

Course Syllabus

Building Energy Performance Simulation and Analysis 7.5 Credits*, Second Cycle Level 1

Learning Outcomes

The overall goal of the course is that the student shall achieve the ability to independently and creatively identify and evaluate different energy conservation measures for a building through systematic analysis and simulation of the building's energy performance.

Upon completion of the course, the student shall be able to:

- demonstrate knowledge of current research and development work within the field of energy efficiency of buildings
- model and simulate a building's energy performance with simulation software
- gain insight into renovation and energy optimization from the perspective of sustainable development
- simulate a building's energy model and analyse several energy-efficiency measures in the model to obtain the best energy conservation scenario
- discuss the advantages and disadvantages of energy efficient building concepts.

Course Content

The course covers energy conservation measures for buildings. General energy efficiency and environmentally friendly measures in different parts of a house are at the basis of studies. The course continues with students obtaining general knowledge of approximating energy consumption in buildings depending on their design and equipment, outdoor climate, indoor conditions, HVAC systems, etc. Afterwards, energy performance simulations are conducted using computer software to investigate the current situation of the building and the effects of implementing energy efficiency measures. Up to date energy efficient building concepts, such as Near Zero Energy buildings and Passive houses, are finally introduced.

Laboratory work is conducted in which students examine the energy consumption of a building.

Assessment

- Laboratory work with report (2.5 credits)
- Project work: written report and seminar presentation (5 credits)

Forms of Study

Lectures, laboratory work, supervision and seminars.

Grades

The Swedish grades U, 3, 4, 5.

Laboratory work (Pass/Fail)

Prerequisites

Bachelor of Science degree from building-, energy technology or civil engineering related fields of at least 180 credits and English 6

Other Information

This course cannot be included in the same degree as BY2022.

Subject:

Construction

Group of Subjects:

Building Technology

Disciplinary Domain:

Technology, 100%

This course can be included in the following main field(s) of study:

1. Energy Technology

Progression Indicator within (each) main field of study:

1. A1N

Approved:

Approved 4 July 2017

Valid from 2 August 2017