

## t.RT1 - Regelungstechnik 1

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**Person responsible for the course:** Ruprecht Altenburger, altb

**Credits:** 4

**Valid for:** 2011/2012

**Last saved:** 13.06.2012 09:14

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### Learning objectives:

- getting system models from measurements in the time and frequency domain
  - describing the static behaviour of systems
  - applying P- PI- and PID-controllers to different plants
  - root-locus design of control-loops
  - knowing cascaded controllers
  - targeted use of software tools in order to analyze and to design control systems
  - knowing effects of limits and saturations in control-loops and how to deal with them
  - To know and to apply the extended stability criteria
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### Course content:

#### Lecture:

- Modeling and identification of dynamic processes
- Static computation of control systems, system characteristics
- root-locus design
- cascaded control
- Anti-Windup
- Stability

#### 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 disturbances
  - Simulation of control systems
  - Set-up of control loops with various hardware laboratory models
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### Previous knowledge:

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### Teaching method:

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

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**Assessment:**

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

<b>Number</b>	<b>Type</b>	<b>Weighting</b>
1	End of term exam	80%
2	Exam during the semester	20%
	Further assessments	lab report

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**Language of instruction:**

Deutsch

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**Instruction material:**

- lecture notes
  - exercises
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**Comments:**

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