

Embedded Systems Lab

Winter 2015

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[Entwurf informationstechnischer Systeme](#)

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Prerequisites

In this lab, you will study the design of hardware and software of an embedded system.

In order to cope with this task, you should...

- understand principles of digital design
- have some background in digital systems architectures (courses “Architecture of Digital Systems” I and II)
- have some experience with VHDL or Verilog (e.g., “Labor Digitaltechnik I”, Wasenmüller/Wehn)
- have some programming experience (We will be using assembler.)

Organisation

- Design teams of 2
- **Warm-up phase:** Familiarize with development platform
 - 4 tasks
 - Results for each task are checked and signed off by teaching assistants. You will be asked questions.
- **Design project:** Exercise structured design methodology
 - Conceptual design
 - Implementation
 - Verification
- **Project plan, review meeting**
- Certificate after successful completion of project

Project plan – Review Meeting

You need to make a plan for your design project.

We will have a review meeting in the week after the warm-up phase. In this meeting you will present your project plan.
(10 minute presentation + 5 minutes discussion.)

The topics of your presentation should include

- General problem description of design project
- Your intended architecture (HW and SW)
- Verification plan
- Time schedule
- Division of tasks between team partners

Presentation

Tips for presenting your work:

- Total duration of presentation: 10 minutes
- Split the talk so that every team member presents a part of it
- **Please, prepare your presentation!**
- Blackboard, handout-based, or computer presentation are all fine.
 - Seminar room has both, blackboard and projector.
 - You would need to BYOL (bring your own laptop) in case of computer presentation.
 - Don't "over-engineer" the presentation! Plain slide layout, no animations necessary.

Schedule

Lab hours: Tuesday, 14:00 – 17:00
Room 12-524

Teaching assistants will be available during these hours.
You may use the lab also at other times during the week if available.

Teaching assistants

Teaching assistants are available during lab hours.

- Jhon Jimenez, jbjc1990@gmail.com
- Abdul Mutaal Ahmad, aahmad@rhrk.uni-kl.de
- Shrinidhi Udipi, udupi@eit.uni-kl.de
- Matthias Legrom, legrom@eit.uni-kl.de

<http://www.eit.uni-kl.de/eis/teaching/labore/labor-digitaltechnik-2/>

- There is a password-protected area on our website with initial documentation and assignments for download.
- Everything needed in the experiments (platform IP, host tool chain, documentation) is kept on a **git repository** that you maintain.
(Assignment 1 gives a tutorial, helps you set up your development platform, and walks you through a complete build-and-deploy cycle.)
- If you find errors in the material or have comments, please tell us! Your input is appreciated.
- **Check for updates regularly!**

Next steps

Until next Tuesday, 2015-11-03:

- Team up in groups of 2
- If you have a complete team-of-2 together:
Send an email with names and email address of each team member to Matthias Legrom: legrom@eit.uni-kl.de
- If you don't find a team – no problem. We'll form teams next Wednesday.
- **Prepare for lab and assignment 1**
Make yourself familiar with the referenced material!

Next Tuesday

- Remaining teams are formed
- Teams obtain lab PC account
- Complete assignment 1 and have it signed off