

Course syllabus

Arkitekturteknik 4: Energi och installationsteknik Energy and Building Services

ABKA01, 3 credits, G1 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED V

Date of Decision: 2023-03-21

General Information

Main field: Architecture.

Compulsory for: A2

Language of instruction: The course will be given in Swedish

Aim

The aim of the course is to give knowledge about how to create energy efficient buildings with a good indoor climate.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to describe indoor climate factors
- be able to describe the building services systems
- be able to describe the factors that affect the energy demand for a building and identify possible measures for reducing the energy need in new and existing buildings
- understand the significance of the outdoor climate and the activities which affect the energy balance and the indoor climate
- reach an understanding for which factors in a buildings design that affect the thermal indoor climate, air quality, sound, light, day light and the energy balance of a building

Competences and skills

For a passing grade the student must

be able to make an energy balance for a building

be able to estimate the energy demand for a building and the indoor temperature as well.

Judgement and approach

For a passing grade the student must

be able to analyse and judge information about the energy use, the design and the indoor climate of a building in a critical way

be able to judge the significance of the design of the building on the energy use and the indoor climate

Contents

- Indoor climate factors; thermal, hygienical, acoustics
- Energy use in the society
- Energy use in various kinds of buildings
- All parts of an energy balance
- Ventilation systems for buildings
- Heating systems for buildings
- Cooling systems for buildings
- Tap water and sewage systems

Examination details

Grading scale: UG - (U,G) - (Fail, Pass)

Assessment: Written examination. Performed assignment and participation in oral presentation and study visit.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts

Code: 0115. **Name:** Written Examination.

Credits: 2,5. **Grading scale:** UG. **Assessment:** Written exam. **Contents:** Descriptive questions.

Code: 0215. **Name:** Assignment.

Credits: 0,5. **Grading scale:** UG. **Assessment:** Performed assignment and participation in oral presentation and study visit. **Contents:** Assignment.

Admission

Assumed prior knowledge: VBKA05 Architectural Design VBMA05 Building Materials VBMA10 Building Technology and Building Physics

The number of participants is limited to: No

The course overlaps following course/s: VBMA20

Reading list

- M Dahlblom, C Warfvinge : Installationsteknik för fastighetsmäklare. KFS AB, 2007. In Swedish.
- Alm: Buller och bullerbekämning s. 13-34 80-86110-119 ingår.
- M3_ByggaBODialogen s. 56-84 samt 114-131.

Contact and other information

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Course homepage: <https://canvas.education.lu.se/>