



DM1588 Sensor Programming for Media Technology 6.0 credits

Sensorprogrammering för medieteknik

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

Establishment

The official course syllabus is valid from the spring semester 2022 in accordance with Head of School decision: J-2021-1985. Decision date: 14/10/2021

Grading scale

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

Education cycle

First cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

Knowledge and skills in programming, 6 credits, equivalent to completed course DD1337/DD1310-DD1318/DD1321/DD1331/DD100N/ID1018.

Knowledge in basic computer science, 6 credits, equivalent to completed course DD2325/DD1320/DD1325/DD1327/DD2325/ID1020/ID1021.

Active participation in a course offering where the final examination is not yet reported in LADOK is considered equivalent to completion of the course. Registering for a course is counted as active participation. The term 'final examination' encompasses both the regular examination and the first re-examination.

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 student should be able to

- explain basic principles of sensors and actuators
- explain the function of different sensors and actuators (e.g. ultrasonic sensors, temperature and humidity sensors, light sensors, accelerometers, magnetometers, pressure sensors, simple electrical and mechanical actuators),
- recommend appropriate sensors for implementing a specific input modality
- recommend appropriate actuators for implementing a specific output modality
- program an embedded platform
- design and program interactive applications that use sensors and actuators in order to
- be able to use embedded platforms, sensors and actuators to design interactive applications.

Course contents

The course gives an introduction to sensors and actuators and how they can be programmed and used in a commercial embedded system (such as Arduino or Raspberry Pi). The course has a theoretical part in which different properties of sensors and actuators and their respective input and output signals are examined, as well as a practical part directed towards realisation of an interactive multi-modal installation.

Examination

- LAB1 - Laboratory work, 3.0 credits, grading scale: P, F
- PRO1 - Project, 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.

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

Other requirements for final grade

To pass LAB1 or PRO1, active attendance at seminars is required (you are allowed to miss two seminars).

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.