



**Subject-specific study and examination regulations for the bachelor's and master's degree programmes in Computer Science, Media Informatics and Software Engineering, as well as the master's degree programme in Artificial Intelligence at the Faculty of Engineering, Computer Science and Psychology at Ulm University dated 6 December 2022**

Pursuant to section 32 (3) sentence 1 of the Federal State Higher Education Act Baden-Württemberg (Landeshochschulgesetz – LHG) in the version dated 1 January 2005 (State Gazette p. 1 ff), amended by Article 1 of the fourth act amending higher education regulations (Viertes Hochschulrechtsänderungsgesetz - 4. HRÄG) of 17 December 2020 (State Gazette p. 1204 ff) and as last amended by Article 1 of the act amending the Federal State Higher Education Act and other acts of 26 October 2021 (State Gazette p. 941), the Senate of Ulm University, with the approval of the Faculty of Engineering, Computer Science and Psychology, adopted the following subject-specific study and examination regulations for the bachelor's and master's degree programmes in Computer Science, Media Informatics and Software Engineering, as well as the master's degree programme in Artificial Intelligence, at its meeting on 16 November 2022.

The President of Ulm University gave his consent on 6 December 2022 in accordance with § 32 (3) sentence 1 LHG.

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## **I. General**

### **§ 1 Scope of application (§ 1 General Framework)**

These subject-specific study and examination regulations contain subject-specific regulations for the bachelor's and master's programmes in Computer Science, Media Informatics and Software Engineering, as well as for the master's programme in Artificial Intelligence.

### **§ 2 Study objectives (§ 2 General Framework)**

- (1) The bachelor's programmes provide qualifications for professional careers in a wide range of fields in computer science, media informatics and software engineering, as well as for admission to advanced master's programmes focusing on scientific research.
- (2) The master's programmes impart in-depth content and methodological skills. The aim is to enable graduates to work independently in scientific research, plan research processes and develop solution strategies. The individually focused master's degree serves as preparation for a doctorate or career orientation.
- (3) The bachelor's degree programme in Computer Science provides students with a solid foundation in the classic areas of practical, theoretical and technical computer science and in the mathematical foundations of computer science. Through lectures, practical exercises and independent projects, students acquire a broad foundation in computer science and learn a systematic, structured way of thinking and working. The specialisation area in the third year of study allows students to focus on different areas of computer science. In addition, key topics such as computer science and society or basic knowledge of empirical research methods are conveyed. Together, these contents provide scientific knowledge and job-related qualifications.
- (4) The master's programme in Computer Science deepens the knowledge acquired in the bachelor's programme. The core area allows students to choose additional modules in practical, theoretical and technical computer science, which are further expanded in the specialisation area with a focus on the main research areas of the computer science department at Ulm University. The project modules impart practical skills that are directly related to the research projects of the computer science institutes. The aim is also to acquire the ability to solve problems independently in the context of scientific work.
- (5) The bachelor's programme in Media Informatics provides students with a solid foundation in media informatics, a specialisation and supplement to computer science that deals fundamentally with interactive and multimedia computer systems. Through lectures, practical exercises and independent projects, students acquire a broad foundation in media informatics and learn a systematic, structured way of thinking and working. In addition to the foundations of media informatics, selected basic knowledge in the classical areas of practical, theoretical and technical informatics, as well as mathematics, is also covered. In addition, key topics such as computer science and society or basic knowledge of empirical research methods are conveyed. Together, these contents provide scientific knowledge and job-related qualifications.
- (6) The master's programme in Media Informatics builds on the skills acquired in the bachelor's programme. Students set their own individual priorities by choosing modules from the core and specialisation areas, with the majority of modules coming from the field of media informatics in order to deepen their subject-specific skills. In addition, extensive projects teach skills for developing interactive and multimedia software systems in particular. The master's programme

also aims to teach students the ability to solve problems independently in the context of scientific work. Through the master's examination, students demonstrate that they are able to work independently according to scientific principles and apply scientific methods and findings in media informatics.

- (7) Software engineering is a specialisation of computer science that deals in particular with the systematic development of large-scale software systems. The aim of the bachelor's programme in Software Engineering is to teach fundamental skills in methods, processes, concepts, principles and tools for the systematic development of high-quality software systems. There is a particular focus on the practical application of the theoretical knowledge taught in software development projects. The programme content covers both fundamental scientific knowledge and professional qualifications.
- (8) The master's programme in Software Engineering builds on the skills acquired in the bachelor's programme. Students set their own individual priorities by choosing modules from the core and specialisation areas, with the majority of modules coming from the field of software engineering in order to deepen their subject-specific skills. In addition, extensive projects focus on imparting skills for assessment and approach in software development projects. The master's programme also aims to teach students the ability to solve problems independently in the context of scientific work. Through the master's examination, students demonstrate that they are able to work independently according to scientific principles and apply scientific methods and findings in software engineering.
- (9) The master's programme in Artificial Intelligence is an advanced, professionally qualifying university degree in the field of artificial intelligence. The aim of the programme is to provide students with comprehensive, in-depth methodological knowledge in both knowledge-based and learning-based artificial intelligence, enabling them to soundly assess, exploit and further develop the potential of these methods in their respective application contexts and to advance current research in artificial intelligence. The master's examination is designed to demonstrate that students have in-depth specialist knowledge and are able to work independently in accordance with scientific principles and apply scientific methods and findings.

### § 3 Start of the programme (§ 3 General Framework)

The bachelor's programmes in Computer Science, Media Informatics and Software Engineering all begin in the winter semester. The master's programmes in Computer Science, Media Informatics, Software Engineering and Artificial Intelligence all begin in both the winter and summer semesters.

## II. Study organisation

### § 4 Organisation of the bachelor's programme in Computer Science, mobility window (§ 4 General Framework)

- (1) The following compulsory, compulsory elective and complementary modules must be completed in the bachelor's programme in Computer Science:

No.	Area/module	CP
<b>A Compulsory area</b>		<b>155 CP</b>
<b>A1</b>	<b>Practical computer science</b>	<b>56</b>
1	Foundations of practical computer science	6
2	Object-oriented programming	8
3	Software technology	6

No.	Area/module	CP
4	Software project	10
5	Human-computer interaction	6
6	Databases and information systems	8
7	Artificial intelligence and neural information processing	6
8	Security in IT systems	6
<b>A2</b>	<b>Theoretical computer science</b>	<b>24</b>
9	Foundations of theoretical computer science	8
10	Algorithms and data structures	8
11	Logic	4
12	Computability and complexity	4
<b>A3</b>	<b>Technical computer science</b>	<b>28</b>
13	Foundations of technical computer science	8
14	Computer architecture	8
15	Operating systems	6
16	Networked systems	6
<b>A4</b>	<b>Mathematics</b>	<b>28</b>
17	Mathematics for Computer Science I	8
18	Mathematics for Computer Science II	8
19	Applied numerics	6
20	Applied stochastics	6
<b>A5</b>	<b>Additive Key Qualifications</b>	<b>7</b>
21	Computer science and society	3
22	Empirical research methods in computer science	4
<b>A6</b>	<b>Final thesis</b>	<b>12</b>
23	Bachelor's thesis	12
<b>B Compulsory elective area</b>		<b>min. 22</b>
<b>B1</b>	<b>Seminar</b>	<b>min. 4</b>
<b>B2</b>	<b>Specialisation area</b>	<b>min. 18</b>
<b>C Complementary area</b>		<b>min. 3</b>
<b>Total ECTS</b>		<b>min. 180</b>

- (2) Students must complete at least one module from the designated module catalogue in the seminar area (B1) worth 4 CP, as well as modules from the designated module catalogues in the specialisation area (B2) worth at least 18 CP.
- (3) The mobility window is recommended for the 5th semester.

#### § 5 Organisation of the master's programme in Computer Science, mobility window (§ 4 General Framework)

- (1) The following compulsory, compulsory elective and complementary modules must be completed in the master's programme in Computer Science:

No.	Area/module	CP
<b>A Compulsory area</b>		<b>30</b>
1	Master's thesis	30
<b>B Compulsory elective area</b>		<b>min. 86</b>
<b>B1</b>	<b>Core area computer science</b>	<b>min. 36</b>
B1.1	Core area practical computer science	min. 12
B1.2	Core area theoretical computer science	min. 12
B1.3	Core area technical computer science	min. 12
<b>B2</b>	<b>Seminar computer science</b>	<b>min. 4</b>
<b>B3</b>	<b>Specialisation area computer science</b>	<b>min. 30</b>
B3.1	Specialisation area practical computer science	min. 18
B3.2	Specialisation area theoretical computer science	
B3.3	Specialisation area technical computer science	
B3.4	Specialisation area fields of application of computer science	
<b>B4</b>	<b>Project in computer science</b>	<b>min. 16</b>
<b>C Complementary area</b>		<b>min. 4</b>
<b>Total ECTS</b>		<b>min. 120</b>

- (2) Students must complete modules worth at least 36 CP in the core area of computer science (B1); of these, modules worth at least 12 CP each must be completed from the core areas of practical computer science (B1.1), theoretical computer science (B1.2) and technical computer science (B1.3) from the module catalogue provided for this purpose. At least one module worth 4 CP must be completed from the computer science seminar (B2) area. Students must complete modules worth at least 30 CP in the specialisation area computer science (B3); of these, modules worth a total of at least 18 CP must be completed from the specialisation areas practical computer science (B3.1), theoretical computer science (B3.2) and technical computer science (B3.3) from the module catalogues provided for this purpose. In the area of computer science project (B4), modules from the designated module catalogue totalling at least 16 CP must be completed.
- (3) Modules from the elective areas and the complementary area are recommended for a mobility window.

#### § 6 Organisation of the bachelor's programme in Media Informatics, mobility window (§ 4 General Framework)

- (1) The following compulsory, compulsory elective and complementary modules must be completed in the bachelor's programme in Media Informatics:

No.	Area/module	CP
<b>A Compulsory area</b>		<b>149 CP</b>
<b>A1</b>	<b>Practical computer science</b>	<b>50</b>
1	Foundations of practical computer science	6
2	Object-oriented programming	8
3	Software technology	6
4	Software project	10
5	Human-computer interaction	6
6	Databases and information systems	8
7	Artificial intelligence and neural information processing	6
<b>A2</b>	<b>Theoretical computer science</b>	<b>16</b>
8	Foundations of theoretical computer science	8
9	Algorithms and data structures	8
<b>A3</b>	<b>Technical computer science</b>	<b>12</b>

No.	Area/module	CP
10	Operating systems	6
11	Networked systems	6
<b>A4</b>	<b>Mathematics</b>	<b>22</b>
12	Mathematics for Computer Science I	8
13	Mathematics for Computer Science II	8
14	Applied Stochastics	6
<b>A5</b>	<b>Media Informatics</b>	<b>30</b>
15	Foundations of Media Informatics	6
16	Visual design	6
17	Interactive visual design	6
18	User-centred design for interactive systems	6
19	Interactive computer graphics	6
<b>A6</b>	<b>Additive Key Qualifications</b>	<b>7</b>
20	Computer science and society	3
21	Empirical research methods in computer science	4
<b>A7</b>	<b>Final thesis</b>	<b>12</b>
22	Bachelor's thesis	12
<b>B Compulsory elective area</b>		<b>min. 28</b>
<b>B1</b>	<b>Seminar</b>	<b>min. 4</b>
<b>B2</b>	<b>Media Informatics project</b>	<b>min. 12</b>
<b>B3</b>	<b>Specialisation area</b>	<b>min. 12</b>
<b>C Complementary area</b>		<b>min. 3</b>
<b>Total ECTS</b>		<b>min. 180</b>

- (2) Students must complete at least one module from the designated module catalogue in the seminar area (B1) worth 4 CP, as well as modules from the designated module catalogues in the Media Informatics project area (B2) worth at least 12 CP. In the specialisation area (B3), modules from the module catalogue provided for this purpose amounting to at least 12 CP must be completed.
- (3) The mobility window is recommended for the 5th semester.

#### § 7 Organisation of the master's programme in Media Informatics, mobility window (§ 4 General Framework)

- (1) The following compulsory, compulsory elective and complementary modules must be completed in the master's programme in Media Informatics:

No.	Area/module	CP
<b>A Compulsory area</b>		<b>30</b>
A1	Master's thesis	30
<b>B Compulsory elective area</b>		<b>min. 84</b>
<b>B1</b>	<b>Core area Media Informatics</b>	<b>min. 24</b>
B1.1	Core area practical computer science	min. 6
B1.2	Core area theoretical computer science	
B1.3	Core area technical computer science	
B1.4	Core area media informatics	min. 12
<b>B2</b>	<b>Seminar in Media Informatics</b>	<b>min. 4</b>
<b>B3</b>	<b>Specialisation area Media Informatics</b>	<b>min. 24</b>
B3.1	Specialisation area practical computer science	min. 6
B3.2	Specialisation area theoretical computer science	min. 6
B3.3	Specialisation area technical computer science	

No.	Area/module	CP
B3.4	Specialisation area Media Informatics	min. 12
<b>B4</b>	<b>Media Informatics project</b>	<b>min. 32</b>
<b>C Complementary area</b>		<b>min. 6</b>
	<b>Total ECTS</b>	<b>min. 120</b>

- (2) Students must complete modules worth at least 24 CP in the core area of Media Informatics (B1); of these, modules worth at least 12 CP each must be completed from the core areas of practical computer science (B1.1), theoretical computer science (B1.2) and technical computer science (B1.3) from the module catalogues provided for this purpose; 12 CP must be earned from the core area of Media Informatics (B1.4). At least one module worth 4 CP must be completed from the media informatics seminar (B2) area. Students must complete modules worth at least 24 CP in the specialisation area Media Informatics (B3); of these, at least 6 CP must be completed in the specialisation area Practical Computer Science (B3.1), and at least 6 CP must be completed in the specialisation areas Theoretical Computer Science (B3.2) and Technical Computer Science (B3.3) from the module catalogues provided for this purpose; modules worth at least 12 CP must be completed in the specialisation area Media Informatics (B3.4). Modules worth at least 32 CP must be completed from the designated module catalogues in the area of Media Informatics Project (B4).
- (3) Modules amounting to a maximum of 6 CP from the complementary area (C) can be replaced by modules from the core area (B).
- (4) Modules from the compulsory elective areas and the complementary area are recommended for a mobility window.

#### § 8 Organisation of the bachelor's programme in Software Engineering, mobility window (§ 4 General Framework)

- (1) The following compulsory, compulsory elective and complementary modules must be completed in the bachelor's programme in Software Engineering:

No.	Area/module	CP
<b>A Compulsory area</b>		<b>131 CP</b>
<b>A1</b>	<b>Practical computer science</b>	<b>50</b>
1	Foundations of practical computer science	6
2	Object-oriented programming	8
3	Software technology	6
4	Software project	10
5	Artificial intelligence and neural information processing	6
6	Databases and information systems	8
7	Security in IT systems	6
<b>A2</b>	<b>Theoretical computer science</b>	<b>20</b>
8	Foundations of theoretical computer science	8
9	Algorithms and data structures	8
10	Logic	4
<b>A3</b>	<b>Technical computer science</b>	<b>20</b>
11	Foundations of technical computer science	8
12	Operating systems	6
13	Networked systems	6
<b>A4</b>	<b>Mathematics</b>	<b>22</b>
14	Mathematics for Computer Science I	8
15	Mathematics for Computer Science II	8

No.	Area/module	CP
16	Applied Stochastics	6
<b>A5</b>	<b>Additive Key Qualifications</b>	<b>7</b>
17	Computer science and society	3
18	Empirical research methods in computer science	4
<b>A6</b>	<b>Final thesis</b>	<b>12</b>
19	Bachelor's thesis	12
<b>B Compulsory elective area</b>		<b>min. 46</b>
B1	Seminar	min. 4
B2	Software Engineering project	min. 12
B3	Specialisation area	min. 30
B3.1	SE profile area	min. 18
B3.2	SE elective area	
<b>C Complementary area</b>		<b>min. 3</b>
<b>Total ECTS</b>		<b>min. 180</b>

- (2) Students must complete at least one module from the designated module catalogue in the seminar area (B1) worth 4 CP, as well as modules from the designated module catalogues in the Software Engineering project area (B2) worth at least 12 CP. In the specialisation area (B3), modules from the designated module catalogues must be completed to a minimum of 30 CP, of which at least 18 CP must be completed from the SE profile area (B3.1) modules from the designated module catalogues.
- (3) The mobility window is recommended for the 5th semester.

#### § 9 Organisation of the master's programme in Software Engineering, mobility window (§ 4 General Framework)

- (1) The following compulsory, compulsory elective and complementary modules must be completed in the master's programme in Software Engineering:

No.	Area/module	CP
<b>A Compulsory area</b>		<b>30</b>
A1	Master's thesis	30
<b>B Compulsory elective area</b>		<b>min. 84</b>
<b>B1</b>	<b>Core area Software Engineering</b>	<b>min. 24</b>
B1.1	Core area practical computer science	min. 6
B1.2	Core area theoretical computer science	min. 6
B1.3	Core area technical computer science	
B1.4	Core area Software Engineering	min. 12
<b>B2</b>	<b>Seminar Software Engineering</b>	<b>min. 4</b>
<b>B3</b>	<b>Specialisation area Software Engineering</b>	<b>min. 24</b>
B3.1	Specialisation area practical computer science	min. 6
B3.2	Specialisation area theoretical computer science	min. 6
B3.3	Specialisation area technical computer science	
B3.4	Specialisation area Software Engineering	min. 12
<b>B4</b>	<b>Software Engineering project</b>	<b>min. 32</b>
<b>C Complementary area</b>		<b>min. 6</b>
<b>Total ECTS</b>		<b>min. 120</b>

- (2) Students must complete modules worth at least 24 CP from the respective module catalogues in the core area of Software Engineering (B1); of these, modules worth at least 6 CP must be completed from the core area of Practical Computer Science (B1.1) from the respective module

catalogues. From the core areas of Theoretical Computer Science (B1.2) and Computer Engineering (B1.3), modules from the designated module catalogues must be completed to a minimum of 6 CP; modules worth at least 12 CP must be completed from the core area of Software Engineering (B1.4). At least one module worth 4 CP must be completed from the Software Engineering seminar (B2) area. Students must complete modules worth at least 24 CP in the specialisation area of Software Engineering (B3); of these, at least 6 CP must be completed in the specialisation area Practical Computer Science (B3.1) and at least 6 CP in the specialisation areas Theoretical Computer Science (B3.2) and Technical Computer Science (B3.3); Modules worth at least 12 CP must be completed in the specialisation area of Software Engineering (B3.4). Modules worth at least 32 CP must be completed in the area of Software Engineering Project (B4).

- (3) Modules amounting to a maximum of 6 CP from the complementary area (C) can be replaced by modules from the core area (B).
- (4) Modules from the compulsory elective areas and the complementary area are recommended for a mobility window.

#### § 10 Organisation of the master's programme in Artificial Intelligence, mobility window (§ 4 General Framework)

- (1) The following compulsory, compulsory elective and complementary modules must be completed in the master's programme in Artificial Intelligence:

No.	Area/module	CP
<b>A Compulsory area</b>		<b>42</b>
A1	Learning Systems I: Introduction to Machine Learning	6
A2	Knowledge-Based Artificial Intelligence	6
A3	Master's thesis	30
<b>B Compulsory elective area</b>		<b>min. 74</b>
<b>B1</b>	<b>Core area Artificial Intelligence</b>	<b>min. 24</b>
B1.1	Core area practical computer science	min. 24
B1.2	Core area theoretical computer science	
B1.3	Core area technical computer science	
B1.4	Core area Artificial Intelligence	
<b>B2</b>	<b>Seminar Artificial Intelligence</b>	<b>min. 4</b>
<b>B3</b>	<b>Specialisation area Artificial Intelligence</b>	<b>min. 30</b>
B3.1	Specialisation area Learning and Knowledge	min. 30
B3.2	Specialisation area Planning and Reasoning	
B3.3	Specialisation area Perception, Interaction and Action	
B3.4	Specialisation area Overarching Concepts, Methods and Approaches of AI	
<b>B4</b>	<b>Project Artificial Intelligence</b>	<b>min. 16</b>
<b>C Complementary area</b>		<b>min. 4</b>
<b>Total ECTS</b>		<b>min. 120</b>

- (2) Students must complete modules worth at least 24 CP in the core area of Artificial Intelligence (B1); of these, modules worth at least 24 CP must be completed from the core areas of theoretical computer science (B1.1), technical computer science (B1.2) and artificial intelligence (B1.4) from the module catalogues provided for this purpose. At least one module worth 4 CP must be completed from the Artificial Intelligence seminar (B2) area. Students must complete modules worth at least 30 CP in the specialisation area of Artificial Intelligence (B3); The specialisation in Artificial Intelligence consists of the areas of Learning and Knowledge (B3.1), Planning and Reasoning

(B3.2), Perception, Interaction and Action (B3.3) and Overarching Concepts, Methods and Approaches in AI (B3.4). Modules must be completed in at least two areas. In the area of Artificial Intelligence project (B4), modules from the designated module catalogue totalling at least 16 CP must be completed.

- (4) Modules from the compulsory elective areas and the complementary area are recommended for a mobility window.

### **§ 11 Multiple use of modules**

If modules are assigned to several areas, these modules can only be completed in one of the areas. Multiple use of modules at the bachelor's or master's level is not permitted.

### **§ 12 Types of courses (§ 6 General Framework)**

Lectures and exercises can be supplemented by tutorials; project courses, project seminars, laboratory courses and mentoring sessions can be scheduled.

### **§ 13 Compulsory attendance at courses (§ 7 General Framework)**

In the case of seminars, laboratory courses, exercises with practical components, project courses and project seminars, attendance may be required as a study achievement. At the beginning of the respective course, the person responsible for teaching will announce publicly within the Faculty (learning platform) on which dates compulsory attendance is essential to achieve learning success. Students who are not 100% present on these dates will not be admitted to the corresponding module examination or will not have completed the module prerequisite. If there are reasons for the absences for which the student is not responsible, then

- a) the absence can be compensated for by a competency-based substitute achievement,
- b) individual classes can be made up for,
- c) parts already completed from previous courses can be credited.

The teaching responsible will check whether compensation is possible in accordance with sentence 3. If no substitute performance is offered/individual event is made up for or not fulfilled or if crediting is excluded, the study achievement is deemed to not be completed.

### **§ 14 Examination periods (§ 8 (2) General Framework)**

- (1) Students enrolled in the bachelor's programmes in Computer Science and Software Engineering who have not passed at least three module examinations from the set "Foundations of Practical Computer Science", "Foundations of Theoretical Computer Science", "Foundations of Technical Computer Science", "Mathematics for Computer Science I" and "Mathematics for Computer Science II" by the end of the examination period of the third semester and at least four by the end of the examination period of the fourth semester will lose their right to examination, unless the deadline was exceeded through no fault of the students.

Students enrolled in the bachelor's programme in Media Informatics who have not passed at least three module examinations from the set "Foundations of Practical Computer Science", "Foundations of Theoretical Computer Science", "Foundations of Media Informatics", "Mathematics for Computer Science I" and "Mathematics for Computer Science II" by the end of the examination

period of the third semester and at least four by the end of the examination period of the fourth semester will lose their right to examination, unless the deadline was exceeded through no fault of the students.

#### **§ 15 Related study programmes (§ 10 (4) General Framework)**

Related programmes to the programmes in Computer Science, Media Informatics, Software Engineering and Artificial Intelligence are all computer science, media informatics, software engineering and artificial intelligence programmes at higher education institutions within the scope of the Framework Act for Higher Education, provided that they offer similar or identical content.

### **III. Examinations**

#### **§ 16 Practical examinations (§ 14 General Framework)**

A practical examination is an examination in which the task is announced at the beginning of the examination. Each examination lasts a minimum of 10 minutes and a maximum of 180 minutes per student.

#### **§ 17 Theses (§ 18 General Framework)**

- (1) The bachelor's thesis is worth 12 credit points, while the master's thesis is worth 30 credit points. The time from the admission to the submission of the bachelor's or master's thesis is six months.
- (2) Only those students who have earned at least 100 CP from the compulsory and compulsory elective modules can be admitted to the bachelor's thesis. Only those students who have earned at least 60 CP from the compulsory and compulsory elective modules in the master's programme can be admitted to the master's thesis.
- (3) One of the examiners must be assigned to the Computer Science teaching unit.

#### **§ 18 Overall assessment (§ 24 (6) General Framework)**

- (1) The overall grade for the bachelor's programme in Computer Science, Media Informatics and Software Engineering is based on the bachelor's thesis, which is worth 12 CP, and the best examination grades from the compulsory and compulsory elective modules, which are worth at least 132 CP. The examination that exceeds the threshold is included proportionally with the credit points that are missing from the 132 CP.
- (2) The overall grade for the master's programme in Computer Science, Media Informatics, Software Engineering and Artificial Intelligence is based on the master's thesis, which is worth 30 CP, and the best examination grades from the compulsory and compulsory elective modules, which are worth at least 74 CP. The examination that exceeds the threshold is included proportionally with the credit points that are missing from the 74 CP.

#### **§ 19 Repetition of module examinations (§ 25 General Framework)**

- (1) In the bachelor's programme in Computer Science, the following module examinations may be repeated three times: Mathematics for Computer Science I, Mathematics for Computer Science II, Applied Numerics, Applied Stochastics and Object-Oriented Programming.

- (2) In the bachelor's programme in Media Informatics, the following module examinations may be repeated three times: Mathematics for Computer Science I, Mathematics for Computer Science II, Applied Stochastics and Foundations of Media Informatics.
- (3) In the bachelor's programme in Software Engineering, the following module examinations may be repeated three times: Mathematics for Computer Science I, Mathematics for Computer Science II, Applied Stochastics and Foundations of Technical Computer Science.
- (4) In the bachelor's programmes in Computer Science, Media Informatics and Software Engineering, up to two passed compulsory module examinations may be repeated once for the purpose of improving grades. These examinations must be retaken within the following two semesters. The best pass grade will be used for the assessment. Retaking a passed final thesis for the purpose of improving the grade is not permitted.

#### **§ 20 Profiles in bachelor's and master's programmes**

Modules can be assigned to study profiles. Upon successful completion of the modules assigned to a study profile, students receive proof of this with their final degree documents.

#### **IV. Final provisions**

##### **§ 21 Effective date**

- (1) These study and examination regulations apply with effect from the winter semester 2022/23. At the same time, the subject-specific study and examination regulations for the bachelor's and master's programmes in Computer Science, Media Informatics and Software Engineering, as well as the master's programme in Artificial Intelligence at the Faculty of Engineering, Computer Science and Psychology at Ulm University, dated 15 July 2021, published in the Official Bulletin of Ulm University No. 20 dated 20 July 2021, pages 195–206, subject to paragraphs 2 and 3 cease to have effect.
- (2) For students who commenced their bachelor's programme in Computer Science, Media Informatics or Software Engineering prior to the winter semester 2022/23, or who continued after changing universities or programmes, or who are continuing in the winter semester 2022/23 in a second or higher semester, the subject-specific study and examination regulations for the bachelor's and master's programmes in Computer Science, Media Informatics and Software Engineering, as well as the master's programme in Artificial Intelligence at the Faculty of Engineering, Computer Science and Psychology at Ulm University, published on 15 July 2021 in the Official Bulletin of Ulm University No. 20 of 20 July 2021, pages 195–206, shall continue to apply on a transitional basis. Upon termination of the examination period of the summer semester 2027, the subject-specific study and examination regulations for the bachelor's and master's programmes in Computer Science, Media Informatics and Software Engineering, as well as the master's programme in Artificial Intelligence at the Faculty of Engineering, Computer Science and Psychology at Ulm University, dated 15 July 2021, published in the Official Bulletin of Ulm University No. 20 dated 20 July 2021, pages 195–206, shall cease to have effect. The students referred to in sentence 1 will then continue the programme pursuant to paragraph 1 sentence 1 of the study and examination regulations. The subject examination board shall decide on the recognition of achievements already completed by then.

- (3) For students who commenced their bachelor's programme in Computer Science, Media Informatics or Software Engineering prior to the winter semester 2022/23, or who continued after changing universities or programmes, or who are continuing in the winter semester 2022/23 in a second or higher semester, the subject-specific study and examination regulations for the bachelor's and master's programmes in Computer Science, Media Informatics and Software Engineering, as well as the master's programme in Artificial Intelligence at the Faculty of Engineering, Computer Science and Psychology at Ulm University, published on 15 July 2021 in the Official Bulletin of Ulm University No. 20 of 20 July 2021, pages 195–206, shall continue to apply on a transitional basis. Upon termination of the examination period of the summer semester 2026, the subject-specific study and examination regulations for the bachelor's and master's programmes in Computer Science, Media Informatics and Software Engineering, as well as the master's programme in Artificial Intelligence at the Faculty of Engineering, Computer Science and Psychology at Ulm University, dated 15 July 2021, published in the Official Bulletin of Ulm University No. 20 dated 20 July 2021, pages 195–206, shall cease to have effect. The students referred to in sentence 1 will then continue the programme pursuant to paragraph 1 sentence 1 of the study and examination regulations. The subject examination board shall decide on the recognition of achievements already completed by then.
- (4) Students who commenced their bachelor's programme in Computer Science, Media Informatics or Software Engineering before the winter semester 2022/23 or who continued their studies after changing universities or degree programmes may submit a written, irrevocable application to the subject examination board by 1 February 2023 to complete their studies in accordance with the study and examination regulations pursuant to paragraph 1, sentence 1. In these cases, unsuccessful attempts (failed attempts) at identical modules of the study and examination regulations in accordance with paragraph 2, sentence 1, will not be counted towards the permissible number of repeat examinations of the study and examination regulations in accordance with paragraph 1, sentence 1. Sentences 1 and 2 also apply to students who commenced or continued their studies in the winter semester 2022/23 after changing universities or degree programmes in a semester higher than the first semester of the study and examination regulations in accordance with paragraph 2, sentence 1.
- (5) Students who commenced their master's programme in Computer Science, Media Informatics, Software Engineering or Artificial Intelligence before or in the winter semester 2022/23 or who continued their studies after changing universities or programmes may submit a written, irrevocable application to the subject examination board by 1 February 2023 to complete their studies in accordance with the study and examination regulations pursuant to paragraph 1, sentence 1. In these cases, unsuccessful attempts (failed attempts) at identical modules of the study and examination regulations in accordance with paragraph 3, sentence 1, will not be counted towards the permissible number of repeat examinations of the study and examination regulations in accordance with paragraph 1, sentence 1.

Ulm, 6 December 2022

signed

Prof. Dr.-Ing. Michael Weber

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