# EQ2442 Project Course on Multimedia Signal Processing 12.0 credits

Projektkurs i multimedia- signalbehandling

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

## Establishment

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Electrical Engineering

## Specific prerequisites

For single course students: 180 credits and documented proficiency in English B or equivalent.

Recommended:

- EQ1220 Signal Theory or equivalent

- EQ2310 Digital Communication

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- Completion of one of the following courses:

- EQ2320 Speech Signal Processing

- EQ2330 Image and Video Processing

# Language of instruction

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

# Intended learning outcomes

After passing this course, participants should be able to

- plan a larger project and develop software for a multimedia processing system to be completed by a given deadline while satisfying given requirements,

- motivate and formulate relevant problem-oriented questions,

- assess and coordinate the workload to meet the given deadline,

- apply theoretical knowledge aquired in previous courses to solve project-related problems,

- implement (for example with MatLab, C, C++, ...) and assess the developed algorithms,

- explain design choices in an engineering context,

- recognize problems / challenges and propose possible solutions,

- present and demonstrate the achieved results to fellow students and experienced engineers,

- write a technical report that motivates the project, discusses and analyzes the relevant challenges, summarizes relevant implementation aspects as well as obtained experimental results, and assesses and concludes on the achieved results.

For the highest grade, all above goals need to be well achieved, in particular, the project problem should be well solved, and the technical report should be clear, scientifically sound, and well written.

Lower grades will be given if some of above goals are met only weakly, in particular, if the technical report lacks clarity and scientific / engineering accuracy.

# Course contents

A larger project is to be planned and carried out by a team of students. The students will apply the theoretical knowledge acquired in previous courses and build a working software prototype, implemented in Matlab or C/C++. The group of students will carry out its project with the goal to produce the software prototype before a certain deadline while satisfying

given requirements. The prototype will realize, for example, a complete image, video or audio processing system. The group is responsible for splitting up the project into work items, creating a time table, and distributing the workload. There are several solutions to the given problems. During the course, the groups 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 good design choices. Thereby, the students will learn how to acquire the theoretical and practical knowledge needed to successfully complete the assigned project. The details for the accomplished project will be summarized in the final report, which will be published on the course Web site. The course concludes with an oral presentation and demonstration of the software prototype. The presentation and final report will have similar requirements as Master's seminar and thesis.

# 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.

# 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.