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)

- 53 professors & group leaders, more than 450 employees, about 1800 students (ca. 17% female, 25% international)
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
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 gives you high flexibility
- Concentration areas and a Personal Profile allow for individual specialization
Time periods in the University year

- Lecture time: summer semester
- Exam period: winter semester
- Exam period: summer semester
- Lecture time: winter semester
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)

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

At least 51 overall
Concentrations and Personal Profile

Concentration areas

- Sensors and Actuators
- Design and Simulation
- Circuits and Systems
- Reliable Embedded Systems
- Distributed Systems
- Robotics and Computer Vision

Personal Profile
(at least 15 ECTS)

Select one = Concentration 1
(at least 15 ECTS)

Select one = Concentration 2
(at least 15 ECTS)

At least 51 ECTS
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)
You can select from

- all courses from the Master‘s programs for
  - MSE or MST
  - Computer Science
  @ the Faculty of Engineering

- Eligible courses are
  - Lectures + exercises / practical exercises or labs (usually 3 / 5 / 6 ECTS)
  - Lab courses (usually 3 / 6 ECTS)
  - Seminars (usually 4 ECTS)
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 on top of your 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/studium/pruefungen/formulare/allgemein_anmeldung.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 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
Conditional admission – possible additional subjects / courses

Winter semester:
- Technische Informatik (lecture + exercise, 8 ECTS, German)
- Algorithmen und Datenstrukturen für Studierende im Fach ESE (lecture + exercise, 4 ECTS, German but English recordings available)
- MST-Bauelemente (lecture, 3 ECTS, German)
- MST Technologies and Processes (lecture + exercise, 5 ECTS, English)
- Probability and statistics (lecture + exercise, 5 ECTS, English)
- Differentialgleichungen (lecture + exercise, 4 ECTS, German)

Summer semester:
- Einführung in die Elektrotechnik (lecture + exercise + lab, 9 ECTS, German)
- Fortgeschrittene Programmierung (Java or C++) (lecture + exercise, 4 ECTS, German)
- Werkstoffe und Mechanik (lecture + exercise, 6 ECTS, German)
German language course

- ... will be managed differently than in the last years...

⇒ Mrs. Nopper will give you more details after I’m done with this introduction...
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!
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
  - Information centers like the Student Service Center, Office of Student Services etc.
  - Lecturers / assistants / mentors 
    (face-to-face or via e-mail)
  - departmental academic advising
  - Fachschaft (departmental student committee)
  - 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/studium/beratungsstellen
Further contact points at our faculty

- **Examination Office**
  - Susanne Stork & Annika Hartwig
  - [http://www.tf.uni-freiburg.de/fakultaet/zentrale/pruefungsamt.html](http://www.tf.uni-freiburg.de/fakultaet/zentrale/pruefungsamt.html)

- **Student Advising on general matters**
  - Ursula Epe
  - [http://www.tf.uni-freiburg.de/fakultaet/zentrale/studiengangkoordination.html](http://www.tf.uni-freiburg.de/fakultaet/zentrale/studiengangkoordination.html)

- **Fachschaft: (departmental student committee)**
  - [http://fachschaft.informatik.uni-freiburg.de](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!
ADMINISTRATIVE TIPS AND TRICKS

Martina Nopper – Academic Advisor
Deep look at the mandatory courses

- You should take:
  - Cyber Physical Systems – Discrete Models (engl.)
  - Sensorik und Aktorik (dt.) / Sensors (engl.)
  - Assembly and Packaging Technology (engl.) / Aufbau- und Verbindungstechnik (dt.)
  - Micro electronics (engl.)
  - Modelling and system identification (engl.) (=Modellbildung und Systemidentifikation)

- Do those in your first or second semester, depending on your preferred language!
Deeper look at the mandatory courses

You have to **choose one** of the 6 Key courses (**Kursvorlesungen**) in Computer Science:

- **Key courses offered in summer semester:**
  - Computer Architecture / Rechnerarchitektur *(annually switching languages)*
  - Software Engineering / Softwaretechnik *(annually switching languages)*
  - Foundations of Artificial Intelligence / Grundlagen der Künstlichen Intelligenz *(annually switching languages)*

- **Key courses offered in winter semester:**
  - Image Processing and Computer Graphics / Bildverarbeitung und Computergrafik *(always in English)*
  - Algorithm Theory / Algorithmentheorie *(always in English)*
  - Databases and Information Systems / Datenbanken und Informationssysteme *(always in German)*

- If languages are changed each year, you will find up-to-date recordings in English
Deeper look at the mandatory courses

And you have to take

- Either a second key course
- Or one specialization course from Computer Science

There is a big selection of specialization courses. Some of them can also be found in the respective concentrations areas and all of them can also be chosen in your personal profile.

So please think about the category you want to put the course into, when registering for it in HISinOne.
Regarding the elective areas: once again a general overview

**Concentration areas**

- Sensors and Actuators
- Design and Simulation
- Circuits and Systems
- Reliable Embedded Systems
- Distributed Systems
- Robotics and Computer Vision

Select one (at least 15 ECTS)

**Personal Profile** (at least 15 ECTS)

Select one (at least 15 ECTS)

At least 51 ECTS
Elective areas: general rules

- Overall you have to complete courses amounting to **at least** 51 ECTS credits.
- You have to select 2 Concentration areas (one from Comp.Science., one from the technical side).
- 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).
- The number of lab courses is not limited.
Concentrations and Personal Profile

- Choose two concentration areas (one from each group) and do courses > 15 credits
- In your Personal Profile select courses > 15 credits from all courses from the Master’s programs for
  - MSE or MST
  - Computer Science
  offered by the Faculty of Engineering
  - Eligible courses are
    - Lectures + exercises / practical exercises or labs (usually 3 / 5 / 6 ECTS)
    - Lab courses (usually 3 / 6 ECTS)
    - Seminars (usually 4 ECTS)
- You may take at most 2 seminars overall; the number of lab courses is not limited.
This year **no** special B2-German course just for ESE students on TF campus.

Courses are offered at SLI (University’s language centre) according to your proficiency level.

Course times:
- **Monday + Wednesday** OR
- **Tuesday + Thursday** (due to clash with ESE curriculum on Thursday, Mon + Wed is strongly recommended)

Courses are **160 Euros per person and semester**

If you are subject to the new tuition fees (1500 EUR / semester) and if you complete the SLI course, the Faculty of Engineering will **reimburse** the 160 EUR to you upon submission of **Completion Certificate** of the German course
Register online **before the placement test:**
http://www.sli.uni-freiburg.de/course-catalogue/coursecatalogue#deutsch
(click on "German" → "German Evening courses Monday + Wednesday / A1 - C1" → "Registration“ → follow instructions)

**Mandatory placement test:**
Monday, October 16\textsuperscript{th} 2017, 6 p.m.
in KG II, AUDIMAX
Tips for your first week

- **Read the official exam regulations!**
  (= terms and conditions of your study program)

- Study the online course catalogue

- Check out as many courses as possible

- Most prerequisites stated in the course catalogue are recommendations, they are not mandatory

- Please note: The first exercise/tutorial might take place after the first lecture only; check with lecturer, if unsure

- Register (via HISinOne) for the courses you want to take as soon as possible

- You can cancel again any courses till the end of the lecture period!

- Information on dates for course registration:
  [http://www.tf.uni-freiburg.de/studies/calendar/dates.html](http://www.tf.uni-freiburg.de/studies/calendar/dates.html)
Registering for/ booking of courses

- Have a look at the course catalogue:
  [https://campus.uni-freiburg.de](https://campus.uni-freiburg.de)
  - Studies offered → Show university course catalog → Technische Fakultät → Master of Science (M.Sc.)
  - Embedded Systems Engineering (ESE), PO 2012

- For information on handling the Campus-Management-System see
  [http://www.tf.uni-freiburg.de/studies/online-systems/course_booking/belegung.html](http://www.tf.uni-freiburg.de/studies/online-systems/course_booking/belegung.html)
  or use the extensive wiki of HISinOne → Help → Guide for students

- If you have questions or made a mistake while registering: **Contact us!**
  (me or Ms. Gruenwald in the Dean‘s office: gruenwal@tf.uni-freiburg.de)
What to do if you forgot to register/book a course

- If you forgot to register for a course (or decide very late you would like to try it):
  - Go to the lecturer and ask if there are still places available and if it generally makes sense to start late
  - You can register yourself till the end of the lecture time, but the lecturer might also add you manually in the HISinOne system
  - The examination office can’t help you here!

- Registration for an exam in HISinOne is only possible if you are registered for the course!
Registration for exams

- It’s a second, independent step from the booking of the course. It’s **not** done automatically!
- The procedure is similar to booking the courses. For a how-to, see [http://www.tf.uni-freiburg.de/studies/online-systems/registration_instruction/anleitung-anmeldungHISinOne](http://www.tf.uni-freiburg.de/studies/online-systems/registration_instruction/anleitung-anmeldungHISinOne)
- Deadlines for the registration (and de-registration) for exams: [http://www.tf.uni-freiburg.de/studies/calendar/dates.html](http://www.tf.uni-freiburg.de/studies/calendar/dates.html)
- Without registering for an exam you are not allowed to take it, so **do not forget!**
- To make sure you are correctly registered, we recommend saving/printing the pdf of the in HISinOne → My studies → My course enrollments and exam registrations
How to proceed if you failed an exam

- Number of tries are limited:
  - Every exam can be tried 2 times
  - **Three exams** for courses in the required or elective modules can be tried 3 times
    This rule does not include lab courses or seminars.

- You are registered automatically for the repetition(s) and **cannot sign off**

- You **cannot** substitute a course you wrote an exam in with another one.
Improvement of a grade

- For exams in **2 courses**, that you already passed, you may try for an improvement of the grade in the **following semester** (i.e. repeating the exam).

- To register for an improvement, you have to contact the examination office, it can’t be done in HISinOne.

- This rule also excludes lab courses or seminars.
More information about all this…

- ... will be given by team from the examination office in the meeting „Introduction to exam regulations for Embedded Systems Engg.“ tomorrow:

- **Wednesday, Oct. 11th**
  11:00 – 12:00 a.m.
  Building 101 lecture hall 00 026
What to do in case of illness…

- If you are ill on the exam day,
  1. You should not take the exam! (You can’t „take it back“ once you did it…)
  2. Print the Medical certificate for Master students ([http://www.tf.uni-freiburg.de/studies/exams/forms](http://www.tf.uni-freiburg.de/studies/exams/forms))
  3. Go to a general practitioner **on the day of the exam** and ask him to fill the medical certificate
  4. Submit the filled medical certificate within **three work days** to the examination office

- If you are not sure what to do: Ask us!

10.10.2017
Introduction - Master ESE - M. Nopper
Where to get software you might need for your courses?

- The Computing Center (*Rechenzentrum*) offers lots of software and licenses like MATLAB, Mathematica or LabView:
  [https://www.rz.uni-freiburg.de/services-en/beschaffung-em/software-en](https://www.rz.uni-freiburg.de/services-en/beschaffung-em/software-en)

- For questions you may contact
  [lizenzen@rz.uni-freiburg.de](mailto:lizenzen@rz.uni-freiburg.de)
Information via Internet

Some useful links:

- Faculty of Engineering: [http://www.tf.uni-freiburg.de/studies](http://www.tf.uni-freiburg.de/studies)
- calendar, dates and deadlines: [http://www.tf.uni-freiburg.de/studies/calendar/dates.html](http://www.tf.uni-freiburg.de/studies/calendar/dates.html)
- information about exams etc.: [http://www.tf.uni-freiburg.de/studies/exams](http://www.tf.uni-freiburg.de/studies/exams)
- study plans: [http://www.tf.uni-freiburg.de/studies/degree_programmes/master/curriculum.html](http://www.tf.uni-freiburg.de/studies/degree_programmes/master/curriculum.html)
- academic rules (German version, i.e. the legally binding one): [https://www.tf.uni-freiburg.de/studium/pruefungsordnungen](https://www.tf.uni-freiburg.de/studium/pruefungsordnungen)
- for an English version (only as additional service) see [http://www.tf.uni-freiburg.de/studies/degree_programmes/master/mscese_en](http://www.tf.uni-freiburg.de/studies/degree_programmes/master/mscese_en)