FIL3112 Real-Time Systems 7.5 credits

Realtidssystem

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

Establishment

Grading scale

P, F

Education cycle

Third cycle

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.

Intended learning outcomes

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

- model and design real-time systems and analyze if an application meets its time requirements
- examine implementations of complex real-time software applications that use a real-time operating system
- contrast literature and research directions 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: P, 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.