Master of Science Embedded Systems Engineering

Administrative Stuff

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October 15th 2019

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I am …

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    (→ corridor „Prüfungsamt")
  - Consulting hours:
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My counterpart in the MSE Department:

- Frank Goldschmidtböing
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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 exmination 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)

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
Microelectronics (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

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

Select one = Concentration 1 (at least 15 ECTS)

+

Personal Profile (at least 15 ECTS)

+

Select one = Concentration 2 (at least 15 ECTS)

At least 51 ECTS

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

- Choose two concentration areas (one from each group) and do courses >= 15 credits
- In your Personal Profile select courses >= 15 credits from all *lectures, seminars or lab courses* from the Master's programs for
  - MSE or
  - Computer Science
  - MST@ the Faculty of Engineering

Please note: **Not** from the SSE program!

- You may take as many courses as you need to fullfill the constraints, but no more (additional)!
- You may take at most 2 seminars overall; the number of lab courses is not limited.

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 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**!

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

If you don't find the information, maybe try utilizing a search engine…

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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:

11LE50KT-9000-88/787/0/2012 - Master of Science in Embedded Systems Engineering - 120.0 ECTS

11LE50KO-9991 - ECTS Credit Account Master of Science in Embedded Systems Engineering - 120.0 ECTS

11LE50KO-9991-K1 - Mandatory Modules MSc in Embedded Systems Engineering - 69.0 ECTS

11LE50MO-8700 - Master Module - 30.0 ECTS

11LE50KO-7700 - Aufbau- und Verbindungstechnik / Assembly and packaging technologies - 5.0 ECTS

11LE50MO-7700 - Assembly and packaging technology - 5.0 ECTS

11LE50MO-7700/986_PO 20091 - Assembly and packaging technology - 5.0 ECTS

11LE13MO-2070 - Cyber-Physikalische Systeme - Diskrete Modelle / Cyber-Physical Systems – Discrete Models - 6.0 ECTS (2 of 2)

11LE50KO-2000 - Key Modules Computer Science - 12.0 ECTS

11LE13MO-2010 - Algorithmentheorie / Algorithms Theory - 6.0 ECTS

11LE13MO-2050 - Bildverarbeitung und Computergraphik / Image Processing and Computer Graphics - 6.0 ECTS

11LE13MO-2060 - Datenbanken und Informationssysteme / Data Bases and Information Systems - 6.0 ECTS

11LE13MO-2040 - Grundlagen der Künstlichen Intelligenz / Foundations of Artificial Intelligence - 6.0 ECTS

11LE13MO-2020 - Rechnerarchitektur / Computer Architecture - 6.0 ECTS

11LE13MO-2030 - Softwaretechnik / Software Engineering - 6.0 ECTS

11LE50KO-7050 - Mikroelektronik / Micro-electronics - 5.0 ECTS

11LE50MO-7050 - Micro-electronics - 5.0 ECTS (2 of 2)

11LE50MO-7050/986 - Micro-electronics - 5.0 ECTS

11LE50MO-2080 - Modellbildung und Systemidentifikation / Modelling and System Identification - 6.0 ECTS

11LE50KO-7500 - Sensorik und Aktorik / Sensors - 5.0 ECTS

11LE50MO-7500 - Sensors and actuators - 5.0 ECTS

11LE50MO-7500/986 - Sensors - 5.0 ECTS

11LE50KO-7000 - Specialization Modules Computer Science - 6.0 ECTS

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Some impressions from the study planer (HISinOne)

- Personal Profile – MSE:

11LE50KO-9991-K2 - Elective Modules Master of Science in Embedded Systems Engineering - 51.0 ECTS

11LE50KO-5800-787 - Personal Profile - 15.0 ECTS

11LE50KO-5800-K1 - Concentration Modules Microsystems Engineering

11LE50MO-5606-1 - Oberflächenanalyse / Surface Analysis - 3.0 ECTS

11LE13MO-1340 - Galaxy training course for life science high-throughput data analysis - 6.0 ECTS

11LE50MO-5303 - Ausgewählte Problemstellungen in Biosignalverarbeitung / Selected Problems in Biosignal Processing - 3.0 ECTS

11LE68MO-9010b - Power Electronic Circuits and Devices - 5.0 ECTS (2 of 2)

11LE50MO-5321 - Bioaktive Polymeroberflächen / Bioactive Polymer Surfaces - 3.0 ECTS

11LE50MO-5322 - Bioaktive Polymeroberflächen / Bioactive Polymer Surfaces - 5.0 ECTS

11LE50MO-5401-1 - Biobrennstoffzelle und Bioelektrochemische Systeme / Biofuel Cells and Bioelectrochemical Systems - 3.0 ECTS

11LE50MO-5125 - Bioinspirierte Funktionsmaterialien / Bioinspired functional materials - 3.0 ECTS

11LE50MO-780 - Biology for Engineers - 3.0 ECTS (1 of 1)

11LE50MO-7900 - Biomedical Microsystems - 5.0 ECTS

11LE50MO-5701 - Bionische Sensoren / Bionic Sensors - 3.0 ECTS (1 of 1)

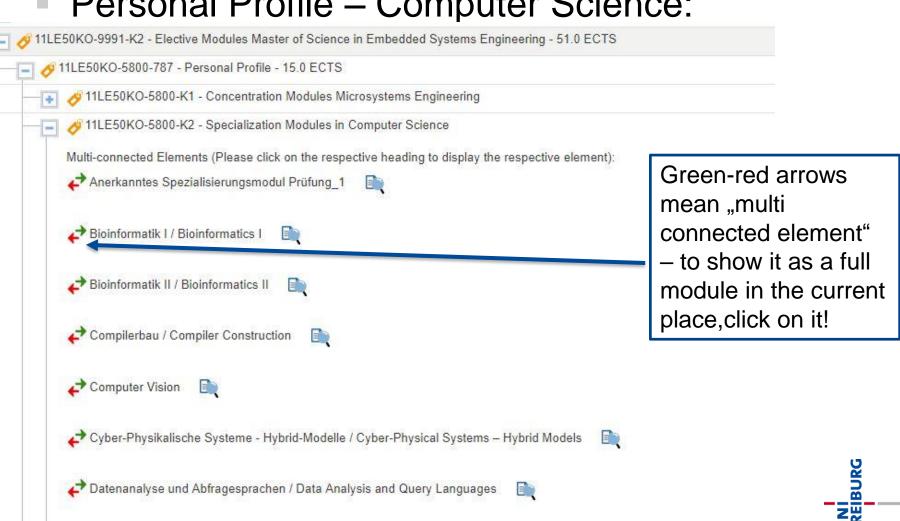UNI FREIBURG

Some impressions from the study planer (HISinOne)

■ Personal Profile – Computer Science:

11LE50KO-9991-K2 - Elective Modules Master of Science in Embedded Systems Engineering - 51.0 ECTS

11LE50KO-5800-787 - Personal Profile - 15.0 ECTS

11LE50KO-5800-K1 - Concentration Modules Microsystems Engineering

11LE50KO-5800-K2 - Specialization Modules in 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!

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Some impressions from the study planer (HISinOne)

■ Personal Profile – Computer Science part 2:

- ⊟ 🔖 11LE50KO-5800-787 - Personal Profile - 15.0 ECTS
  - ⊞ 🔖 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):

↩ Algorithmentheorie / Algorithms Theory 📄

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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 exmination office team will take place on **Wednesday, November 13th, 1 – 2 p.m.**

- Please attand 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

- **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 repetitison(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 withdrawels

- 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 ($\rightarrow$ 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