



# MF2030 Mechatronics basic

## Course 6.0 credits

Mekatronik allmän kurs

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

If the course is discontinued, students may request to be examined during the following two academic years

### Establishment

Course syllabus for MF2030 valid from Autumn 2010

### Grading scale

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

### Education cycle

Second cycle

### Main field of study

Mechanical Engineering

### Specific prerequisites

CMAST4, CDEPR4, CFATE4: SG1130/SG1131, SG1140, MF1016, EL1120/EL1000, DD1321/(DD1322+DD1324) or similar

CDATE, TIPUM, TIPDM, CDATE, TAEEM with First level course(s) in mechanics, electrical engineering, automatic control and programming

# Language of instruction

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

# Intended learning outcomes

The course gives an overview of the basics of mechatronic systems and products including the components and characteristics typical for such systems. The course introduces a mechatronics design procedure and provides insight into both advantages and difficulties of mechatronics design. The overall aim is that the students in relevant subsequent courses will apply this design procedure and in a stepwise manner deepen their proficiency in using it. After completion of the course the students should be able to:

1. Describe the basic building blocks of mechatronic systems (e.g hardware, software, communication, interfacing, sensing, control and actuation)
2. Discuss if a mechatronic design might be feasible as a solution to a given functional problem formulation
3. Sketch such a technical solution and select component types
4. Identify critical problems/design issues and suggest feasible methods and tools to solve those
5. Be able to summarize and on smaller problems apply a development model for mechatronic product development
6. Model, simulate and synthesize (but not realize) smaller mechatronic systems and products
7. Give several examples of additional (not directly functional) product requirements typically important for mechatronic products and summarize on a course level the implications of those requirements on the product design

# Course contents

The course introduces and gives examples of mechatronic products and the various components, design alternatives, methods and tools used in mechatronics design. Real mechatronic design problems are identified and solved.

# Course literature

To be decided

# Examination

- INL1 - Hand in Task, 3.0 credits, grading scale: P, F

- TEN1 - Written Exam, 3.0 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.

## **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.