FAF3508 Modelling and Simulation 7.5 credits

Modellering och simulering

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

Establishment

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Master of Science in Civil and Architectural Engineering or similar, with an undergraduate course in indoor environment/energy systems/building services technologies or equivalent.

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 advanced proficiency in energy and indoor climate modeling in buildings by providing key knowledge relevant to:

- Methods for modeling indoor climate and energy systems in buildings
- Using the IDA ICE modeling tool for modular simulation
- System analysis of key thermal processes and air flows in buildings, as well as performance analysis of climate control devices and installations
- Analysis of the function and energy performance of climate control devices and installations

Relevant issues are discussed with the over-arching goal of achieving high indoor environmental quality, high user well-being and satisfaction, high energy efficiency, as well as optimal overall building performance.

Course contents

Upon successful completion of the course, students are intended to have gained a good understanding of following aspects related to energy and indoor climate modeling in buildings:

- Simulation of buildings, possibilities and limitations
- Different simulation tools
- Neutral Model Format (NMF)
- IDA ICE tool)(or equivalent) for modular simulation
- Component models in NMF
- Methods for visualizing modeled and measured data
- Conducting and evaluating system studies of energy and indoor climate in buildings

Examination

- UPP1 - Report, 5.0 credits, grading scale: P, F
- TEN1 - Oral exam, 2.5 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.

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.