MJ2460 Green Building - Concept, Design, Construction and Operation 6.0 credits

Uthålliga byggnader - design, bygg och drift

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for MJ2460 valid from Autumn 2019

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Specific prerequisites

MJ2407 Sustainable Energy Utilisation, or the equivalent knowledge (assessed by the course coordinator)

Recommended: MJ2422 Thermal Comfort and Indoor Climate, and MJ2437 Modelling of Energy Systems

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After the course, the students should be able to:

- design and describe an environmentally sustainable building in Stockholm and dimension building components as well as energy efficient systems that are suitable, in order to achieve the smallest possible environmental impact
- develop a model of the sustainable building designed in Stockholm in an energy calculation software for buildings, to analyse energy performance, indoor climate and environmental impact
- use an environmental certification method to evaluate the sustainable building designed in Stockholm
- discuss and describe strengths and weaknesses in different environmental certification methods, such as Miljöbyggnad, LEED, Green Building, BREEAM, etc
- clearly and logically present the project in a report and in the final review

Course contents

The course is divided into lectures, seminars and lessons. The lectures present the essential parts of sustainable buildings and give a foundation for further specialisation in the group project. The seminars, where the different parts in project are presented and discussed, are prepared by students. In the lessons, different questions are analysed and discussed related to the project, building design, the model in the programme IDA ICE and the implementation of the environmental certification method LEED V4.

The different concepts, the definitions and the methods that are presented in lectures are:

- Sustainable buildings and passive houses.
- Environmental certification method LEED V4 for new buildings.
- The construction process and project management.
- Sustainable building design
- Environmental certification method for buildings as BREEAM, Miljöbyggnad, WELL, Green Building, etc
- Modelling of energy performance and indoor climate by means of the energy calculation software IDA ICE

Course literature

Anteckningar från föreläsningar, rapporter och dokument om hållbara byggnader och miljöcertifieringsmetoder LEED, BREEAM, WELL och Miljöbyggnad.

Examination

- PRO1 - Project, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Written exam, 1.5 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

The results of the project that is discussed in the report should also be presented at the final review.

Other requirements for final grade

Project (4.5 credits): Design and evaluate a sustainable building in Stockholm. The building will be evaluated by means of a environmental certification method for buildings. A grade (A-F) is assigned per group. Examination (1.5 credits): Describe and discuss the definitions, konceptsr and methods that are discussed in lectures and in the project. A grade (A-F) is assigned per individual.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.