



IL1390 Sensors and Actuators

6.0 credits

Givare och ställdon

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

Establishment

Course syllabus for IL1390 valid from Autumn 2008

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Basic knowledge of electric circuits.

Language of instruction

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

Intended learning outcomes

The need to sense or measure quantities of different types has increased dramatically during the past years.

This depends on that nowadays one strive to replace pure mechanical products with a combination of mechanical and electronic engineering, mechatronics.

In industrial automation classical transducers and sensors are used, while in mechatronical design simple sensor elements are integrated with electronics and processor to form a cost benefit solution. Sensors play a key role in mechatronics and industrial automation.

In industrial automation one use the classical electrical motors as actuators. In the mechatronic products you often find completely new motortypes where sensors, processor and drive electronics combines to a unit.

The need to understand the working principles of electrical motors and their parts has hence increased.

The student should after the course:

- Have knowledge about of the working principles and architecture of a large number of sensors and their elements.
- Be able to chose and use sensors and equipment for measuring mechanical quantities and temperture.
- Have knowledge about the architecture and working principles of the most common electrical motortypes.
- Be able to chose and use electrical drives and actuators.
- Be able to cooperate in a active way with specialists in theese areas.

Course contents

The study of the working principles and the property of:

Sensors (analog and digital) for measuring of position, force, displacement and other mechanical entities and temperature.

Electrical motors and motordrives.

Course literature

Mätgivarteknik, Lindahl, P-E - Sandqvist, W
Upplaga: 1 Förlag: Studentlitteratur År: 1996
ISBN: 91-44-00054-5

Övrig litteratur
Kompendiematerial, övningshäfte

Examination

- ANN1 - Assignment, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 1.5 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.

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

Other requirements for final grade

Passed laboratory course 1,5 hp (LAB1).

Passed exam 3 hp (TEN1) .

Individualised questions to solve during the course 1,5 hp (ANN1).

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.