# AF2508 Building Service Technologies and Systems 7.5 credits

**Installationsteknik och -system**

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

## Establishment

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

The Built Environment

## Specific prerequisites

For students not registered on a KTH programme:

Bachelor exam "Samhällsbyggnad" or equivalent, e.g. "Högskoleingenjör" in Building Construction. Including the courses in Building Physics and Buildings and Civil Engineering Structuresequivalent to at least 2·times 7,5 ECTS points.

For students registered on a KTH programme:

AF1002 Hus och anläggningar

AF1402 Byggfysik

## Language of instruction

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

## Intended learning outcomes

The course aims at providing a sound understanding of key building service components and systems, as well as their function and performance in different types of buildings, including high-performing buildings (passive, near-zero-energy and positive energy buildings).

Special emphasis is placed on the inter-relationships between service quality, operational safety/reliability and sustainability of complex building service systems, with particular focus on energy-/resource- and cost-efficiency, as well as environmental compatibility.

## Course contents

Upon successful course completion, students are intended to have gained a sound understanding of the folowing aspects of building service components and systems, as well as related building services:

- Customer needs/requirements (indoor air quality, thermal comfort, lighting, domestic hot water etc) in different categories of buildings
- Air flows and thermal processes in buildings
- Component selection and system integration (heating/cooling, domestic hot water preparation, ventilation, lighting, etc.)
- System boundaries selection and system optimization in retrofitting and new construction (from singular buildings to building clusters/precincts)
- Low-exergy systems and renewable energy technologies
- Energy-efficiency and energy quality management in buildings
- Control systems and technologies
- Operational safety/reliability and sustainability
- BIM-based applications for building services
- Service quality, performance assessment and customer value

## Examination

- ÖVN1 - Laborations, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 4.5 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.

ÖVN1- Laborations; 3 ECTS; Grade scale P,F

TEN1 - Written exam; 4,5 ECTS; Grade scale A-F

## Other requirements for final grade

Passed in ÖVN1 and TEN1

## 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.