MF2003 Mechatronics, Advanced Course 18.0 credits

Mekatronik, högre kurs

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

Establishment

Course syllabus for MF2003 valid from Spring 2009

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

Qualified for studies in grade 4, MF106X/MF107X/MF109X/MF1022/4F1822, MF2007/4F1907,DD1321/2D1321

Language of instruction

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

Intended learning outcomes

Complex embedded systems and products use microelectronics and software as integrated part of the mechanical design. Apart from function and performance, the design is of most importance for an innovative product for success on a global market. The Mechatronics advance course focus on the early part of product development; conceive, design and realization phases.

The student should after the course:

- show deep knowledge about the principles of Mechatronics systems architecture and functions.

- be able to compare and critically assess aspects on an engineering problem the needs a complex physical product as part of the solution.

- be able to define models and exercise computer simulations in the area of Mechatronics, even for ill defined problems.

- apply knowledge and skills in the development of Mechatronic systems in a global team environment.

- describe and be familiar with local and global companies, important for the Mechatronic sector.

Course contents

The course is aligned with real product development models. Design methodology topics include structured methodology and design knowledge.

Team formation and team work is an integrated part of the problem based learning environment.

The students are introduced to the tools, methods and thinking strategies needed to form and manage creative design engineering teams.

The student teams examine industry-proposed design problems to determine the specific factors that govern product requirements and performance. They focus on product-needs, design requirements, performance requirements and test-validation protocols. The student teams produce detailed reports and supporting prototypes.

Disposition

Periods 3, 4

Course literature

Scientific articles on current research in the field.

Examination

- PRO2 - Project 2, 9.0 credits, grading scale: P, F
- PRO1 - Project 1, 9.0 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.

Other requirements for final grade

Mandatory participation in course activities, Project task and assignments approved, written exams (PRO1; 9 cr) and (PRO2; 9 cr).

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.