



MF2050 Mechatronics, Business and Management 15.0 credits

Mekatronik, ekonomi och ledarskap

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

On 2020-04-21, the Dean of the ITM school has decided to establish this official course syllabus to apply from autumn term 2020 (registration number M-2020-0793).

Grading scale

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

Education cycle

Second cycle

Main field of study

Industrial Management, Mechanical Engineering

Language of instruction

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

Intended learning outcomes

The course intends to give students the professional skills that are needed to solve mechatronic problems and develop mechatronic products that are so composite and complex that they for his solution require knowledge both within mechatronics and within industrial economics.

On completion of the course, the student should be able to:

- Apply knowledge and skills from earlier courses and learn to acquire new knowledge when necessary
- Identify, compare and critically assess aspects of a composite mechatronic problem that requires knowledge both within mechatronics and within industrial economics for its solution
- Apply models and practical methods to prepare and suggest a solution on a composite mechatronic problem that requires knowledge both within mechatronics and within industrial economics for its solution
- Describe, compare and critically review different product realisation processes and their properties
- Use professional tools and processes that are necessary for the development of mechatronic products

The student should after the course have good technical understanding, knowledge and skills in:

- Modelling, simulation and visualisation of dynamic products and systems
- Methods and tools for co-design and optimisation of mechatronic systems
- Design and production of prototypes
- Use of model-based development and a relevant approach to mechatronic product development

--Furthermore, the student should after the course have good skills in:

- Organising, handling and leading a complex project that runs over a long period of time, in collaboration with employers and project members
- Presenting the work both in writing and orally in a scientific and convincing way
- Argumentation for the chosen working methods and the reliability of the results when they are exposed to criticism, and give constructive criticism to an equivalent project task

Course contents

The course focuses on product development of mechatronic products in large projects. Innovative and intelligent products are created by developing knowledge and skills in motion control, robotics, embedded systems, real time programming and distributed systems. The course is based on problem-based learning and work in larger projects, where ability to be involved in professional development while developing cooperation, communication and project management skills are practised.

In the learning environment, team-building, teamwork and industrial cooperation are integrated parts. The student teams work in collaboration with representatives from industry to decide the specific factors that govern the product requirements, and its design and realisation. The teams focus on product needs, design, performance requirements, testing and validation.

Specific prerequisites

MF2030 Mechatronics basic course and MF2095 Programming in C for Embedded Systems

MF2007 Dynamics and Motion Control or MF2103 Embedded Systems for Mechatronics

Courses from Upper Secondary School corresponding to the course English B/6 according to the Swedish upper secondary school system.

Examination

- PRO1 - Project work, 7.5 credits, grading scale: P, F
- PRO4 - Project Work, 7.5 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.