Master of Science Embedded Systems Engineering

Prof. Dr. Moritz Diehl
Faculty of Engineering

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Albert-Ludwigs-Universität Freiburg

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Overview

- The Faculty of Engineering
- Embedded Systems as a study course
- The Master study program ESE
- Conditional admission – what to do?
- Contact points and helpful persons

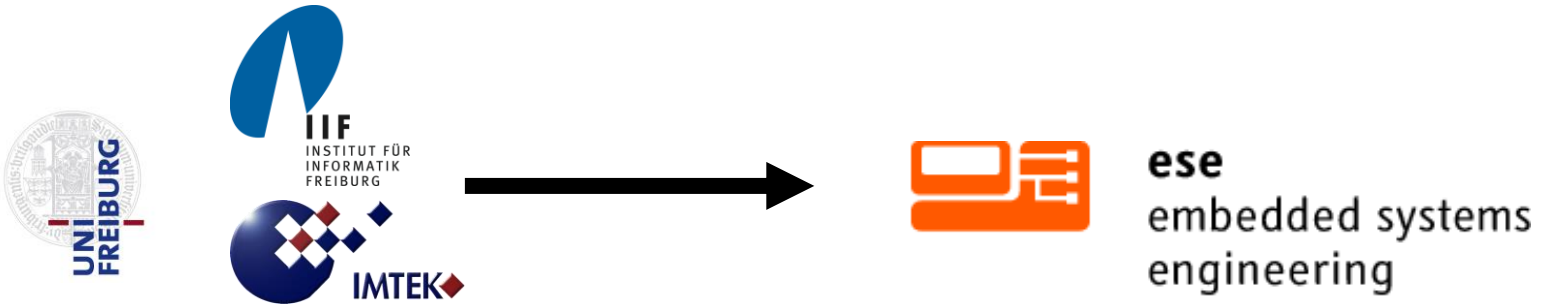
- Administrative tips and tricks with Ms. Nopper

The Faculty of Engineering

- Founded in 1995
- Faculty of Engineering consists of
  - Department of Computer Science
  - Department of Microsystems Engineering
  - Department of Sustainable Systems Engineering (founded 2015)
- More than
  - 50 professors & group leaders
  - more than 450 employees,
  - more than 1800 students
    (about 18% female, 37% international)

Embedded Systems at the Faculty of Engineering

- Embedded Systems Engineering (ESE) touches all of our core competencies
- Cooperation of professors and lecturers from the departments of Computer Science (CS) and Microsystems Engineering (MSE) as well as external experts

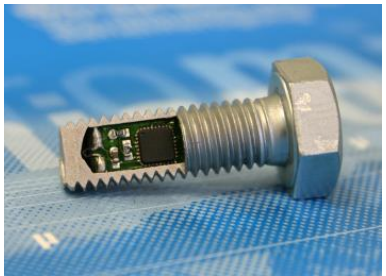


What is special @ the Faculty of Engineering?

- Unique combination of Computer Science and MSE
- Interdisciplinary study program
- Great infrastructure:
  cleanrooms, laboratories, computer pools, WiFi, tele-teaching facilities, engineering library
- Close contact to
  - Faculties of Biology, Chemistry, Medical Science, Physics, Materials Science
  - Uniklinik (University hospital Freiburg)
  - 5 local Fraunhofer Institutes
  - industrial enterprises
- Numerous contacts to the industry

Application areas for Embedded Systems

- Automotive engineering
- Bio/Medical technology
- Smart homes
- Telecommunications
- Media and consumer electronics
- Controlling and regulation in manufacturing processes
- Aerospace …



Quellen: wikipedia bzw. TF

The Master‘s program ESE

- Mandatory course modules assure subject-specific foundations in various areas
- Bilingual study program:
  - lots of courses in English
  - some specific courses in German only
- A big variety of elective courses offers you high flexibility
- Concentration areas and a Personal Profile allow for individual specialization

Mandatory Courses

Specific courses

- Cyber Physical Systems – Discrete Models (Engl.)
- Sensorik und Aktorik (Ger.) / Sensors (Engl.)
- Aufbau- und Verbindungstechnik (Ger.) / Assembly and Packaging Technology (Engl.)
- Micro electronics (Engl.)
- Modelling and system identification (Engl.) (=Modellbildung und Systemidentifikation)

Plus

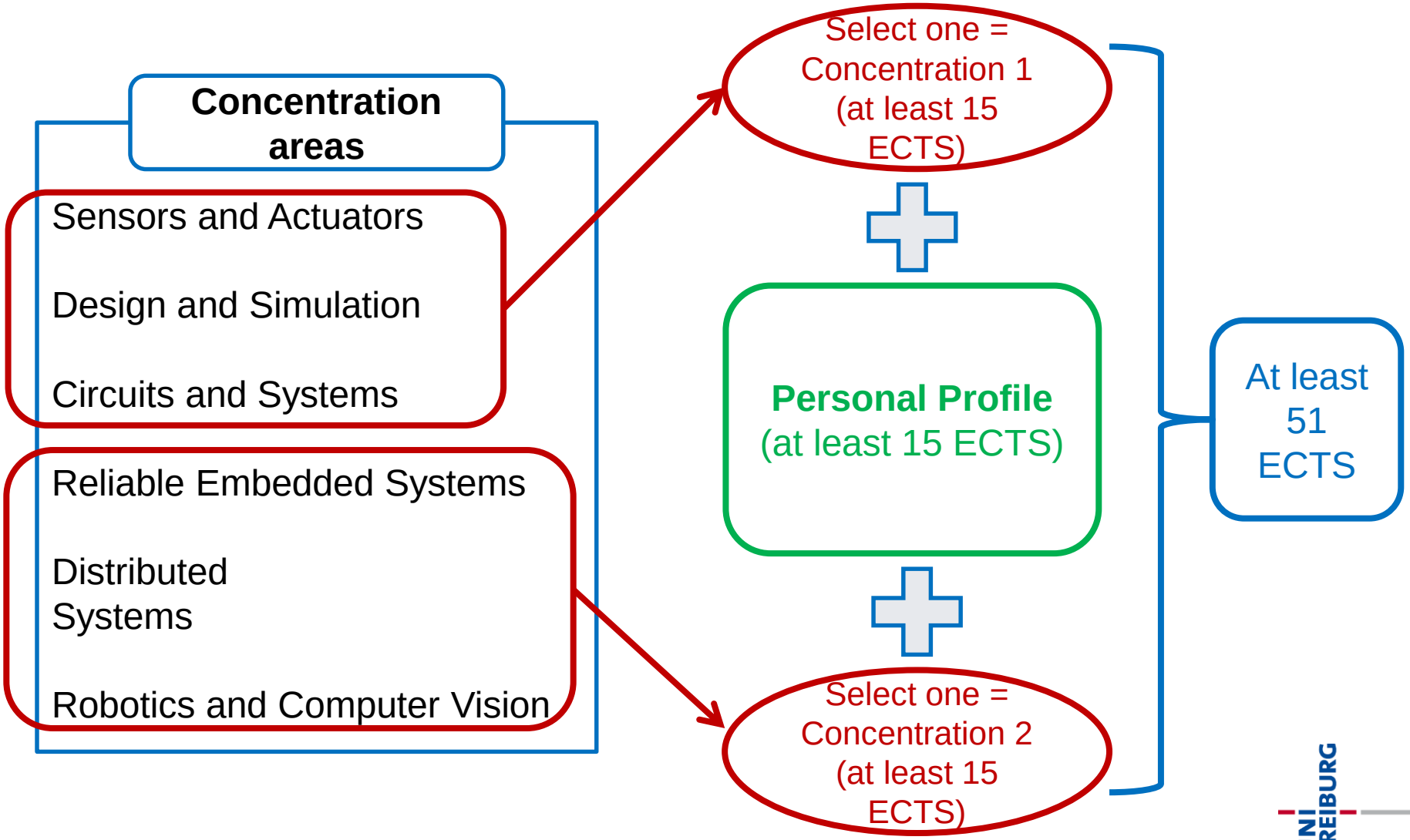
- One out of six so-called **Key courses** (*Kursvorlesungen*) in Computer Science
- One other Key course or one **Specialization course** in Computer Science

Structure of the study program (when starting in winter term)

Module / Area	Semester	ECTS credits
Cyber Physical Systems – Discrete Models (English)	1	6
Sensorik und Aktorik (German) [alternative: Sensors (English)]	1	5
Aufbau- und Verbindungstechnik (German) / Assembly and Packaging Technology (English)	1 / 2	5
Micro-electronics (English)	1	5
Modelling and system identification (English)	1	6
Kursvorlesung Informatik	1 or 2	6
Kurs- oder Spezialvorlesung der Informatik	1 or 2	6
Concentrations area 1	2 and 3	At least 15
Concentrations area 2	2 and 3	At least 15
Personal Profile	2 and 3	At least 15
Master thesis + presentation	4	27 + 3
Overall		**120**

At least 51 overall

Concentrations and Personal Profile



Elective areas: general rules

- You have to complete courses amounting to ***at least*** 51 ECTS credits
- You have to select 2 Concentration areas
- You have to complete courses amounting to at least 15 ECTS credits in ***each*** of your Concentration areas and your Personal Profile
- You may take at most 2 seminars overall (Concentration areas + Personal Profile)

Personal Profile

You can select from

- all ***lectures, seminars or lab courses*** from the Master‘s programs for
  - MSE or MST
  - Computer Science

  @ the Faculty of Engineering

Conditional admission – What does this mean for me?

- Conditions have to be fulfilled in addition to the normal Master‘s curriculum
  → likely to extend the time you need to graduate
- You have to complete the required modules by the end of the second semester.
  They should be your top priorities!
- You will be automatically registered for these courses, but have to register for the exams yourself
  → Registration for these exams have to be done via PDF form:
  https://www.tf.uni-freiburg.de/de/studium-lehre/a-bis-z-studium/dokumente/Examregistration.pdf

Conditional admission – What does this mean for me?

- It is not sufficient to take the exam, you have to attend the course.
- If the lecturer requires any exercises or mid-term exams for admission to the final exam, you also have to fulfill these requirements.
- Exams required for conditional admission can only be repeated once (if failed).
- If a conditional course collides with one of your mandatory or elective courses, the **conditional course** should always have **higher priority**!
- Some conditional courses can be switched with their language counterpart (obviously you should know the language well enough, if doing this):
  - MST Bauelemente and MS Technologies and Processes
  - Sensors and Sensorik/Aktorik

Some words on intellectual honesty

- Intellectual honesty is important:
  You don‘t want someone (your co-workers?) to steal your work, so do not do it yourself!
- Do not falsify any results, either.
- Some well-known persons in Germany have fallen prey to plagiarism some years ago
  → *correct quoting is crucial!*
- **Severe consequences** if you get caught!
  (Failing the course or, if done repeatedly, expulsion possible!)

Quellen: wikimedia

Problems with your studies?

- If you have any questions or problems:
  Act immediately and do not procrastinate!
- Contacts & info sources:
  - Official information sources by university, faculty and study program
  - academic advising
  - Lecturers / assistants /mentors
    (face-to-face or via e-mail)
  - Fachschaft (departmental student committee)
  - Information centers like the Student Service Center, Office of Student Services etc.
  - fellow students

Academic Advising for ESE

Contact information:

- Martina Nopper
  (mainly Computer Science)
  Bld. 101, room 02-013a
  Phone: +49 (0) 761 / 203 – 8169
- Frank Goldschmidtböing
  (mainly MSE)
  Bld. 102, room 01 075
  Phone: +49 (0) 761 / 203 – 7496
- E-mail:
  studienberatung@ese.uni-freiburg.de
- https://www.tf.uni-freiburg.de/en/study-programs/counseling
  → Academic Advising ESE

Further contact points at our faculty

- Examination Office
  - Susanne Stork & Anne-Julchen Müller
  - https://www.tf.uni-freiburg.de/en/study-programs/counseling
    → Examinations Office Faculty of Engineering
- Student Advising on general matters
  - Ursula Epe
  - https://www.tf.uni-freiburg.de/en/study-programs/counseling
    → Program coordination and general study advice
- Fachschaft: (departmental student committee)
  - http://fachschaft.informatik.uni-freiburg.de

And after graduation?

- What could you do after you achieved your Master‘s Degree?

- Working in various companies
- Doing your PhD /
  Working on a research project
- ……
- …

Now good luck from my side

and

have fun with your studies!