is normally in the form of a written examination.

The theoretical aspects of technology for different energy sources and the global energy system comprise 2.5 credits and are examined in a written exam with the grades U, G.

The application of the knowledge is examined through a project assignment of 2.5 p, which is assessed with the grades U, G.

Calculations in energy conversion and thermodynamics comprise 2.5 credits and are examined with the grades A, B, C, D, E, Fx or F

The course as a whole is assessed with the grades A, B, C, D, E, Fx or F
Repeat examination is offered in accordance with Local regulations for courses and examination at the first and second-cycle level at Linnaeus University.

If the university has decided that a student is entitled to special pedagogical support due to a disability, the examiner has the right to give a customised exam or to have the student conduct the exam in an alternative way.

Course Evaluation

During the implementation of the course or in close conjunction with the course, a course evaluation is to be carried out. Results and analysis of the course evaluation are to be promptly presented as feedback to the students who have completed the course. Students who participate during the next course instance receive feedback at the start of the course. The course evaluation is to be carried out anonymously.

Credit Overlap

The course cannot be included in a degree along with the following courses of which the content fully, or partly, corresponds to the content of this course: 1BT011 7.5 credits, 1BT002 7.5 credits

Other

Some compulsory items in the course might cause costs eligible to the participating student.

Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

Required Reading and Additional Study Material

Required reading

Renewable Energy – power for a sustainable future, Edited by Stephen Peake, Oxford University Press 2018, 656 pages.