



VLSI Design (MScTI_ANADESIGN)

Prof. Dr. P. Fischer

Lehrstuhl für Schaltungstechnik und Simulation
Technische Informatik der Uni Heidelberg



Organization of Lecture & Exercise

- **Points:** 6 Credit Points
- **Time:** Monday, 9:15 – 10:45, 11:00 – 12:30
- **Location:** CIP Pool of KIP
- **Teacher:** Prof. Dr. P. Fischer
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- **Internet:** <http://sus.ziti.uni-heidelberg.de/Lehre/...>
- **Prerequisites:** CCS lecture or equivalent knowledge
- **Examination:** tbd.
probably: horal examination of ~15 minutes
The exercises are essential part of the exam!



Exercises

- Mainly in 2nd block (but also in 1st...)

- You get an account on a SuS computer!
- NOTE: The account will be CLOSED automatically at the start of the next (summer) term!

- Homework can be done
 - In student room in Mannheim B6, 26, room 3.01
 - Remote from the CIP pools (KIP, PI, Philosophenweg,...)
 - Remote from home (via X2GO, see instructions on web site)

- For using the umc018 technology, a non-disclosure agreement has to be signed!



Content (NEW) (not treated in this order)

- Technology, Manufacturing of Integrated Circuits
- Test equipment & procedures

- *Hierarchical schematics, busses, global nets, ...*
- Layout of components, rules, matching

- Design Rule Check, Design Rules, technology files; Extraction & rule files; Layout versus Schematic Check; ESD and Antenna rules, latchup
- Script programming using skill. *Simulation with ocean*
- *Mixed Mode Simulation*
- *Noise*

- In Addition: Digital Logic



Further Comments

- The lecture is a mandatory element of major ,chip design‘



Literature

- **Principles of CMOS VLSI Design**

Neil H. E. Weste, K. Eshraghian, Addison-Wesley 1994,
ISBN 0-201-53376-6, 91 € (Amazon)

Classic for CMOS Design, easy to read, not really up to
date but sufficient for beginners.

- **Integrierte Schaltungen (German)**

K.H. Cordes, A. Waag, N. Heuck

Pearson Studium 2011, ISBN: 978-3-86894-011-4,
79,95 EUR

Gute Mischung der verschiedenen Themen



Demo

- Live Demo of what we will do...