Zurich University of Applied Sciences

School of Engineering

t.RT1 - Regelungstechnik 1

Person responsible for the course:	Ruprecht Altenburger, altb
Credits:	4
Valid for:	2010/2011
Last saved:	08.09.2010 16:23

Learning objectives:

- to understand the operation of a control system and to know the corresponding concepts and basic structure
- targeted use of feedback properties in order to improve system behaviour
- to design and to realize a controller (structure and parameters) and to evaluate the results
- targeted use of software tools in order to analyze and to design control systems

Course content:

Lecture:

- Introduction: Description of control systems, concepts and structures
- Static computation of control systems, system characteristics
- Descriptions and analysis of the control system's dynamic behaviour
- Modeling and identification of dynamic processes
- Basic controller types
- Systematic design of control loops with P and PI controllers, frequency response design, step response, pole placement

Laboratory:

- Measurement techniques for experimental identification in open loop and closed loop, bode diagrams, step responses, system characteristics
- Realization of controller circuits
- Static and dynamic behaviour of basic control loops, response to setpoint change and to disturbaces
- Simulation of control systems
- Set-up of control loops with various hardware laboratory models

Previous knowledge:

-

Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	14*2
Tutorial/Practicum	14*2
Group teaching	
Block instruction	
Seminar	

Assessment:

According to the table or as specified in writing by the lecture at the beginning of the semester!

Number	Type	Weighting
1	End of term exam	60%
2	Exam during the semester	20%
	Further assessments	lab report

Language of instruction:

Deutsch

Instruction material:

-lecture notes

-exercises

Comments:

-