EQ2440 Project in Wireless Communication 12.0 credits

Projektarbete i trådlös kommunikation

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

Establishment

Course syllabus for EQ2440 valid from Spring 2011

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

Individual admission by course responsible

Language of instruction

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

Intended learning outcomes

The students shall collaborate in teams solving a technical problem and be able to apply the theoretical knowledge acquired in previous courses. The student shall also be able to document and present the work.

In addition the students shall be able to do

- Simpler forms of DSP-programming, and/or
- simpler forms of PC-programming, and/or
- simpler forms of programming on another platform e.g. smart-phone and/or
- simpler forms of practical project management, and/or
- practical algorithm development and/or
- acquire knowledge for a specific application area.

Course contents

A group of 2-7 students will carry out a project with the goal to produce a prototype before a certain deadline, that fulfils a given performance specification. The students are responsible for partitioning the projects into subprojects, make a time table, distribute the workload, and decide by whom they should be solved.

The groups are formed by the course responsible based on the preferences of the students. It is not always possible to satisfy the wishes of all the students, i.e. some students may have to work on projects that are not their primary choice. This is also true regarding the split of work between the members of the group.

There are several solutions to the problems. During the course, the students will face many practical problems that must be solved. An objective of this course is to give training in how to acquire knowledge in order to make the "correct" design decisions. The students will thereby learn how to acquire the theoretical and practical knowledge needed for the assigned project. An oral presentation and demonstration will take place before the project deadline. Written documentation should be produced while working on the project. The course concludes with an oral presentation and demonstration of the prototype. The requirements on the oral and written presentations are similar to the requirements on a Master's thesis project.

Every student will focus on one or a few of the areas of DSP-programming, PC-programming, programming of other platforms, project management, algorithm development or special application knowledge. Support in the form of lectures, literature and on-line information is available for all these areas.

The students should also write a “reflective diary” during the course of the work. The students should use this diary to collect evidence of their learning with respect to the intended learning outcomes. Examples of such evidence are performance curves (with explanations), descriptions on the use of tools, or detailed descriptions of technical problems that have occurred.

Course literature

The course literature will be published on the course homepage at least four weeks before the start of the course. In addition to this there will project specific course literature. Examples of course literature used previous years are:

- Texas Instruments Manuals (http://www.ti.com/sc/docs/psheets/man_dsp.htm)
- Code Composer Studio on-line help.
- Matlab on-line information.
- On-line DSP support http://www.s3.kth.se/signal/edu/projekt/DSPsupport/
- On-line information on project management http://www.s3.kth.se/signal/edu/projekt/examination.shtml
- Sams Teach Yourself Visual C++ 6 in 21 Days, Davis Chapman and Jeff Heaton, Sams Publishing 1999.
- The C Programming Language (Second Edition), Brian W. Kernighan and Dennis M. Ritchie.
- Digital Signal Processing Implementation using the TMS320C6000 DSP Platform, Naim Dahnoun, Prentice Hall 2000.
- Lecture notes

Examination

- PRO1 - Project, 12.0 credits, grading scale: A, B, C, D, E, FX, 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.

Other requirements for final grade

The grade will be determined by the students' achievements in relation to the intended learning outcomes. The project assignments are designed to enforce the students to achieve the intended learning outcomes (ILOs). The success of the group (in terms of primarily the prototype and the final report) can be seen as a measure of the sum of the knowledge of the group with respect to the ILOs. In order to determine the grades of the individual students the following list of sources can be used 1) the tasks given to the student in the project plan and weekly reports 2) the success of the group in the areas where the student was active 3) the reflective diary (where the students are told to present evidence of their learning), 4) observations made by the course responsible and the assistants made in the laboratory during the course of the work. Other sources in addition to those listed may be used as well.

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.