FIL3008 Embedded Software 7.5 credits

Programvara för inbyggda system

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

Establishment

The official course syllabus is valid from the spring 2026 as decided by Vice FA Sarunas Girdzijauskas: dnr HS-2025-2540 3.2.2. Decision date: 2025-11-27..

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

The course requires good knowledge of the design of embedded computer systems, comparable to the course IL2206 Embedded Systems.

Intended learning outcomes

After passing the course, the student shall be able to:

- understand the special character and complexity of embedded real-time software, and be able to evaluate different modelling techniques and approaches to embedded software design

- select and use suitable models of computation for the specification of embedded software systems targeting a multiprocessor platform
- apply and use analysis models and methods to determine properties of embedded single- and multiprocessor real-time systems at a high level of abstraction
- apply methods for the generation of embedded software for single-and multiprocessor platforms from high-level specifications and models
- carry out the design process from specification to implementation of an embedded multiprocessor real-time system
- study scientific articles in the domain of embedded software

Course contents

- Design process for embedded multiprocessor real-time systems
- Design requirements for safety-critical embedded real-time software systems
- Specification and modelling of embedded software systems: models of computation and modelling languages, platform modelling
- Advanced models and methods for the analysis of real-time systems, design space exploration
- Methods for code generation from high-level models

Examination

- EXA1 - Examination, 7.5 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.