A42H2B Sustainable Design - Studio 4:2 12.0 credits

Hållbar gestaltning - Studio 4:2

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

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

Establishment

Course syllabus for A42H2B 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

Generality

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

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 architecture in a lifecycle perspective and about the relationship between architectural organization and the ability to change over time. A sustainable approach to ecology will be weighed against economic and social 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

Vintage project from 1958 - 2008 - 2058.

Adapting a large, existing building to new functions and new requirements for low energy consumption in a Nordic climate, Stockholm. A study of energy efficiency and indoor climate will also be part of the course.
1. Examine

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.

Vintage project from 1958 - 2008 - 2058.

Transform by renewal and addition a large, existing building to new functions and new requirements for low energy consumption in a Nordic climate, Stockholm. A study of energy efficiency and indoor climate will also be part of the course.

1. Examine

Analyze the building's structural pre-requisites. How is the building's usability for new programs affected by the building's design? How does the building's design and material affect energy consumption? What changes and operations in the building can change the pre-requisites? The analyses should be visualized in diagrams; the conceptualization of the operation shall be shown in sketched models.

2. Investigate

Two scenarios and programs are tested, the years 2008 and 2058. Investigate how the projects idea manages to meet the changing pre-requisites with the least possible environmental impact and energy consumption. Provide sketches in plan- and section as well as 3-D studies.

3. Develop

Provide a detailed description of the chosen technical detail and develop the projects two scenarios using drawings and models.

4. Summarize

Present the project through sketches, models and written presentations prior to the final evaluation

5. Submission / final evaluation

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5. Submission / final evaluation

Disposition

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, tutorial of studio work on an individual or group basis.

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 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

- PRO1 - Project part 1, 9.0 credits, grading scale: P, F

- PRO2 - Project part 2, 3.0 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.

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
* Technical detail
* Model
* Interior and exterior perspective
* Description of the project's idea and process in analytical/conceptual illustrations as well as a written personal reflection on how sustainable design is integrated into the project.
* Printed posters and photographs of the model for purposes of documentation, digital and on paper.

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.