Course-PM: IL2212 Embedded Software (7.5 ECTS), Period 3, 2021

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Contents

NOTE: Due to the situation caused by Covid-19, the examination of the course is different from previous years! This also affects how the laboratories are conducted.

1 Course Information on the KTH web server

Please visit the course information page for this course on the KTH web server, which specifies among others the *course contents*, the *intended learning outcomes*, and the *prerequisites* for the course.

2 Course Structure

The course consists of 15 lectures, 2 seminars and 3 laboratory sessions. Students have to demonstrate the laboratory tasks within their available

laboratory sessions, and their seminar tasks within the seminar sessions. The laboratories will be conducted as homework tasks.

3   Course Material

The course will distribute lecture notes during the course. In addition, the course will use material from different books and other sources, including industrial documentation. The course page in Canvas provides links to this material, which in general will be available online.

4   Examination and Grading

Due to the situation caused by Covid-19, the examination of the course is different from previous years!

The course uses the grading scale A-F. In order to pass the course the student has to pass the requirements for the final exam (TENA; 4.5 credits) and to complete the laboratory course (LABA; 3.0 credits).

The examination is aligned with the intended learning outcomes, where one learning outcome is examined in the laboratories and the seminars, and the other three learning outcomes as individual parts in the written exam.

4.1   Laboratory Course (LABA; 3.0 credits)

Due to the situation caused by Covid-19, the examination of LABA is different from previous years!

The laboratory course addresses the following learning outcome: *The student shall be able to carry out the design process from specification to implementation of an embedded multiprocessor real-time system.*

In order to pass the laboratory course, each student has to

- complete the laboratories, which this year are conducted as individualand mainly practical homework. To pass the laboratory part, the student has to achieve 70% of the total points. Laboratories are done individually, and each student has to demonstrate individual knowledge by demonstrating the laboratory tasks to a course assistant. Students have to book time slots for the examination of the laboratories.

- complete the seminar preparation tasks, and actively and in a constructive way contribute to the seminars. To pass the seminar part,

the students have to achieve 70% of the total points. Students have to book time slots for the seminars.

The laboratories and seminars also contribute to the final grade. The calculation of the final grade is explained below.

4.2 Written Exam (TENA; 4.5 credits)

Due to the situation caused by Covid-19, the examination of TENA is different from previous years!
The examination TENA will be done as individual homework, followed by an optional oral exam for students aiming at a higher grade.

The examination of TENA consists of three parts (Part A, B and C), where each part corresponds to an individual learning outcome of the course. In order to pass the requirements of TENA, the student has to pass all three parts (A-C) of the examination.

The individual parts correspond to the following learning outcomes:

- Part A: *The student shall be able to use different models of computation for the specification of embedded software systems*

- Part B: *The student shall be able to use advanced models and methods for the analysis of embedded real-time systems*

- Part C: *The student shall be able to use methods for the generation of software from high-level models*

For passing a particular part A, B or C, 60% of the available points of the corresponding homework are required and the student has to demonstrate its understanding of the homework in an individual homework session. If all parts (A-C) of the homework are passed, and the total points of the homework tasks are 70% of the available points, the student has passed the examination of TENA.

4.3 Final Grade and Optional Oral Exam

The initial grade is calculated of the points that the student achieved in the examination of TENA and the examination of LABA.

Points TENA	Points LABA	Total Points	Initial Grade	Comment
≥ 70%	≥ 70%	≥ 85%	C	Possible Oral Exam for Grade B and A
≥ 70%	≥ 70%	≥ 77.5%	D	Final Grade D
≥ 70%	≥ 70%	≥ 70%	E	Final Grade E
< 70%	< 70%	≥ 60%	FX	Possible Oral Exam for Grade E
< 70%	≥ 70%	≥ 70%	FX	Possible Oral Exam for Grade E
≥ 70%	< 70%	≥ 70%	FX	Possible Oral Exam for Grade E
		< 60%	F	Final Grade F

A student has an option to take an oral exam to improve the initial grade, if the initial grade is FX or C.

- If a student received the initial grade FX, the student can achieve the final grade E in case of a successful oral exam.

- If a student received the initial grade E, the grade E will also be the final grade.

- If a student received the initial grade D, the grade D will also be the final grade.

- If a student received the initial grade C, the student can achieve the final grade B or A in case of a successful oral exam.

The student does not have to participate in the oral exam. In this case, the final grade will be the initial grade. If the student wants to participate in an oral exam, the student has to register for a time slot on Canvas.

More information on the oral exam will be available on Canvas during the course.