



Course syllabus

Faculty of Technology

Department of Built Environment and Energy Technology

4BT301 Energi och klimat, 7,5 högskolepoäng

4BT301 Energy and climate, 7.5 credits

Main field of study

Bioenergy Technology

Subject Group

Energy Technology

Level of classification

Second Level

Progression

A1N

Date of Ratification

Approved by Faculty of Technology 2021-10-18

The course syllabus is valid from autumn semester 2022

Prerequisites

General entry requirements for second cycle studies and specific entry requirements:

- Bachelor's degree in technical subjects or a bachelor's degree in engineering or equivalent.
- English 6 or equivalent.

Objectives

After completing the course, the student should be able to:

- A.1 explain the connections between the global energy system, growth and sustainable development
- A.2 describe the principles of different energy conversions and different energy sources
- A.3 discuss and reason about the human impact on the climate
- A.4 conduct a critical reasoning and reflect on the importance of energy and its impact on the climate
- A.5 propose and justify with well-founded reasoning strategies and measures for various possibilities to analyse an energy situation and measures to reduce the climate footprint.

Content

This course will provide an overview of the importance of different forms of energy and the techniques used to utilize them. This from the current technology perspective and those that can be developed in the near future and how human energy use affects the climate. The climate aspect is addressed through an update of the latest situation in the existing documents that have been produced partly by the IPCC and other climate research, its scientific basis, and be able to discuss possible. uncertainty factors in different assessments. The course is planned to provide the student with in-depth information and knowledge to understand climate change from an energy planning / management perspective. The student is practiced in being able to analyse different scenarios and energy alternatives, connections, and conflicts between different goals.

The following topics are covered:

- Overview of the energy and emission situation in the world•
- The different energy sources and their technical development and function (solar, water, wind, fossil, bioenergy, nuclear etc).
- Pro and cons of different techniques and their future prospects
- Current update on the climate situation
- Different climate effects for different countries
- Strategies for climate change Mitigation and adaptation
- Policy and global partnership in developing “National Determined contribution (NDCs)/ National Climate change strategies
- Corporate and economic perspective on climate change
- Climate change negotiation (role play)

Type of Instruction

Teaching is conducted in the form of lectures, project work, seminars, and role play.

Completion of assignments at seminars is mandatory.

Examination

The examination of the course is divided as follows:

Code	Designation	Grade	Credits
2201	Written exam	AF	3,50
2202	Project	AF	4,00

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).

For a passing grade on the course, all assignments in the course with at least grade E on written parts are required. The final grade is determined from the written exam and the submissions that are carried out in the project part, percentage by module size.

Renewed examination is given in accordance with Local rules for course and examination at undergraduate and advanced level at Linnaeus University.

If the university decides that a student is entitled to special educational support due to a disability, the examiner has the right to give an adapted test or that the student completes the test in an alternative way.

Objectives achievement

The examination elements are linked to the course objectives in the following ways:

Goal	2201	2202
A.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2	<input checked="" type="checkbox"/>	
A.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4		<input checked="" type="checkbox"/>
A.5		<input checked="" type="checkbox"/>

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 course/courses of which the content fully, or partly, corresponds to the content of this course: 1BT302, 1BT018, 1BT002, 7.5 credits each

Other

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.

To follow the course, the student needs to have access to a computer and digital connection.

Required Reading and Additional Study Material

Required Reading

- Current articles from scientific journals, reports, trade journals and books available via the Internet, reference is given on the course website, 800s
- Renewable Energy – power for a sustainable future, edited by Stephen Peake, Oxford University Press latest edition, 656 pages.