COURSE SYLLABUS
Mechatronics, 7.5 credits

Mekatronik, 7,5 högskolepoäng

Course Code:	TMTB17	Education Cycle:	First-cycle level
Confirmed by:	Dean Feb 2, 2009	Disciplinary domain:	Technology (95%) and social sciences (5%)
Valid From:	Aug 1, 2010	Subject group:	ET2
Version:	1	Specialised in:	G1F
		Main field of study:	Electrical Engineering

Intended Learning Outcomes (ILO)

On completion of the course, the student should
- know and be able to describe the function and field of application for common types of sensors and actuators.
- be able to assemble a simple mechatronic system, containing for example a microcontroller, sensor, actuator and mechanical system, and make it perform according to a specification.
- have knowledge about the range of applications for PLC-systems and the principles for PLC programming.
- be able to use computer tools to simulate and analyze the dynamic properties of a mechatronic system
- be able to write a technical report, which describes the solution and accomplishment of a project work.

Contents

The course's purpose is to give basic knowledge about design of compound systems, where mechanics is controlled by electronics. This includes how earlier acquired knowledge in analog design, microcontrollers and automatic control is applied to make electronics interact with mechanics. Further, earlier acquired knowledge in use of computers for dynamic modeling, simulation and analysis of mechatronic systems is deepened.

Course content
- Modelling and simulation of dynamic mechanical systems
- Different types of motors
- The microcontroller as a control unit
- Implementation of control algorithms in microcontrollers
- Sensors and actuators
- PLC's
- Applications in project form

Type of instruction

The teaching is in form of lectures, calculation exercises, laboratory work and project work. Laboratory work and laboratory preparation lectures are compulsory.

The teaching is conducted in English.

Prerequisites

General entry requirements and completed courses in Microcontrollers, 7,5 hp, Analog design, 7,5 hp and Applied automatic control, 7,5 hp (or the equivalent).

Examination and grades

The course is graded Fail (U), 3, 4 or 5.

Registration of examination:

Name of the Test	Value	Grading
Examination[1]	3 credits	U/3/4/5
Laboratory work and project work	4.5 credits	U/G

[1] Determines the final grade of the course, which is issued only when all course units have been passed.

Course literature

Will be announced later.