

Course Syllabus

Climate Responsive Design Studio 2.5 Credits*, Second Cycle Level 1

Learning Outcomes

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

- identify and demonstrate understanding of key principles and methodologies in terms of bioclimatic design;
- retrieve, analyse and synthesise information necessary for informed design decisions and analysis;
- analyse how existing buildings can be adapted to the local climate;
- develop a design proposal and present it orally and visually in a professional manner.

Course Content

The challenge of transitioning to a greener energy economy and thus tackling climate change demands profound changes within society. In light of this challenge, future engineers, architects and building professionals need to gain a deeper understanding of sustainable design principles and integrate them into their everyday practice. Climate responsive design is one of many sustainable design methodologies. The amount of energy used in a building is determined by the climate, the occupants and the building's form and constitution. Analysis of the local climate and assessment of various means to obtaining human thermal comfort while minimising the consumption of fossil fuels begins through the use of methods for climate responsive design.

This course focuses on bioclimatic approaches in building design. The course starts with the introduction of the theoretical and working principles of bioclimatic architecture through lectures on the climate, human thermal comfort, solar heat gain and shading, natural lighting and natural ventilation in buildings. This knowledge is applied in a design project, which students work on in interdisciplinary groups. They will be asked to assess the given problem and to propose a creative solution that implements the use of bioclimatic principles.

Assessment

Documented participation in project work and seminars, 2 credits; oral presentation 0.5 credits.

Forms of Study

Lectures, seminars, reading and project work. The project is completed in groups. Group members assess one another's contributions to the group work. Study and/or site visits will be arranged if appropriate locations are found.

Grades

The Swedish grades U–G.

Prerequisites

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

Other Information

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
2. Solar Energy Engineering

Progression Indicator within (each) main field of study:

1. A1N
2. A1N

Approved:

Approved 4 July 2017

Valid from 29 August 2017