



# MF2104 Mechatronic in Product Design 6.0 credits

## Mekatronik i produktdesign

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 MF2104 valid from Autumn 2019

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Mechanical Engineering

## Specific prerequisites

Bachelor of Science in mechanical engineering or the equivalent.

MF1016 Electrical engineering or the equivalent.

Earlier experience of prototyping machines such as 3D-printers, prototype milling machines, laser engraving equipment etc

CAD knowledge.

## Language of instruction

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

## Intended learning outcomes

After passing the course, the students should be able to:

- create programmes for embedded systems
- design and build mechatronic prototypes
- explain the architecture and functions of microcomputers
- explain the difference between real-time programming and non-time-critical programming
- explain what is required for mechatronic product realisation

## Course contents

New and improved functions are achieved by combining mechanical design, control engineering, programming and embedded control systems. Based on the students' previous knowledge in physical prototypes, CAD, mechanics and electrical engineering, the course will give a basic knowledge in mechatronics. The main part of the course acts to train your skills in using mechatronic tools to build prototypes with some intelligence. To be able to produce physical mechatronic prototypes, modern prototyping machines will be used, such as 3D printers, laser engraving machines, prototype milling machines, water jets, vacuum forming machines and manual tools. A large part of the course is related to a project task, where the students make mechatronic physical prototypes in groups.

The laboratory sessions are intended for programming of embedded systems.

## Course literature

Will be announced four weeks before the start of the course.

## Examination

- LAB2 - Laboration, 1.0 credits, grading scale: P, F
- PRO2 - Project, 2.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Written examination, 2.5 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.