t.RT3 - Regelungstechnik 3

Person responsible for the course:	Ruprecht Altenburger, altb
Credits:	4
Valid for:	2010/2011
Last saved:	08.09.2010 16:21

Learning objectives:

- To recognize and to estimate the potential of state feedback

- To identify the differences to classic output feedback

- To know and to apply the design methods for state feedback

- To know and to apply the design methods for a state observer and a disturbance observer

- To know the effect of pre-filters and to be able to parametrize a pre-filter

- To be able to analyze and design simple nonlinear control systems

- To be able to analyze the effect of simple saturations/limitations in control loops

Course content:

- State space representation of control systems and corresponding software tools

- Set-up and design of state feedback control loops (pole placement, cost function)

- The observer and its integration in the state feedback control system

- Concepts to improve the disturbance behaviour (disturbance observer, Integral part)

- Discrete time control systems in state space

- Dynamic pre-filter

- Introduction to nonlinear control systems/ the describing funtion method

- Control systems with saturations/limitations: Introduction, analysis

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:

-