Unofficial Translation

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.)

Computer Science

§ 1. Program Outline

(1) The Master degree program in Computer Science is research-oriented and consecutive.

(2) The Master degree program in Computer Science provides students with methodological, field-specific, and practical skills in the core areas of computer science. In addition, the students acquire specialist knowledge depending on their individual specializations in one of the three following in depth areas: Cognitive Technical Systems, Cyber-Physical Systems, or Information Systems. One of the main goals of the Master degree program is to train students to undertake independent research work in these areas. As a means of establishing a connection between the content taught in the degree program and its practical applications, students are required to complete an elective module with courses in a field of application of computer science (such as Mathematics, Microsystems Engineering, Psychology, Medicine, Economics, Physics, Bioinformatics, or Cognitive Science). In the seminars and practical courses as well as in the master project, students receive training in social skills in addition to learning field-specific knowledge.

§ 2. Program Start and Program Scope

(1) Students may start the Master degree program in Computer Science at the beginning of either the winter or the summer semester.

(2) The Master degree program in Computer Science comprises coursework equivalent to 120 ECTS credits.

§ 3. Language

(1) Courses and exams in the Master degree program in Computer Science are generally held in German or English. Graded assessments for courses held in German may also be completed in English upon request.

(2) Courses offered in the application area and the examinations for them may also be held in another language.

§ 4. Program curriculum

(1) Students of the Master degree program in Computer Science must complete the modules listed in the table below according to the provisions specified in paragraphs 2 to 7. All available courses in the individual modules are listed and described in detail in the current module handbook. Depending on course offerings, specialization courses may be organized either as a lecture with an exercise, as a lecture with an exercise and a seminar, or as a lecture with a seminar.

Module Course	**Type**	**SWS**	**ECTS credits**	**C/CE**	**Semester**	**Form of assessment**
Core Areas of Computer Science						
Key course 1	L+ Ex	4	6	CE	1 or 2	PL: written/oral
Key course 2	L+ Ex	4	6	CE	1 or 2	SL

Advanced Computer Science						
Specialization course 1	L, Ex, S	4	6	CE	1 to 3	PL: written/oral
Specialization course 2	L, Ex, S	4	6	CE	1 to 3	PL: written/oral
Specialization in Computer Science I						
Specialization Course I1	L, Ex, S	4	6	CE	1 to 3	PL: written/oral
Specialization Course I2	L, Ex, S	4	6	CE	1 to 3	PL: written/oral
Specialization in Computer Science II						
Specialization Course II1	L, Ex, S	4	6	CE	1 to 3	PL: written/oral
Specialization Course II2	L, Ex, S	4	6	CE	1 to 3	PL: written/oral
Specialization in Computer Science III						
Numerics Part 1	L + Ex	3	4	CE	1	SL
Numerics Part 2	L + Ex	3	4	CE	2	SL
Specialization Course III1	L, Ex, S	3	4	CE	1 to 3	PL: written/oral
Seminar						
Seminar 1	S	2	4	C	1 to 3	SL
Seminar 2	S	2	4	C	1 to 3	SL
Lab Course						
Lab Course	LC	4	6	C	1 to 3	SL
Application area						
Courses from other fields or interdisciplinary project	variable	variable	18	C	2 and 3	PL: written/oral
Master Project						
Project or Research Paper	project	variable	16	C	3	PL: presentation
Master Module						
Master Seminar Master Thesis	S –	variable –	5 25	C	4	SL: colloquium PL: master thesis

Abbreviations used in the table:
Type = type of course; SWS = contact hours per week; Semester = recommended program semester; C = compulsory; CE = compulsory elective; SL = pass/fail assessment (Studienleistung); PL = graded assessment (Prüfungsleistung); L = lecture; Ex = exercise; S = seminar; LC = lab course

(2) Students who take Key Course 1 and Key Course 2 from the module Core Areas of Computer Science must take Specialization Course 1 from the module Advanced Computer Science. All other students must take Key Course 1 from the module Core Areas of Computer Science in combination with Specialization Course 1 and Specialization Course 2 from the module Advanced Computer Science.

(3) Students must complete two of the three modules Specialization in Computer Science I to III. The courses to be completed for these two specialization modules should all be chosen from the same specialization area: Cognitive Technical Systems, Cyber-Physical Systems, or Information Systems; exceptions to this rule are the courses Numerics Part 1 and Part 2, which are offered by the Institute of Mathematics. The courses Numerics Part 1 and Part 2 are held in German.

(4) In the Seminar module students must complete two seminars from the courses offered by the Department of Computer Science. At least one of these two seminars must be chosen from the specialization area chosen in accordance with paragraph 3 clause 2.

(5) In the Lab Course module, students must complete a lab course from the master-level courses offered by the Department of Computer Science.

(6) In the application area, which is worth 18 ECTS credits, students must complete courses from a subject offered by other departments. Alternatively, it is also possible to complete an interdisciplinary project, in the context of which the student must either complete a thematically suitable course with a graded assessment

in the field of said application, or a research paper. The Board of Examiners decides which courses from other departments may be taken in the application area. These courses are listed in the current module handbook. The Board of Examiners may grant students approval to take suitable courses from other departments that are not listed in the module handbook upon request. The Board of Examiners decides on the suitability of interdisciplinary projects.

(7) In the Master Project module, students must complete either a project or a research paper on a topic from the specialization area they chose as described in paragraph 3 clause 2.

§ 5 Coursework (Studienleistungen)

Coursework may for example consist of a regular attendance in class, written exams, reports or papers. The type and scope of coursework are defined in the current module handbook and are announced to the students at the beginning of each course in the particular module.

§ 6. Course-based graded assessments (Prüfungsleistungen)

(1) Written course-based graded assessments usually take the form of supervised written exams, tests, research papers, or reports. Oral graded assessments are presentations and oral exams (exam interviews). The type and scope of graded assessments are defined in the current module handbook and are announced at the beginning of the courses of each module.

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

(3) Oral exams have a maximum duration of ten minutes per ECTS credit.

§ 7. Repeating course-based graded assessments

(1) Course-based graded assessments that have been graded “non-sufficient” (5.0) or considered failed may be repeated once. In addition, a total of three failed graded assessments in the modules Core Areas of Computer Science, Advanced Computer Science, and Specialization in Computer Science I to III may be retaken a second time.

(2) In order to retake a failed graded assessment a second time, the student must usually retake the relevant course.

§ 8 *(removed)*

§ 9 Admission to prepare the master thesis

Admission to prepare the master thesis is only open to students who have successfully completed modules in the Master degree program in Computer Science worth a total of at least 75 ECTS credits. Students who were admitted to the Master degree program in Computer Science on the condition that they complete additional modules from the German-taught Bachelor degree program in Computer Science or equivalent bridging courses in English due to a lack of proficiency in the foundations of computer science and advanced computer science in accordance with section 2 paragraph 3 of the Admissions Regulations of the University of Freiburg for the Master degree program in Computer Science may only be admitted to prepare the master thesis after also having completed all coursework and assessments for these conditional courses.

§ 10. Master thesis

(1) The master thesis must be completed within a period of six months and is worth 25 ECTS credits.

(2) Further to the provisions under section 20 paragraph 3 of these examination regulations, the topic of the master thesis is set by an authorized examiner according to section 10 paragraph 1 clause 1 who is employed full time as a computer science lecturer at the Albert-Ludwigs-University’s Faculty of Engineering; this examiner is then obligated to supervise the master thesis.

(3) The master thesis must be written in either German or in English.

(4) The master thesis must be submitted to the Examination Office in three bound hardcopies as well as in electronic form on a common data storage system (such as CD or DVD).

(5) The master thesis is supplemented by a final colloquium. The colloquium is worth 5 ECTS credits. Candidates are admitted to the final colloquium only upon submission of the master thesis. The final colloquium is held in the presence of an examiner and is generally open to university members.

§ 11. Determination of module grades

(1) If a module includes several partial module examinations, the module grade is calculated from the weighted arithmetic average of the grades awarded in the partial module exams; weightings are based on the relative number of ECTS credits per exam.

(2) If it is necessary to complete courses worth a total of more than 18 ECTS credits to reach the required 18 ECTS credits for the optional module, the module grade is calculated on the basis of the total amount of ECTS credits earned. The grade for the application area modules is included in the overall grade with a weight of 18 ECTS credits.

§ 12. Determination of overall grade

(1) The overall grade is calculated from the arithmetic average of the grade for the master thesis and the grades for the other modules, with the grade for the master thesis weighted twice as heavily as those for the other modules according to the respective amount of ECTS credits.

(2) Students who receive the grade “very good” – 1.3 or better – for the master thesis and all modules or the overall grade 1.0 are awarded the distinction “with honors.”

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