

## **Unofficial Translation**

### **Excerpt from the**

# **Examination Regulations for the Degree Program Master of Science (M.Sc.)**

## **Appendix B. Program-specific provisions for the Examination Regulations for the Master of Science (M.Sc.)**

### **Microsystems Engineering**

#### **§ 1 Program outline**

The Master in Microsystems Engineering degree program is consecutive and research-oriented.

#### **§ 2 Admissions requirements**

The admissions requirements and recognized academic qualifications are specified in the Admissions Regulations for the Master in Microsystems Engineering Degree Program.

#### **§ 3 Program scope**

The Master in Microsystems Engineering degree program comprises coursework equivalent to 120 ECTS credits.

#### **§ 4 Program start**

Students may only start the Master in Microsystems Engineering degree program in the winter semester.

#### **§ 5 Language**

The courses are held in English.

#### **§ 6 Mentors**

Each student is assigned a professor as a mentor.

#### **§ 7 Coursework (Studienleistungen)**

Coursework may, for example, consist of exercise sheets or reports.

#### **§ 8 Course-based graded assessments (Prüfungsleistungen)**

(1) Each module includes course-based written, oral, or practical assessments. The type and scope of course-based graded assessments are specified in the current module handbook and are announced to the students no later than at the beginning of the courses in each module.

(2) Written exams have a maximum duration of 30 minutes per ECTS credit. Oral exams have a maximum duration of 10 minutes per ECTS credit.

### **§ 8a Determination of module grades**

- (1) If the module includes partial module examinations, the module grade is calculated as follows:
  - a) Lecture and exercise course format: The course-based assessment counts for 2/3 and the exercise for 1/3 of the module grade.
  - b) Lecture and laboratory course format: The course-based assessment counts for 2/3 and the laboratory course for 1/3 of the module grade.
- (2) The grade for the “Master Thesis” module is composed of the grades for the master thesis itself (4/5) and for the presentation of the thesis (1/5).

**§ 9** *(removed)*

**§ 10** *(removed)*

### **§ 11 Admission to prepare the master thesis**

Admission to prepare the master thesis is only open to students who have obtained a minimum of 56 ECTS credits.

### **§ 12 Scope and presentation of the master thesis**

- (1) The master thesis must be completed within a period of no more than 12 months. The master thesis and the presentation of findings are worth a total of 30 ECTS credits. The deadline cannot be extended.
- (2) The master thesis must be written in English or German.
- (3) The master thesis is presented in a final colloquium. Candidates are admitted to the final colloquium after submission of the master thesis. The final colloquium is held in the presence of the examiners and is generally open to university members. The deliberations of the panel and the announcement of the results are not open to visitors.
- (4) The master thesis must be submitted in three bound hard copies.

### **§ 13 Determination of the overall grade**

- (1) The overall grade is calculated on the basis of the average (weighted arithmetic average) of all module grades with a single weighting based on their specific ECTS credits in accordance with § 15 of these program-specific provisions.
- (2) Students who receive the grade “very good” – 1.3 or better – on all module examinations are awarded the distinction “with honors.”

### **§ 14 Repeating failed course-based graded assessments**

Course-based graded assessments that have been graded “non-sufficient” (5.0) or considered failed may be repeated once. In addition, a total of two course-based assessments may be retaken a second time. The first exam retake must take place during the next possible examination session. The second exam retake must take place no later than the second possible examination session after the first retake.

### **§ 14a Repeating course-based graded assessments in order to improve grades**

In no more than two modules, students may repeat module exams successfully completed within their first two semesters once in order to achieve a better grade. The original exam must have been taken by the end of the program semester specified in the curriculum. The exam with the best passing grade is counted. Any exam retake for the purpose of improving a grade must take place during the next possible examination session.

### **§ 15 Program curriculum**

(1) Students matriculated in the Master in Microsystems Engineering degree program must complete all modules in the compulsory area “Advanced Microsystems Engineering.”

Module	Semester	Type	Form of assessment	ECTS credits
Modules in the area “Advanced Microsystems Engineering”				53
Micromechanics	1	L, Ex	written or oral	5
Microelectronics	1	L, Ex	written or oral	5
MST Technologies and Processes	1	L, Ex	written or oral	5
Micro-optics	1	L, Ex	written or oral	5
Sensors	1	L, LC	written or oral	5
Assembly and Packaging Technology	2	L, Ex	written or oral	5
Biomedical Microsystems	2	L, Ex	written or oral	5
Microactuators	2	L, Ex	written or oral	5
Microfluidics	2	L, Ex	written or oral	5
MST Design Laboratory I	1	LC	written or oral	3
Signal Processing	2	L, Ex	written or oral	5

(2) Students must also complete the “Mathematics” and “Master Thesis” modules.

Module	Semester	Type	Form of assessment	ECTS credit
Module in the area of “Mathematics”				
Probability and Statistics	1	L, Ex	written or oral	5
“Master Thesis” module				30
Master Thesis	3–4		written or oral	30

(3) In the elective area “Microsystems Concentrations,” students must select two concentration areas from the list below. Concentrations modules I, II, and/or III must be taken in each of the selected concentration areas for a total of at least 32 ECTS credits. In each of the two selected concentration areas concentrations modules worth a total of at least 9 ECTS credits must be taken. The type and scope of the courses within the concentration areas and the type and scope of the course-based graded assessments and/or coursework necessary for completing them are described each academic year in the module handbook and are announced to the students no later than the beginning of the courses in that module.

Concentration areas:  
 Circuits and Systems  
 Design and Simulation  
 Life Sciences: Biomedical Engineering  
 Life Sciences: Lab-on-a-Chip  
 Materials  
 MEMS Processing  
 Photonics  
 Sensors and Actuators  
 Personal Profile

Module	Semester	Type	Form of assessment	ECTS credits
“Microsystem Concentrations” elective modules				32
Circuits and Systems Concentrations – Module I	2–4	LExLCS	written or oral	3
Concentrations – Module II	2–4	LExLCS	written or oral	5
Concentrations – Module III	2–4	LExLCS	written or oral	6
Design and Simulation Concentrations – Module I	2–4	LExLCS	written or oral	3
Concentrations – Module II	2–4	LExLCS	written or oral	5
Concentrations – Module III	2–4	LExLCS	written or oral	6
Life Sciences: Biomedical Engineering Concentrations – Module I	2–4	LExLCS	written or oral	3

Concentrations – Module II	2–4	LExLCS	written or oral	5
Concentrations – Module III	2–4	LExLCS	written or oral	6
Life Sciences: Lab-on-a-Chip				
Concentrations – Module I	2–4	LExLCS	written or oral	3
Concentrations – Module II	2–4	LExLCS	written or oral	5
Concentrations – Module III	2–4	LExLCS	written or oral	6
Materials				
Concentrations – Module I	2–4	LExLCS	written or oral	3
Concentrations – Module II	2–4	LExLCS	written or oral	5
Concentrations – Module III	2–4	LExLCS	written or oral	6
MEMS Processing				
Concentrations – Module I	2–4	LExLCS	written or oral	3
Concentrations – Module II	2–4	LExLCS	written or oral	5
Concentrations – Module III	2–4	LExLCS	written or oral	6
Photonics				
Concentrations – Module I	2–4	LExLCS	written or oral	3
Concentrations – Module II	2–4	LExLCS	written or oral	5
Concentrations – Module III	2–4	LExLCS	written or oral	6
Sensors and Actuators				
Concentrations – Module I	2–4	LExLCS	written or oral	3
Concentrations – Module II	2–4	LExLCS	written or oral	5
Concentrations – Module III	2–4	LExLCS	written or oral	6
Personal Profile				
Concentrations – Module I	2–4	LExLCS	written or oral	3
Concentrations – Module II	2–4	LExLCS	written or oral	5
Concentrations – Module III	2–4	LExLCS	written or oral	6

Abbreviations used in the tables:

Semester = recommended program semester / Type = type of course

L = lecture / Ex = exercise / LC = Lab course / S = seminar

#### Publication of the text of the statute in German:

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