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 the autumn semester 2026 as decided by the Faculty Board decision: HS-2025-1763. Date of decision: 2025-10-02

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Completed courses: AF1764 Mathematics 2, Calculus in One Variable 7.5 credits and HS1013 Building Services and Energy 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

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.