

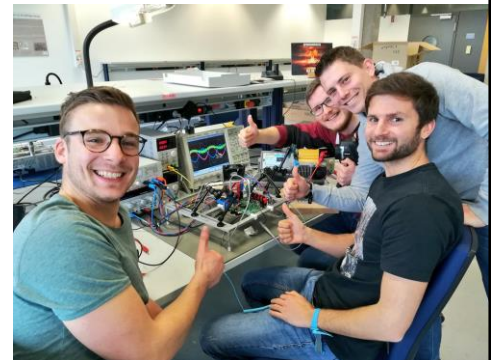


How to Learn Practical ASIC and Board Design in Just One Year

Eckhard Hennig

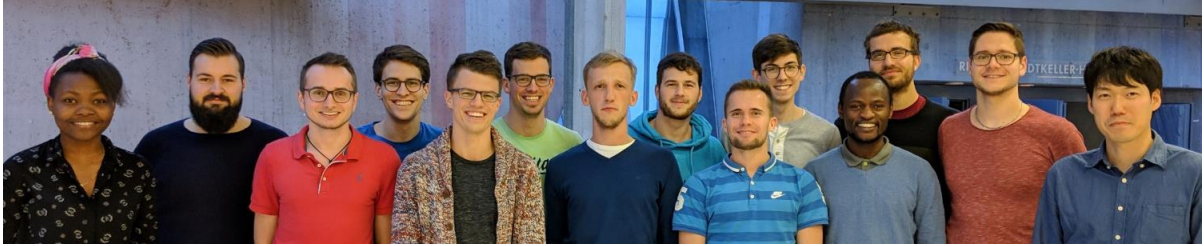
M.Sc. Power Electronics and Microelectronics

- Nominal program duration: **1.5 years**
(full time; 2.5 years for part-time students)
- Language: German
- ECTS Credits: 90
- Seats per class: 15
- Courses start twice per year (March & October)
- Prerequisite: Bachelor's degree in Electrical Engineering or a related field, preferably with a focus on electronics
- **Educational goal: Enable our students to become professional power electronics circuits and systems designers with broad practical experience in ASIC and PCB design**



Practical Experience in ASIC and PCB Design ...

... means that our students should get hands-on exposure to:



System Design

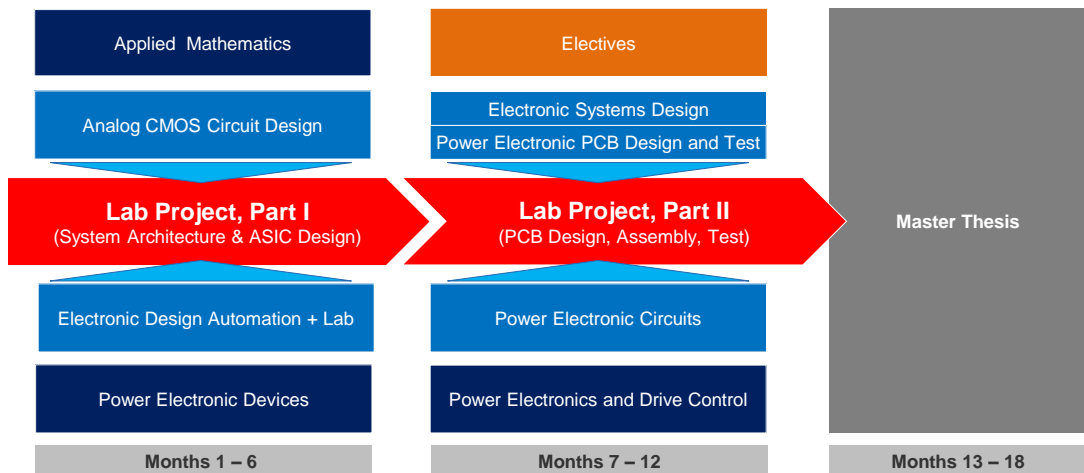
ASIC Design & Fabrication

PCB Design

Lab Experiments on Prototype

M.Sc. Power Electronics and Microelectronics

The 1.5-year Master curriculum at Reutlingen University



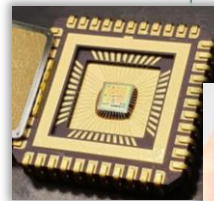
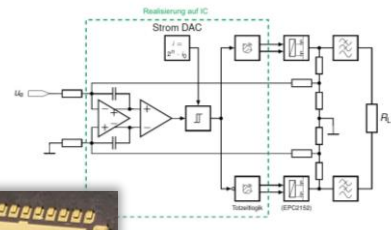
Lab Project








- 1 Class = 1 Team
- 1 Assignment
- 1 Year

Specifications

1.
2.
3.

- 1 System Design
- 1 ASIC
- 1 Board



 Jan-Philipp Gaa	 Max Hettler	 Kathrin Kocher	 Klaus-Dieter Kächele
 Jannik Maier	 André Schwarzbeck	 Annika Walz-Lange	

Year
Month
Day
Hour
Minute
Second
Millisecond
Microsecond
Nanosecond
Picosecond
Femtosecond
Attosecond
Zeptosecond
Yoctosecond

Lab Project

Working conditions

- Development of a complex electronic system under typical industrial conditions
 - New assignment with substantial development risk
 - Complete design cycle from specification to ASIC+PCB hardware test
 - Self-organized R&D teamwork
 - Strongly specialized individual technical and organizational responsibilities
 - Use of professional design software and commercial manufacturing technologies
 - Permanent interaction with customer
- Problem-oriented learning
 - Students learn on demand the skills required to solve the practical problems at hand

Some Impressions from Recent Projects

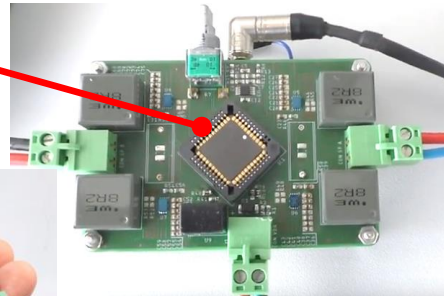
Various GaN FET Class D HiFi audio amplifiers



03/2019 – 02/2020



CMOS Modulator ASICs



10/2020 – 08/2021



03/2020 – 02/2021



Some Impressions from Recent Projects

Sensorless Control of a Switched Reluctance Motor

