



IL2212 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 semester 2027 as decided by the director of first and second cycle education. Decision date: 2026-10-14

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering, Electrical Engineering

Specific prerequisites

Knowledge of embedded systems at an advanced level, 7.5 credits, corresponding to completed course IL2206.

Intended learning outcomes

After passing the course, the student should be able to

- explain the specific nature and complexity of embedded software for real-time systems and evaluate various modeling and design techniques for embedded software systems
- apply appropriate modeling paradigms for the specification of embedded software systems for multiprocessor platforms
- use analysis models and methods to analyze the properties of embedded real-time systems on single-core and multiprocessor platforms at a high level of abstraction
- use and evaluate methods for generating embedded software for single-core 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

with the aim of gaining a solid understanding and knowledge of a systematic software engineering process for embedded systems intended to run on single-core or multi-core platforms, as well as the associated methods for modeling, analysis, and code generation.

Course contents

- The design process for embedded multiprocessor real-time systems.
- Design requirements for safety-critical embedded real-time software systems.
- Specification and modeling of embedded software systems: modeling paradigms and modelling languages, platform modeling.
- Advanced models and methods for real-time system analysis, exploration of design alternatives.
- Methods for code generation from high-level models.

Examination

- TENA - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- LABA - Laboratory Work, 3.0 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.

TEN1 is a written exam.

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.