

M.Sc. Microsystems Engineering

Comparison of syllabus 2018 vs. 2021

Albert-Ludwigs-Universität Freiburg



**UNI
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In general...

- Modules will have **3, 6 or 9** ECTS credits
- Most of the modules that were worth **5** ECTS before, **will be changed to 6**

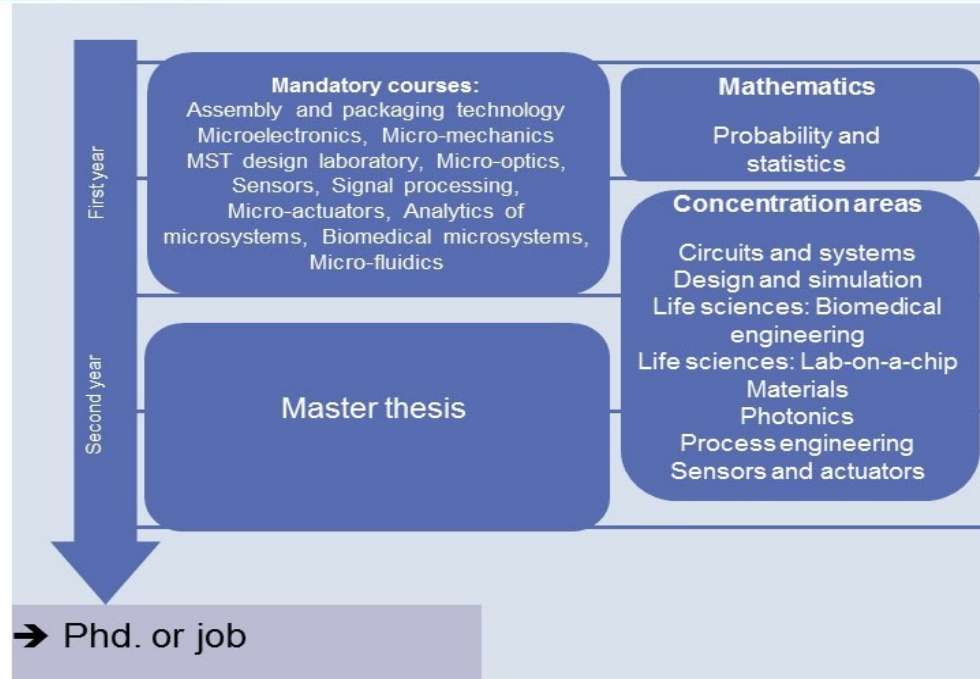


At a glance: turning old...

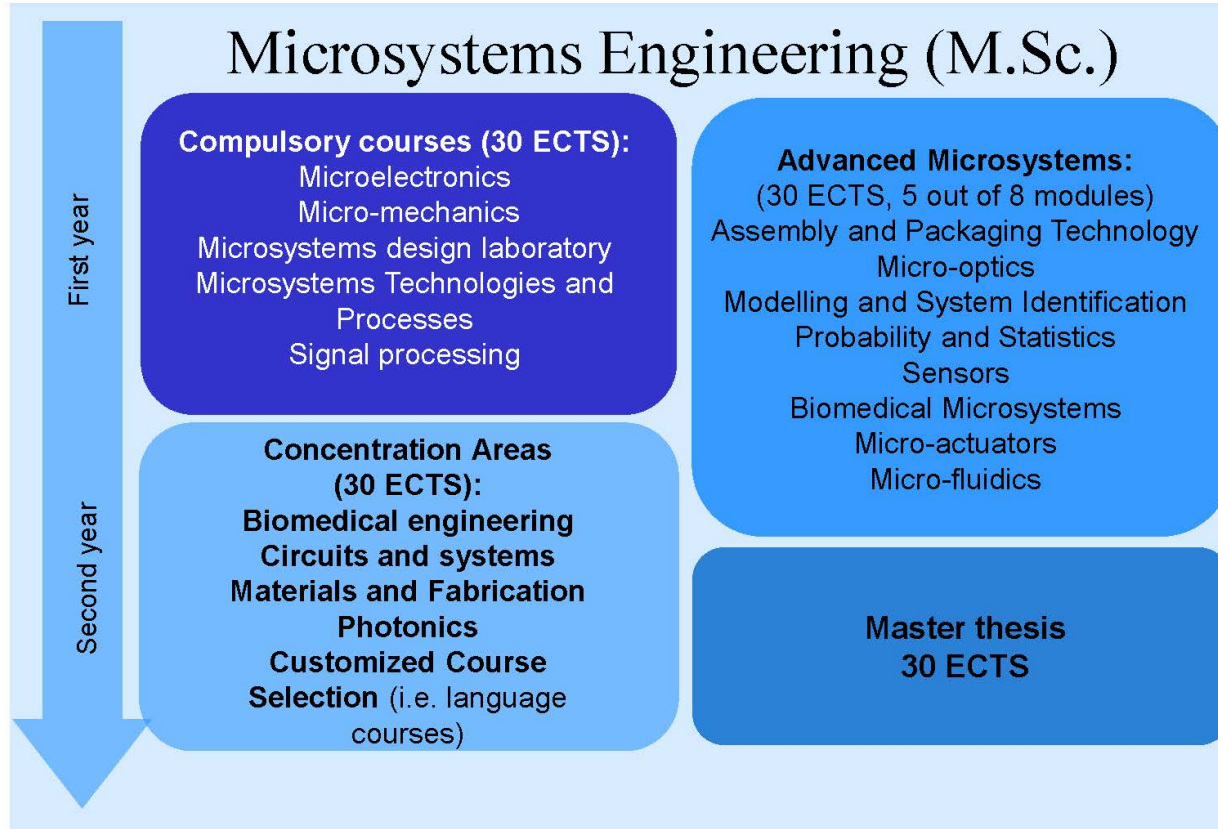


Curriculum Microsystems Engg.

Albert-Ludwigs-Universität Freiburg



...into new!



Compulsory Modules



PO 2018

Compulsory modules „Advanced Microsystems engineering“ (**10x5; 1x3= 53 ECTS**)

- Micro-mechanics
- Micro-electronics
- MST technologies and processes
- Micro-optics
- Assembly and packaging technology
- Biomedical microsystems
- Micro-actuators
- Micro-fluidics
- MST design laboratory I
- Signal processing
- Probability and Statistics

PO 2021

There are only **five compulsory modules (5x6= 30 ECTS)**:

- Micro-electronics
- Micro-mechanics
- Microsystems Technologies and Processes
- Microsystems Design Laboratory I
- Signal Processing

Compulsory elective modules



The following **compulsory modules** will become **compulsory elective modules**:

- Micro-optics
- Sensors
- Probability and Statistics
- Assembly and packaging technology
- Micro-fluidics
- Biomedical Microsystems
- Micro-actuators

A **new module** is added to this list of compulsory elective modules:

- **Modelling and System Identification**

You have to choose **5 out of these 8 compulsory elective modules** (5x6= 30 ECTS)

Concentration Areas



PO 2018

Eight concentrations

- Circuits and systems
 - Sensors and actuators
 - Life sciences: Biomedical engineering
 - Life sciences: Lab-on-a-chip
 - Materials
 - Design and simulation
 - Photonics
 - MEMS processing
-
- You choose **two concentration areas**
 - At least **32 ECTS** and at least 9 ECTS in each of the concentrations

PO 2021

The **concentration areas** will be **reduced to four**, but they will contain more modules

- **Circuits and Systems** (includes the old areas Circuits & Systems and Sensors & Actuators)
 - **Biomedical Engineering** (includes the old areas Biomedical Engg. and Lab-on-a-Chip)
 - **Materials and Fabrication** (includes the old areas Materials and Design & simulation)
 - **Photonics**
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- You can only choose **one concentration area**
 - At least **30 ECTS**

Personal Profile vs. Customized Course Selection



- Personal Profile
 - The **Personal Profile** will be **abolished**
 - Instead, there will be a **Customized Course Selection (9 ECTS)** area
 - In this area you can complete courses from other departments, German language courses, Project Management, Scientific Writing

Master's thesis



PO 2018

- Master's thesis (**30 ECTS**)
- Presentation
- You need to have at least **56 ECTS** credits to start your thesis
- Maximum duration **12 months**

PO 2021

- Master's thesis (**27 ECTS**)
- Presentation (**3 ECTS**)
- You need to have **72 ECTS** points to start with your master's thesis
- The duration of the master thesis is reduced **from 12 to 6 months**

Exam regulations: NEW!



If you fail in a compulsory elective or concentration course, you can drop the course and take another course.

!This can only be done once!

Repeating an exam that you have passed, to improve your mark, **is only possible in one module** (old regulations: two modules).

If you complete **all 30 ECTS points in one concentration area** (without taking anything in the Customized Course Selection area) and the **topic of your thesis belongs to the same area, this area will be stated as a specialization in your master certificates.**

Should I switch to the new exam regulations?



The changes have different implications for individual students. Please consider your own situation and whether a change would adversely affect you. If so, **declare that you want to remain in the old version within the given time period (deadline: September 15th, 2021)**

Yes, if

- you have started the programme in the winter semester 20/21

No, if

- you have already started or completed your master's thesis
- **Please object the transfer**
- If you have already completed all mandatory modules and elective modules (concentrations)
- **Please object the transfer**



What happens if I have already taken all the modules that were mandatory according to the old exam regulations?

- No modules will get lost. The surplus modules will be transferred to an account called “additional modules from PO 2018”; the marks obtained in these modules will still be included in your final grade
→ **Important:** depending on the number of modules already completed, you may only be able to take a very limited amount of concentration courses

What happens if I have failed one or several exams and still have to repeat them?

- In that case you will have to complete these modules even after being transferred to the new exam regulations
→ If you fail in a compulsory elective or concentration course, you can drop the course and take another course; however, this can only be done once

What happens if the concentration courses I took belong to more than one of the new concentration areas?

- There will be an additional account in HISinOne for “additional modules from PO 2018”; any surplus modules will be transferred to this account; the marks obtained in these modules will still be included in your final grade
→ **Important:** depending on the number of modules already completed, you may only be able to take a very limited amount of concentration courses
- Please note: When you switch to the new exam regulations, the ECTS of some modules/courses will be adjusted accordingly → new structure: 3, 6 or 9 ECTS, not 4 or 5

Please take into consideration...



- A change can have advantages and, in individual cases, disadvantages, depending on your individual progress and the modules already completed
- If you are not sure what the consequences of changing the examination regulations would be in your specific case, we recommend to contact the programme coordinator for consultation