



# IL2235 Real-Time Systems 7.5 credits

Realtidssystem

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

## Establishment

The official course syllabus is valid from the autumn semester 2025 in accordance with the decision by the Faculty Board: J-2024-2271. Date of decision: 2024-10-08

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Computer Science and Engineering

## Specific prerequisites

Knowledge and skills in programming covering 6 credits, equivalent to completed course DD1337/DD1310-DD1319/DD1321/DD1331/DD100N/ID1018.

Knowledge of computer technology/computer architecture covering 6 higher education credits, equivalent to completed course EP1200/IS1200/IS1500.

Proficiency in mathematical proof, equivalent to the completion of 7.5 higher education credits of higher education mathematics courses, for example SF1610/SF1624/SF1625/SF1630/SF1662/SF1671/SF1672/SF1673/SF1679.

# Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

After passing the course, the student should be able to

- model and design real-time systems and apply different analysis techniques to validate their time requirements
- use real-time operating systems to implement real-time software applications
- present and discuss literature on real-time systems.

## Course contents

- Time requirements for real-time systems.
- Models to describe real-time systems.
- Scheduling and resource allocation for single and multi-core real-time systems.
- Time verification of real-time systems.
- Real-time networks.
- Real-time operating systems.
- Implementation of software applications with real-time requirements.

## Examination

- LAB1 - Laboratory work, 1.5 credits, grading scale: P, F
- TEN1 - Written Exam, 5.0 credits, grading scale: A, B, C, D, E, FX, F
- SEM1 - Seminars, 1.0 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.

## 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.