AF1770 Automation technologies for energy efficient buildings 7.5 credits

Automationsteknik för energieffektiva byggnader

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

Establishment

The official course syllabus is valid from spring semester 2027 as decided by the Director of First and Second Cycle Education. Decision date: 2026-10-06.

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Completed courses: AF1744 Building Techniques, Heat and Moisture Transfer, 7.5 credits, and HS1007 Fluid Mechanics, 7.5 credits.

Intended learning outcomes

After passing the course, the student should be abled to:

- describe modern sensor technology and current measurement challenges in today's HVAC systems
- design and implement basic and advanced control functions in building HVAC systems
- program according to international standards for industrial control systems
- set up and troubleshoot the most common communication protocols in building management systems (BMS)
- manage real-time data and reporting services in BMS.

Course contents

- Basic knowledge of control theories and regulation functions in HVAC.
- Key concepts in building automation.
- Introduction to industrial communication protocols used in BMS (Building Management System).
- Data management and technology in BMS.
- Programming of industrial control systems.
- Sustainability and energy efficiency through building automation, control systems, and the optimization of building services and technical systems.

Examination

- LAB1 - Computer assignment, 1.0 credits, grading scale: P, F
- LAB2 - Computer assignment, 2.0 credits, grading scale: P, F
- LAB3 - Computer assignment, 3.0 credits, grading scale: P, F
- TEN1 - Written exam, 1.5 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.

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.