

## t.EK1 - Elektronik 1

**Person responsible for the course:** Hanspeter Hochreutener, hhrt

**Credits:** 4

**Valid for:** 2011/2012

**Last saved:** 22.03.2012 22:00

### Learning objectives:

Analysis and design of circuits with ideal operational amplifiers, diodes and transistors with main focus on switching applications.

### Course content:

Ideal operational amplifier in negative feedback circuits, as comparator and Schmitt-trigger.

Introduction to semiconductor physics.

Properties of various diode types, field of application and dimensioning.

Functionality of bipolar and field-effect transistors and IGBTs.

Analysis and design of switching circuits, such as buck- and boost-converter, including their driver and protection circuits.

Driver circuits for power LEDs serve as concrete example for above topics.

### Previous knowledge:

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### Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	
Tutorial/Practicum	
Group teaching	14*4
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	40%
	Further assessments	

### Language of instruction:

german

### Instruction material:

Scripts and exercises on disposal for printing.

<http://www.zhaw.ch/~hhrt/EK1/>

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**Comments:**

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