A42H4B Sustainable Design - Studio 4:4 12.0 credits

Hållbar gestaltning - Studio 4:4

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

Establishment

Course syllabus for A42H4B valid from Autumn 2008

Grading scale

P, F

Education cycle

Second cycle

Main field of study

Architecture

Specific prerequisites

Bachelor's Degree, or an equivalent level, within the field of Architecture.

Language of instruction

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

Intended learning outcomes

Individuality

Overall goals
The project is part of the Sustainable Design Studio.
Studio Description: In order to develop new strategies for designing a sustainable society, this Studio emphazise economy, ecology, energy and new technology in relation to architecture and urban design.
2. The course/project goal is to increase the student's knowledge in this area/field and skills/knowledge in the field of architecture in general. The students will enter the project with varying degrees of knowledge/skills and will subsequently end up at different levels at the end of the course/project.
3. The individual student must show an increase in the particular skills/knowledge offered in the studio and in the field of architecture in general.

Course goals
Background:
The constructed environment accounts for 40% of the world's total energy consumption and for a large part of the emissions of climate-changing greenhouse gases (CHG). As architects, we must form an opinion about climate change. With the ongoing urbanization and growth of metropolitan regions in our country and around the world, issues of sustainability are stalls, in terms of technical, economic, social and ecological aspects. How shall we design constructed environments in the future and how do we care for the existing environment and adapt it to a society with long-term sustainability?
The main aim of the studio's work is to examine these questions in relation to architectural form, construction and material, with the goal of finding new strategies for a society characterized by long term sustainability.
Goals:
The project aims:
* to develop an interdisciplinary, integrated design process where all pre-requisites of the environmental effects are raised early on in the project's work process
* to acquire knowledge and insights about architectural form in relationship to thermal climate and energy efficiency. A sustainable approach to ecology will be weighed against economic and social and sustainability.
* to give the students the tools for conceptual, analytical and technical work methods as well as an increased understanding of the relationship between architecture and environmental impact.

Course contents

Landmark-plus in an arctic climate, Kiruna. A smaller, public profile building in an extreme climate with requirements for self-produced energy and with consideration taken to daylight, heating and cooling.
1. Examine (including a study trip)
Examine local conditions in terms of temperature, water, wind and sun. Examine architectural form in relation to heat, cooling requirements and energy. The analyses should be visualized in sunlight studies and diagrams. Spatial concepts are to be shown in sketched models.
2. Investigate
Investigate how the urban and architectural ideas are integrated with energy concepts.

Produce contextual sketches, plan and sectional sketches as well as 3-D studies.
3. Develop
Provide a detailed description of the climate shield as well as principal section.
4. Summarize
Present the project using drawings, models and written presentations prior to the final evaluation
5. Submission / final evaluation

Disposition

The course includes a short study trip to be paid for by the student.
Weekly lectures or seminars with specially invited guests and/or studio professor.
Weekly general discussions of the course literature and process questions.
Individual studio work, advisor guidance of studio work on an individual or group basis.
Monday – individual studio work
Tuesday – hanging the week's work and lectures and/or seminars
Wednesday – individual studio work
Thursday – tutorial on an individual or group basis
Friday – literature seminar and/or discussion of the shared design process and technical questions

Course literature

William McDonough & Michael Braungart ; Cradle to cradle / Remaking the way we make things, North Point Press, 2002
A Green Vitruvius - Principles and Practice of Sustainable Architectural Design
Lewis, J.Owen
Reviewal of several international classifying systems for environmentally correct construction.
Course compendium
A more detailed literature list will be given out at the start of the course.

Examination

- PRO2 - Project part 2, 3.0 credits, grading scale: P, F
- PRO1 - Project part 1, 9.0 credits, grading scale: P, 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 course consists of two parts; a fulfilled and delivered project work (9 credits) and a passed final assessment (3 credits). There is at least one intermediate assessment during the course.

Other requirements for final grade

a) Presentation requirements
* Site plan/plan/section/facade
* Model
* Interior and exterior perspective
* Description of the project's idea and process in analytical/conceptual illustrations as well as written personal reflections on how sustainable design is integrated into the project.
* Printed posters and photographs of the model for purposes of documentation

b) Examination
80% attendance. Active participation in lectures, tutorials, and seminars etc. Passed intermediate and final assessments. Compulsory attendance during the assessment reviews. Completion: The project work shall be delivered and, if necessary, reworked within the set time limit. See general directions.
(Overall principle: Autumn term projects must be approved during the following Spring term: Spring term projects must be approved before the start of the following Autumn term. The reworked projects must be delivered at least one week before the time limit.)
The project work is to be documented in a portfolio, including drawings, analysis and models. The work process shall be legible.

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.