AF105V Buildings Energy Performance 1, - Evaluation 7.5 credits

Byggnaders energianvändning 1, - beräkning och deklaration

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

Establishment

Grading scale

P, F

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Record of completed secondary education or equivalent including swedish and english.

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 student will have a fundamental understanding about the factors that determine a buildings energy consumption. Have an experience in calculations of heat prestanda in a building construction with data about materials and the construction as a starting point. Have been trained to make calculations of the influence of thermal bridges on energy prestanda. Also experience in calculation of the energy need caused by ventilation. Experience in calculation of the power need in a heat pump. The student shall be able to explain how different changes in a building will influence the energy consumption and also how it may influence other conditions of relevance for the building.

Course contents

The course will give a fundamental understanding of those factors that influence a buildings energy consumption. This is for exemple knowledge needed for those who are going to work with eneregy declarations. This means the building envelope and the buildings service systems. The course also deals with energy production for buildings and with heat pumps.

Headings for the content of the course is: The building envelope, thermal insulations, thermal bridges and tightness. Calculation of thermal transmittance. The resaons for energy consumption. Estimation of the area of a building. Building services, thermal comfort and need for air flow. Calculation of energy need for heating. Systems for heating, ventilation and for making a good indoor climate. Energy – about its origins and quality. Effective energy production and equipment for production of heat and for cooling. Boilers and heat pumps. Use of different energy sources. Orientation about standards directed to the energy use of buildings.

Disposition

The course will be given as classes at 6 – 7 occations.

Course literature

Compendium in buildings services technology. Compendium in building technology. Chapter in energy technology.

Examination

- TEN1 - Examination, 4.5 credits, grading scale: P, F
- LAB1 - Laboratory Work, 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.

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

Project and exam done at home

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.