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

Annex B. Subject-specific Provisions for Examination Regulations for a Master of Science (M.Sc.)

Computer Science

§ 1 Profile of the Study Program

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

(2) The Master degree program in Computer Science offers a study program based on the mathematical and methodological foundations of computer science, which deepens methodological knowledge in computer science and strengthens and verifies the student's independent problem-solving skills. Students can choose between a broad thematic focus covering various areas of computer science or a specialization in either Artificial Intelligence or Cyber-Physical Systems. The degree program prepares students for a career in academic research or in data-processing companies.

§ 2 Commencement and Scope of the Master-s Degree Program

(1) The Master degree program in Computer Science can be started either in the winter semester or the summer semester.

(2) The Master degree program in Computer Science has a total of 120 ECTS credits.

§ 3 Language of Instruction and Examination

(1) Courses and exams in the Master program in Computer Science are generally held in English or German. With the prior consent of the person responsible for the module, examinations can also be taken in the respective other language (i.e., German or English).

(2) It is guaranteed that the program can be completed exclusively in English.

§ 4 Course Contents

(1) The modules listed in the following table are to be completed in the Master program in Computer Science in accordance with the regulations in paragraphs 2 to 8. For the Master in Computer Science with specialization in Artificial Intelligence or Cyber-Physical Systems, the special prerequisites listed in paragraph 9 must also be fulfilled. The modules and courses that can be taken are listed and described in more detail in the current version of the module handbook.

Modul Lecture	**Type**	**SWS**	**ECTS credits**	**CM/CE**	**Semester**	**Coursework/ Examinations**
Advanced Lecture 1	L + E	4	6	CM	1 or 2	CW EX: written exam
Advanced Lecture 2	L + E	4	6	CE	1, 2 or 3	CW EX: written exam
Specialization Course 1	L/E/S	4	6	CM	1, 2 or 3	CW EX: written or oral exam

Specialization Course 2	L/E/S	4	6	CM	1, 2 or 3	CW EX: written or oral exam
Specialization Course 3	L/E/S	4	6	CM	1, 2 or 3	CW EX: written or oral exam
Specialization Course 4	L/E/S	4	6	CM	1, 2 or 3	CW EX: written or oral exam
Specialization Course 5	L/E/S	4	6	CM	1, 2 or 3	CW EX: written or oral exam
Specialization Course 6	L/E/S	4	6	CE	1, 2 or 3	CW EX: written or oral exam
Seminars Seminar 1 Seminar 2	 S S	 2 2	 3 3	CM	 1, 2 or 3 1, 2 or 3	CW EX: oral presentation CW EX: oral presentation
Lab Course	LC	4	6	CM	1, 2 or 3	CW
Customized Course Selection	variable	variable	18	CM	1, 2 or 3	variable
Study Project	project		18	CM	3	CW EX: written research paper or creation of a software program or demonstrators
Master module Master thesis Master colloquium			 27 3	CM	4	EX: master thesis EX: oral presentation

Abbreviations in the table:
Type = type of course; SWS = planned number of semester hours per week; CM = compulsory module; CE = compulsory elective; Semester = recommended semester; LC = lab course; S = seminar; E = exercise; L = lecture; CW = coursework; EX = examination

(2) In addition to the modules marked as compulsory modules in the table, students may choose to complete either the module Advanced Lecture 2 or the module Specialization Course 6.

(3) The advanced lectures can be chosen from the respective courses offered by the Department of Computer Science as described in the module handbook. Students are required to perform coursework in the advanced lectures in addition to the examination; the examination is written.

(4) The specialization courses can be chosen from the respective courses offered by the Department of Computer Science as described in the module handbook. The specialization courses can be offered as lectures with exercises, lectures with seminars or lectures with exercises and seminars. Depending on the content of the individual specialization courses, it may be necessary to complete coursework in addition to the examination. The examination in specialization courses consists of either a written or an oral examination; it is guaranteed that the students can choose between the different types of examination within the framework of the courses offered overall.[1]

(5) In the Seminar module, students must choose two seminars from the course offerings of the Department of Computer Science as described in the module handbook.

[1]In order to explain: This means each semester there will be specialization courses offered with written exams and there will be specialization courses offered with oral exam. Students can choose the exam method by choosing an according specialization course. It does not mean students can select their preferred exam method for a course.

(6) In the Lab Course module, students must choose to complete a lab course the course offerings of the Department of Computer Science as described in the module handbook.

(7) In the module Customized Course Selection, a total of 18 ECTS credits must be earned by completing suitable courses or modules from the courses offered in other departments of the University of Freiburg; all examinations and performances in this module are pass/fail assessments only. Courses and modules shall be selected in consultation with the person responsible for the module. Notwithstanding sentence 1, up to 6 ECTS points may also be earned by attending a language course from the courses offered by the departments of the Faculty of Philology and the Faculty of Humanities (courses for students of all faculties), in which only coursework is required, or a further advanced lecture or specialization course from the courses offered by the Department of Computer Science as described in the module handbook. If a student chooses an advanced lecture or specialization course within the framework of the Customized Course Selection module, coursework and examinations shall be performed according to the regulations in paragraphs 3 and 4. No more courses or modules can be taken than those required to achieve the total of 18 ECTS credits necessary for the Customized Course Selection module.

(8) In the module Study Project, students can choose between different projects from the range of projects described in the module handbook; the examination type depends on the topic of the respective project.

(9) A student who chooses the specialization Artificial Intelligence or Cyber-Physical Systems must complete advanced lectures and specialization courses offered by the Department of Computer Science from among those specified in the module handbook for the respective specialization. The courses must amount to at least 24 ECTS credits. In addition, the student must choose the topic of his or her study project and the topic of the master thesis from within the chosen specialization.

§ 5 Coursework (Studienleistungen)

Coursework may consist, for example, of written tests or examinations, the completion of exercises or worksheets, presentations, or the creation and presentation of software or demonstrators.

§ 6 Course-based graded assessments(Examinations) (Prüfungsleistungen)

Written course-based graded assessments include supervised written examinations (*Klausuren*) and writtenterm papers or essays. Graded assessments can also be administered orally, in the form of oral examinations (exam interviews) and presentations. Practical examinations include conducting experiments and creating and demonstrating software or demonstrators.

§ 7 Repeating course-based graded assessments (Examinations)

(1) Course-based graded assessments which were graded “non-sufficient” (5.0) or considered failed may be repeated once. Further, a maximum of two failed written or oral examinations may be repeated a second time.

(2) A student who fails an examination in an advanced lecture or specialization course may, instead of repeating the examination in that course, take another advanced lecture or specialization course and take the examination for that course. This may only be done one time. The failed examination in the originally selected module will not be counted towards the number of examination attempts available in the newly selected module.

(3) The student can repeat a maximum of one passed oral or written examination one time for the purpose of improving the grade. The repeat examination must be taken on the next regular examination date and, at the latest, in the third semester. The examination with the better grade will be considered official.

§ 8 Admission to write the master thesis

(1) Admission to write the master thesis can only be granted to students who are enrolled in the Master program in Computer Science, have acquired at least 72 ECTS points, and have successfully completed the Study Project module.

(2) Under § 2 para. 3 of the Admission Regulations of the University of Freiburg, students who lack knowledge of basic and advanced computer science can be admitted to the Master in Computer Science program under the condition that they additionally complete corresponding modules of the Bachelor in Computer Science program or equivalent transitional courses in English. Such students can be admitted to write a master thesis only if they have completed the required coursework and examinations.

§ 9 Master thesis

(1) The master thesis is equivalent to 27 ECTS points and must be completed within six months. If the specialization Artificial Intelligence or Cyber-Physical Systems is chosen, the topic of the master thesis must be chosen from within the relevant specialization.

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

(3) The master thesis must be submitted to the Board of Examiners in bound form in triplicate and in electronic form on the specified media and in the specified file format. In the case of data or software-related work, the delivery of the program code and data used may also be required.

(4) Only examiners who work full-time in the Department of Computer Science at the Faculty of Engineering of the Albert-Ludwigs-Universität can be appointed as first examiner and supervisor of the master thesis.

(5) The master thesis is supplemented by an approximately 60-minute master colloquium, which may be held in German or English at the student's choice. The master colloquium is usually led and evaluated by the supervisor of the master thesis and consists of an approximately 20-minute presentation by the student on the results of the master thesis and a subsequent discussion. Admission to the master colloquium is granted only if the master thesis has been submitted. The master colloquium counts for 3 ECTS points and is usually open to the university public.

§ 10 Calculation of the final grade

(1) The overall grade is calculated as the arithmetic average of the module grades weighted by ECTS points. If there is a completed examination included, the module grade for the module Customized Course Selection shall, notwithstanding sentence 1, be included in the calculation of the overall grade with a weighting of 6 ECTS points.

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

§ 11 Academic degree of specialization

(1) After passing the Master program in Computer Science with the specialization Artificial Intelligence, the academic degree "Master of Science in Computer Science" shall be awarded with the additional qualification "Specialization in Artificial Intelligence".

(2) After passing the Master program in Computer Science with the specialization Cyber-Physical Systems, the academic degree "Master of Science in Computer Science" shall be awarded with the additional qualification "Specialization in Cyber-Physical Systems".