



# Climate Smart Architecture and Urban Design

ABAN15, 7.5 hec

Eligible for architectural students of year 4 and 5. Also open to students of landscape architecture, urban design and industrial design.

**The aim of the course** is to give students the possibility to explore how an adequate design of buildings and groups of buildings can minimize negative impact on the climate. It also aims at supporting students' learning on how the built environment in different climates is affected by the microclimate, vegetation, orientation etc. Moreover the aim is to highlight the impact of people's attitude and behaviour towards climate and energy issues.

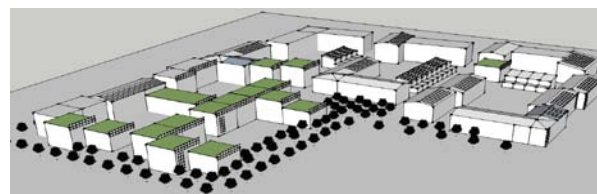
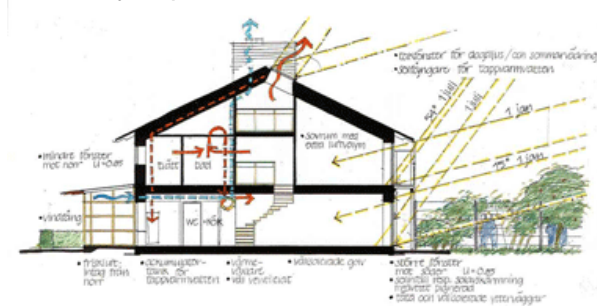


**The course** deals with the relation between the built environment and climate issues on micro and macro level as well as their relation to energy use. Through creative assignments it highlights and explores the potential of renewable energy use such as

solar heating, solar electricity and wind power. Using architectural tools, the students will also investigate how innovative and creative urban design solutions can contribute to minimized energy use for transport and prevent negative climate impact.



**The design exercise** consists of architectural and urban design of a new development where daylight, energy efficiency, microclimate, renewable energy as well as sustainability aspects are considered.



**Study visits** will be made to sites relevant to the theme of the course.

**Course literature** consists of excerpts from text books as well as articles.



## Learning outcomes

After completing the course the student is, among other things, expected to:

- show in-depth understanding of the relationship between energy use and climate impact;
- demonstrate knowledge on how the built environment affect wind, solar access and temperature conditions in urban environments;
- demonstrate knowledge about factors which affect thermal comfort indoors and outdoors;
- demonstrate knowledge about factors which affect daylighting and energy use for lighting in buildings;
- be aware of how a climate smart design of buildings can minimize the need for heating and cooling and facilitate use of renewable energy;
- be able to formulate criteria for climate conscious, sustainable architecture;
- show the ability to use tools and models for climate conscious design of new buildings and improved energy efficiency of existing buildings;
- show the ability to propose climate smart architectonic and urban design which results in a reduction in negative environmental impact.

## Assessment

For approval of the course a minimum of 80% attendance is demanded at lectures, seminars, exercises and group presentations. All assignments have to be approved.

## Course Information

Higher education credits: 7.5

Course duration: 16 Jan. – 1 June

Grading scale: UG (pass/fail)

Level: A

Language of instruction: English

Suitable for exchange students: Yes

## Course coordinators

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## Other lecturers

Ass. Prof. **Maria Wall**

Energy and Building Design

**Marie-Claude Dubois**

Energy and Building Design

**Laura Liuke**

Housing Development & Management

## Course secretary

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