Master of Science
Embedded Systems Engineering
Administrative Stuff

Martina Nopper, Academic Advisor
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I am ...

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- Frank Goldschmidtboing
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  - Building 102, room 01 075
- Mail: studienberatung@ese.uni-freiburg.de
I would like to show you...

- how to organize your studies / build your own study plan
- some administrative advice
- (limited to a bare minimum) some important rules regarding exams
- where you can get information and help
Important announcement:

- Introduction on exam rules etc. from the examination office team:

  Wednesday, November 13th, 1:00 – 2:00 p.m.
  Lecture Hall 101 00 036

- You will be reminded via mail, as will be done with other important information here at the faculty, so make sure your contact data in myAccount or HISinOne is correct!
Module types in the ESE program

- **Module Components**
  - Lectures – German: Vorlesung (V)
  - Exercises – German: Übung (Ü)
  - Laboratories – German: Praktische Übung (PrÜ)
  - Seminars – German: Seminar (S)

- **Pass/fail assessments (“Studienleistungen”)**
  - Exercises, reports, mid-term exams…
  - Are not part of your final grade, but may be part of a module (for example the exercise sheets)
  - Are not always graded (maybe only “pass” or “fail”) but if so, the mark is shown in the transcript

- **Graded assessments (“Prüfungsleistungen”)**
  - Written or oral exams, reports, presentations…
  - Are always graded and count into the final grade
# 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) [alternative: Sensors (English)]</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Aufbau- und Verbindungstechnik (German) / Assembly and Packaging Technology (English)</td>
<td>1 / 2</td>
<td>5</td>
</tr>
<tr>
<td>Microelectronics (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>
Mandatory Courses

5 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
Mandatory courses: 1. key course

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; SS2020 = German)
  - Software Engineering / Softwaretechnik (annually switching languages; SS2020 = English)
  - Foundations of Artificial Intelligence / Grundlagen der Künstlichen Intelligenz (always in English)

- **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)
Mandatory courses: 2. course (key or specialization)

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:
a general overview

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
Concentrations and Personal Profile: Which and how many courses to choose?

- Choose two concentration areas (one from each group) and do courses \( \geq 15 \) credits
- In your Personal Profile select courses \( \geq 15 \) credits from all *lectures, seminars or lab courses* from the Master’s programs for
  - MSE or
  - Computer Science
  - MST@ the Faculty of Engineering
- You may take as many courses as you need to fulfill the constraints, but no more (additional)!
- You may take at most 2 seminars overall; the number of lab courses is not limited.

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Please note: *Not* from the SSE program!
Conditional admission –
What does this mean for me?

- Conditional courses have to be fulfilled in addition to the regular 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 midterm 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!
Tips for your first week

- Read the official exam regulations!
  (= terms and conditions of your study program)
- Study the online course catalog
  (What is offered now? What belongs to which specialization area?)
- Check out a few more courses in the beginning than you intend to complete at the end of the semester
- Most prerequisites stated in the course catalog are recommendations; the few mandatory ones are clearly stated
- 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
- Please observe the registration deadlines!
  See https://www.tf.uni-freiburg.de/en/studies-and-teaching/calendar-dates
  → Booking deadlines (and seat allocation) for Bachelor and Master courses
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 (exam regulations, websites)
  - Academic advising
  - Lecturers / assistants / mentors (face-to-face or via e-mail)
  - Fachschaft TF (student committee here at the faculty)
  - Information centers like the Student Service Center, Office of Student Services etc.
  - Fellow students
Registering for/ booking of courses

- Have a look at the course catalogue:
  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 https://www.tf.uni-freiburg.de/en/studies-and-teaching/teaching/course-booking
  or use the extensive wiki of HISinOne → Help → Guide for students

- If you have questions or made a mistake while registering: **Contact us!**
  (Ms. Moses in the Dean‘s office: moses@tf.uni-freiburg.de or myself)
  (Screenshots might be helpful for us!)
Some impressions from the study planer (HISinOne)

- Mandatory area:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>11LE50KT-9000-88/787/02012</td>
<td>Master of Science in Embedded Systems Engineering</td>
<td>120.0</td>
</tr>
<tr>
<td>11LE50KO-9991</td>
<td>ECTS Credit Account Master of Science in Embedded Systems Engineering</td>
<td>120.0</td>
</tr>
<tr>
<td>11LE50KO-9991-K1</td>
<td>Mandatory Modules MSc in Embedded Systems Engineering</td>
<td>69.0</td>
</tr>
<tr>
<td>11LE50MO-8700</td>
<td>Master Module</td>
<td>30.0</td>
</tr>
<tr>
<td>11LE50KO-7700</td>
<td>Aufbau- und Verbindungstechnik / Assembly and packaging technologies</td>
<td>5.0</td>
</tr>
<tr>
<td>11LE50MO-7700</td>
<td>Assembly and packaging technology</td>
<td>5.0</td>
</tr>
<tr>
<td>11LE50MO-7700/986_PO_20091</td>
<td>Assembly and packaging technology</td>
<td>5.0</td>
</tr>
<tr>
<td>11LE50KO-2000</td>
<td>Key Modules Computer Science</td>
<td>12.0</td>
</tr>
<tr>
<td>11LE13MO-2010</td>
<td>Algorithmetheorie / Algorithms Theory</td>
<td>6.0</td>
</tr>
<tr>
<td>11LE13MO-2060</td>
<td>Datenverarbeitung und Informationssysteme / Data Bases and Information Systems</td>
<td>6.0</td>
</tr>
<tr>
<td>11LE13MO-2040</td>
<td>Grundlagen der Kunstlichen Intelligenz / Foundations of Artificial Intelligence</td>
<td>6.0</td>
</tr>
<tr>
<td>11LE13MO-2020</td>
<td>Rechnerarchitektur / Computer Architecture</td>
<td>6.0</td>
</tr>
<tr>
<td>11LE13MO-2030</td>
<td>Softwaretechnik / Software Engineering</td>
<td>6.0</td>
</tr>
<tr>
<td>11LE50KO-7050</td>
<td>Mikroelektronik / Micro-electronics</td>
<td>5.0</td>
</tr>
<tr>
<td>11LE50MO-7050-Micro-electronica</td>
<td>5.0  ECTS (2.of.2)</td>
<td></td>
</tr>
<tr>
<td>11LE50MO-7050/986-Micro-electronics</td>
<td>5.0  ECTS</td>
<td></td>
</tr>
<tr>
<td>11LE50MO-2080</td>
<td>Modellbildung und Systemidentifikation / Modelling and System Identification</td>
<td>6.0</td>
</tr>
<tr>
<td>11LE50KO-7500</td>
<td>Sensorik und Aktorik / Sensors</td>
<td>5.0</td>
</tr>
<tr>
<td>11LE50MO-7500-Sensors and actuators</td>
<td>5.0  ECTS</td>
<td></td>
</tr>
<tr>
<td>11LE50MO-7500/986-Sensors</td>
<td>5.0  ECTS</td>
<td></td>
</tr>
<tr>
<td>11LE50KO-7000</td>
<td>Specialization Modules Computer Science</td>
<td>6.0</td>
</tr>
</tbody>
</table>
Some impressions from the study planer (HISinOne)

- **Personal Profile – MSE:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>11LE50KO-9991-K2</td>
<td>Elective Modules Master of Science in Embedded Systems Engineering</td>
<td>51.0</td>
</tr>
<tr>
<td>11LE50KO-5800-787</td>
<td>Personal Profile</td>
<td>15.0</td>
</tr>
<tr>
<td>11LE50KO-5800-K1</td>
<td>Concentration Modules Microsystems Engineering</td>
<td></td>
</tr>
<tr>
<td>11LE50MO-5606-1</td>
<td>Oberflächenanalyse / Surface Analysis</td>
<td>3.0</td>
</tr>
<tr>
<td>11LE13MO-1340</td>
<td>Galaxy training course for life science high-throughput data analysis</td>
<td>6.0</td>
</tr>
<tr>
<td>11LE50MO-5303</td>
<td>Ausgewählte Problemstellungen in Biosignalverarbeitung / Selected Problems in Biosignal Processing</td>
<td>3.0</td>
</tr>
<tr>
<td>11LE68MO-9010b</td>
<td>Power Electronic Circuits and Devices</td>
<td>5.0 (2 of 2)</td>
</tr>
<tr>
<td>11LE50MO-5321</td>
<td>Bioaktive Polymeroberflächen / Bioactive Polymer Surfaces</td>
<td>3.0</td>
</tr>
<tr>
<td>11LE50MO-5322</td>
<td>Bioaktive Polymeroberflächen / Bioactive Polymer Surfaces</td>
<td>5.0</td>
</tr>
<tr>
<td>11LE50MO-5401-1</td>
<td>Biobrennstoffzelle und Bioelektrochemische Systeme / Biofuel Cells and Bioelectrochemical Systems</td>
<td>3.0</td>
</tr>
<tr>
<td>11LE50MO-5125</td>
<td>Bioinspirierte Funktionsmaterialien / Bioinspired functional materials</td>
<td>3.0</td>
</tr>
<tr>
<td>11LE50MO-780</td>
<td>Biology for Engineers</td>
<td>3.0 (1 of 1)</td>
</tr>
<tr>
<td>11LE50MO-7900</td>
<td>Biomedical Microsystems</td>
<td>5.0</td>
</tr>
<tr>
<td>11LE50MO-5701</td>
<td>Bionische Sensoren / Bionic Sensors</td>
<td>3.0 (1 of 1)</td>
</tr>
</tbody>
</table>
Some impressions from the study planer (HISinOne)

- Personal Profile – Computer Science:

  Multi-connected Elements (Please click on the respective heading to display the respective element):
  - Anerkanntes Spezialisierungsmodul Prüfung_1
  - Bioinformatik I / Bioinformatics I
  - Bioinformatik II / Bioinformatics II
  - Compilerbau / Compiler Construction
  - Computer Vision
  - Cyber-Physikalische Systeme - Hybrid-Modelle / Cyber-Physical Systems – Hybrid Models
  - Datenanalyse und Abfragesprachen / Data Analysis and Query Languages
  - Drahtlose Sensornetze / Wireless Sensor Networks

Green-red arrows mean „multi connected element“ – to show it as a full module in the current place, click on it!
Some impressions from the study planer (HISinOne)

- Personal Profile – Computer Science part 2:

  - 11LE50KO-5800-K1 - Concentration Modules Microsystems Engineering
  - 11LE50KO-5800-K2 - Specialization Modules in Computer Science
  - 11LE50KO-5800-K3 - Seminar / Seminars Computer Science
    - 11LE13MO.7300.S1 - Seminar in Robotics and Computer Vision - 4.0 ECTS
    - 11LE13MO.7300.S2 - Seminar in Robotics and Computer Vision - 4.0 ECTS
    - 11LE13MO.7200.S1 - Seminar in Distributed Systems - 4.0 ECTS
  - 11LE13MO.7200.S2 - Seminar in Distributed Systems - 4.0 ECTS
  - 11LE13MO.7100.S1 - Seminar in Reliability Embedded Systems - 4.0 ECTS
  - 11LE13MO.7100.S2 - Seminar in Reliability Embedded Systems - 4.0 ECTS
  - 11LE50KO-5800-K4 - Laboratory / Laboratories Computer Science
    - 11LE13MO.7300.P1 - Laboratory in Robotics and Computer Vision - 6.0 ECTS
    - 11LE13MO.7300.P2 - Laboratory in Robotics and Computer Vision - 6.0 ECTS
    - 11LE13MO.7300.P3 - Laboratory in Robotics and Computer Vision - 6.0 ECTS
    - 11LE13MO.7200.P1 - Laboratory in Distributed Systems - 6.0 ECTS
    - 11LE13MO.7200.P2 - Laboratory in Distributed Systems - 6.0 ECTS
    - 11LE13MO.7100.P1 - Laboratory in Reliable Embedded Systems - 6.0 ECTS
    - 11LE13MO.7100.P2 - Laboratory in Reliable Embedded Systems - 6.0 ECTS
  - 11LE50KO-5800-K5 - Key Module / Key Modules Computer Science

Multi-connected Elements (Please click on the respective heading to display the respective element):

- Algorithmtheorie / Algorithms Theory
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
  - For lectures, 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 difficult if you did not register for the course!
Examination rules and regulations

- As announced at the start of this presentation:
  The introduction on exam rules etc. from the examination office team will take place on **Wednesday, November 13th, 1 – 2 p.m.**

- Please attend that meeting! It’s important!

- *Today, I’ll keep it short and only mention the minimum…*
Registration for exams

- It’s a second, independent step from booking the course. It’s **not** done automatically!
- The procedure is *similar* to booking the courses. For a how-to, see [https://www.tf.uni-freiburg.de/en/studies-and-teaching/a-to-z-study-faq/de-registration-of-exams](https://www.tf.uni-freiburg.de/en/studies-and-teaching/a-to-z-study-faq/de-registration-of-exams)
- **Deadlines** for the registration (and de-registration) for exams are also mentioned on this website.
- 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 attempts are limited:
  - Every exam can be tried 2 times
  - **Three exams** for courses in the required or elective modules can be attempted **3 times**
    This rule *excludes* lab courses or seminars!

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

- You **cannot** substitute a course you already took an exam in with another one!
Improvement of a grade

- Possible for your study program in 2 courses. (Not all study programs have this possibility!)
- It has to be done 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 excludes lab courses or seminars.
Missing an exam: unexcused or authorized withdrawals

- If you do not attend an exam that you registered for, it counts as failed, unless you have a valid excuse.

- Valid excuses can be
  - Due to illness (→ doctor‘s note, use form „Application for Exam Withdrawal Approval Due to Illness“, see https://www.tf.uni-freiburg.de/en/studies-and-teaching/a-to-z-study-faq)
  - Due to emergencies in family etc. (please contact examination office immediately)
Information via Internet

Some useful links:

- Faculty of Engineering:  
  https://www.tf.uni-freiburg.de/en/studies-and-teaching

- Calendar, dates and deadlines:  
  https://www.tf.uni-freiburg.de/en/studies-and-teaching/calendar-dates

- Information about exams etc.:  
  https://www.tf.uni-freiburg.de/en/studies-and-teaching/a-to-z-study-faq

- Study plans, syllabus, academic rules:  
  https://www.tf.uni-freiburg.de/en/studies-and-teaching/module-handbooks
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/beschaffung/software

- For questions you may contact lizenzen@rz.uni-freiburg.de