Please note that this document is a non-binding convenience translation. Only the German version of the document entitled "Prüfungsordnung der Universität Heidelberg für den Bachelorstudiengang Angewandte Informatik", dated 26 March 2015 (published in the President's bulletin [Mitteilungsblatt des Rektors] of 22 April 2015, p. 239ff), has legal validity.

HEIDELBERG UNIVERSITY EXAMINATION RULES AND REGULATIONS FOR THE BACHELOR'S DEGREE PROGRAMME IN APPLIED COMPUTER SCIENCE

of 26 March 2015

On the basis of § 32 of the State Law of Baden-Württemberg on Higher Education (Landeshochschulgesetz - LHG), last modified by the third Act on the Amendment of Higher Education Law (Drittes Hochschulrechtsänderungsgesetz - 3. HRÄG) of 1 April 2014 (GBI. of 8 April 2014, p. 99), the senate of Heidelberg University determined these examination rules and regulations on 24 March 2015.

Approved by the President on 26 March 2015.

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Section I. General provisions

§ 1 Purpose of the academic programme and examination

(1) The Bachelor's degree programme in Applied Computer Science is organised by the Faculty of Mathematics and Computer Science. The Bachelor's degree programme is intended to enable students to gain a first degree that qualifies them to enter a profession. It conveys a broad overview of the subject as well as the academic basis and methods required for entering a profession in the field of computer science. It qualifies students to enrol in the consecutive Master's degree programme in Computer Science, provided that the subject is chosen as a single major accounting for 100% of the Bachelor's degree programme. In addition, the programme provides students with the opportunity to obtain qualifications in other natural sciences as well as areas not associated with natural sciences. The 50% track of the Bachelor's degree programme does not entitle students to enrol in the consecutive Master's degree programme in Applied Computer Science. All further details are governed by the admission regulations for the Master's degree programme in Applied Computer Science.

(2) The purpose of the Bachelor's examination is to assess whether students have mastered the basic principles of computer science, have an overview of the interconnections between the individual disciplines, are able to apply academic methods and knowledge, and have acquired the broad specialised knowledge and methodical and practical skills required to enter into a profession.

(3) The requirements for admission to the academic programme are subject to separate admission regulations.

§ 2 Bachelor's degree

Heidelberg University, represented by the Faculty of Mathematics and Computer Science, awards the academic degree of "Bachelor of Science" (abbreviated "B.Sc.") to those who have passed the Bachelor's examination.

§ 3 Standard period of study, programme structure, requirements

(1) The standard period of study for the Bachelor's degree programme is six semesters, including examinations. Successful completion of the Bachelor's degree programme requires a total of 180 credits (CP) in both compulsory and elective courses.

(2) The Bachelor's programme in Applied Computer Science is a modular programme and is made up of

- a major subject accounting for 100% of the programme workload, with 92 CP allocated for subject-specific study of computer science, 32 CP for mathematics, 24 CP for an area of application and 20 CP for interdisciplinary skills. The Bachelor's thesis is another subject-related requirement and consists of 12 CP.

or

- a major subject accounting for 50% of the programme workload, combined with a second major accounting for the remaining 50%. 74 CP are allocated for each subject, 20 CP for interdisciplinary skills and 12 CP for the Bachelor's thesis, which is written in the first major. Conferment of the academic degree (Bachelor of Arts, Bachelor of Science) conforms with the first major.

(3) Students who choose the Teaching Degree option in order to orient to orient the Bachelor's degree programme towards a later completion of a Master of Education leading to a teaching qualification for German secondary schools (*Gymnasium*) must study two subjects, each accounting for 50% of the programme workload. In this case, the provisions set forth in these examination rules and regulations for the 50% track of the programme as well as the "Framework regulations for the Teaching Degree option in Bachelor's programmes at Heidelberg University" must be observed.

(4) Subjects which can be studied as 50% majors of a double major Bachelor's degree programme may generally be freely combined, provided that the respective courses are offered and no limitations pursuant to paragraph 3 must be observed. In accordance with the regulations, the Bachelor's degree is awarded to students who have passed the prescribed examination components in both majors as well as the interdisciplinary skills, and have completed the Bachelor's thesis. Completing only one subject does not lead to a Bachelor's degree. In accordance with §§ 20 and 21, the faculty of the first major is responsible for issuing the diploma and the degree certificate.

(5) After passing their stage 1 studies, which are the same across all tracks of the programme, students enrolled in the 100% track may choose between different specialisation options. The compulsory and compulsory elective modules are listed in Appendix 2; the sequence in the model syllabus (Appendix 1) should be used for orientation purposes. The compulsory and compulsory elective modules awarding credits for interdisciplinary skills are specified in Appendix 3. The typical areas of application are set forth in Appendix 4. Other application areas not listed in Appendix 4 may be approved upon application to the examinations board.

(6) The subject-relevant compulsory and compulsory elective modules required for the 50 % track are listed in Appendix 6. The sequence of the modules must be based on the model syllabus defined in Appendix 5. The compulsory and compulsory elective modules awarding credits for interdisciplinary skills are set forth in Appendix 7.

(7) Students must take an orientation examination. This examination will be taken during the course of study, and consists of successful completion of the module “Introduction to Applied Computer Science”. The examination consists of successful completion of the practice classes and a written examination lasting 90 minutes. In order to pass the examination, the written examination must be graded as “sufficient” (4.0) or higher.

(8) The orientation examination must be taken by the end of the third semester. Students who have not passed the orientation examination by this deadline are not entitled to take the final examinations, unless the student is not responsible for the deadline being exceeded.

(9) The orientation examination is a component of the Bachelor’s examination.

(10) Generally, the language of instruction and examination is German. Lectures and courses and any related examination components may also be held in English.

(11) If the candidate does not fully complete the Bachelor's examination by the end of the tenth academic semester, they must participate in a consultation session with an academic advisor at the beginning of each subsequent semester until the academic programme is completed. A confirmation of having attended must be presented every semester or the candidate will lose their entitlement to take the examination, unless they are not responsible for exceeding the deadline.

§ 4 Modules, credits and list of grades

(1) A module is a teaching unit, self-contained in terms of both time and content and comprised of various lectures and courses. It not only comprises the lectures and courses attended, but also the components necessary for a passing grade in the module. The modules are described in the module handbook.

(2) The interdisciplinary skills for the 100% track are listed in Appendix 3, and in Appendix 7 for the 50% track.

(3) In order to pass a module, all module components must be graded "sufficient" (4.0) or better (sub-module grades).

(4) Credits are given for successfully completed modules. One credit (CP) corresponds to a workload of 30 hours.

(5) Participation in a module may require previous successful participation in certain lectures or courses.

(6) A transcript of records will be issued at the end of each semester, listing all module examinations passed by the student, including the corresponding credits and grades.

§ 5 Examinations board

(1) An examinations board is formed for organising examinations and tasks defined in these examination rules and regulations. It consists of three professors, a research assistant representative, and a student, who serves in an advisory capacity.

(2) The chairperson of the examinations board, the deputy chairperson as well as the other members and their deputies are appointed by the faculty council. The chairperson and the deputy chairperson must be professors. The examinations board student member and their deputy are appointed by the faculty council based on a proposal from the departmental student committee.

(3) The members are appointed for three years; the student member is appointed for one year. Members may be re-elected.

(4) The examinations board ensures that the examination rules and regulations are upheld. The board reports to the faculty regarding changes to examinations, study periods, and grading on a regular basis. The report must be disclosed in a suitable form.

(5) The chairperson manages the business of the examinations board, prepares and chairs meetings and, in the event of a tie vote, has the deciding vote. The examinations board may confer further responsibilities to the chairperson.

(6) Board members have the right to attend examinations.

(7) Members of the examinations board and their deputies are obligated to maintain professional confidentiality. Those who are not civil servants are must be sworn to secrecy by the chairperson.

§ 6 Examiners and observers

(1) Following consultation with the examinations board, the chairperson of the examinations board appoints the examiners and observers for all examination components. Examiners must be lecturers in the Bachelor's degree programme in Applied Computer Science.

(2) In general, university examinations which are not conducted during the course of study as part of individual courses or lectures may only be conducted by professors, lecturers, associate professors, or research associates who have been granted examination rights by the faculty.

(3) Examinations completed during the course of study are usually conducted by the teacher of the respective course.

(4) Observers must have taken the Bachelor's examination or at least an equivalent final examination.

(5) § 5 Section 7 (official secrecy) shall apply accordingly to examiners and

observers.

§ 7 Recognition of course credits, examination results and academic degrees

(1) Course credits and examination results as well as academic degrees that were obtained through a degree programme at another state or state-recognised higher education institution or college of cooperative education (Berufsakademie) in the Federal Republic of Germany, or through degree programmes at state or state-recognised higher education institutions abroad, will be recognised as long as the skills acquired do not differ significantly from those required for the courses and examinations or the degrees that are replaced. This recognition is required in order to continue an academic programme, take examinations, enrol in a further academic programme or be admitted to a doctoral programme. The validity of § 15, paragraphs 3 and 4 LBG (State Public Service Law) remains unaffected.

(2) Preliminary and intermediate examinations taken at other German universities in the same degree programme or in a similar degree programme will be recognised. Courses completed at recognised distance-learning institutions will be credited towards the duration of the academic programme to the same extent as the corresponding on-campus programme.

(3) It is the applicant's responsibility to provide all information necessary for credits to be recognised. It is the responsibility of the office which carries out the recognition procedure to prove that an application does not fulfil the requirements.

(4) Where agreements and conventions between the Federal Republic of Germany and other states on the equivalence of higher education standards (equivalency agreements) favour students from other states by way of deviation from paragraph 1 and § 59 paragraph 1 clause 1, the provisions of the equivalency agreements take precedence.

(5) Examinations and examination components are to be graded on the basis of a credit system that allows credits from equivalent or similar degree programmes to be recognised. This also applies to universities of cooperative education, provided that equivalence is established.

(6) Knowledge and skills acquired outside of the higher education system are to be recognised for a degree programme at a higher education institution if:

1. the requirements for university admission are fulfilled at the time of recognition,
2. the knowledge and skills to be recognised for the university degree programme are equivalent in both content and level to the course credits and examinations which they are to replace, and
3. the criteria for recognition have been verified in an accreditation.

Knowledge and skills acquired outside of the higher education system may not replace more than 24 credits of the 100% track of the degree programme, or 16 credits of the 50% track. A Bachelor’s thesis will not be recognised. If

required documentation of individual examinations, which serves as proof of specific knowledge and skills, is not provided, the examinations board may request that a placement test be completed.

(7) Credits may be awarded for study and examination components completed in the context of continuing education programmes for professionals (Kontaktstudien). When recognising credits from continuing education programmes for a university degree programme, paragraphs 2 and 5, as well as paragraph 6, clause 1, no. 1 apply accordingly. When recognising knowledge and skills gained outside of the higher education system for continuing education programmes, paragraph 6 applies accordingly.

§ 8 Unexcused absences, withdrawal, deception and breaches of regulations

(1) An examination is graded as "failed" (5.0) if candidates fail to appear without being able to state a valid reason for their absence, or if they withdraw after the examination has started. A written examination that was not produced within the allocated time is also graded as "failed", unless the candidate is not responsible for the deadline being exceeded.

(2) Plausible reasons for withdrawal or absence must be immediately addressed, in writing, to the examinations board. If the candidate, or a child for whom the candidate is generally the sole caregiver, is ill, a medical certificate must be provided. In case of doubt, the University may request a medical certificate from a University-designated physician. If the reasons are accepted, a new examination date will be scheduled. In this case, existing examination results are to be taken into account.

(3) When deciding whether the candidate is responsible for exceeding a deadline for registering for or taking an examination, the examinations board must respect the provisions stated in the Maternity Protection Act and the legal regulations concerning parental leave, and allow candidates to make appropriate use of these provisions. The same applies for students with disabilities or chronic diseases, or for students with dependent relatives, in accordance with § 7 paragraph 3 of the Home Care Leave Act (Pflegezeitgesetz).

(4) If the candidate tries to influence the examination results through deception or by using unauthorised aids, the examination component in question will be graded as "failed" (5.0). If candidates disrupt the proper course of the examination, they may be excluded from further participation in the examination by the examiner or examination supervisor. In this case, the examination result will be graded as "failed" (5.0). In serious cases, the examinations board may exclude the candidate from all further examinations.

(5) Within a period of fourteen days, the candidate may request that the decision be validated by the examinations board in accordance with paragraph 4 clauses 1 and 2. The candidate must be informed of negative decisions immediately and in writing, stating the reasons and providing information on the legal appeals

procedure.

§ 9 Types of examinations

(1) Types of examinations are:
1. oral examination components completed during the course of study
2. written examination components completed during the course of study (electronically where applicable)
3. the Bachelor's thesis (plus presentation).

The admission requirements for examinations completed during the course of study, as well as the type of examination, are defined in the module handbook.

(2) If candidates provide a medical certificate which credibly proves that they are not able to take examination components completely or partially in their intended form, due to long-term or permanent health problems, the examinations board may allow them to take an equivalent examination. The same applies to examination prerequisites.

§ 10 Oral examinations completed during the course of study

(1) In oral examinations, candidates must demonstrate proficiency in the tested subject area.

(2) In general, oral examination components are conducted by one examiner and one observer.

(3) An oral examination lasts between 15 and 60 minutes. Further information can be found in the module handbook.

(4) The relevant results of the oral examination must be recorded in the minutes of the oral examination. Candidates must be notified of examination results immediately following the oral examination.

(5) Students seeking to take the same examination at a later date may be allowed to observe the examination, provided that there is enough space available. The student observers may not be present for the assessment or announcement of the examination results. Upon the candidate’s request, or for other valid reasons, listeners may be prohibited from attending.

§ 11 Written examinations completed during the course of study

(1) In written examinations, candidates should be able to prove that they are able to recognise and solve problems related to their subject, using subject-specific methods and with limited time and resources.

(2) A written examination lasts between 45 and 120 minutes. Further information can be found in the module handbook. Multiple choice questions are permitted. No more than one third of all examination questions may be multiple choice

questions.

(3) Multiple choice questions are generally devised by the lecturer responsible for a course, as appointed by the examinations board. The questions must be tailored to examine the knowledge conveyed in the lecture or course and provide reliable results. Before assessing the examination results, the person responsible, as defined in clause 1, must ensure that the questions for the examination comply with paragraph 3 clause 2. If the examiner finds that individual examination questions are incorrect, these questions must not be considered when assessing the examination results. The total number of examination questions is reduced accordingly and assessment of the examination must be based on this reduced number. Reducing the number of examination questions may not have negative consequences for the candidates.
An examination that includes a multiple choice section is considered to be passed, if at least 50 % of the multiple choice questions were answered correctly, or if the number of the candidate's correctly answered questions is not lower than 22 % of the all candidates' average examination results. (norm-referenced grading).
The multiple choice examination is to be assessed as follows. In case of norm-referenced grading, the scale for assessment is moved lineally by the difference between absolute and relative threshold for passing.

%	corresponds to grade
< 50	5.0
≥ 50 – 55	4.0
> 55 – 60	3.7
> 60 – 65	3.3
> 65 – 70	3.0
> 70 – 75	2.7
> 75 – 80	2.3
> 80 – 85	2.0
> 85 – 90	1.7
> 90 – 95	1.3
> 95 – 100	1.0

An examination that includes a multiple choice section is considered to be "passed" if the weighted average of the individual grades is 4.0 or higher. In this case, the overall grade is calculated as the weighted average of the individual grades; for the benefit of the student, the grade is rounded to the next better of the following grades: 1.0, 1.3, 1.7, 2.0, 2.3, 2.7, 3.0, 3.3, 3.7, 4.0.

(4) If a written examination component takes the form of a term paper, candidates must assure that they are the author of their own work and have used no sources or aids other than those indicated.

(5) The evaluation period for written examinations completed during the course of study should not exceed two weeks.

§ 12 Assessment of examination components

(1) Grades for the individual examination components are determined by the respective examiners. The following grades must be applied for assessment of examinations:

1 = very good	=	an outstanding performance;
2 = good	=	a performance which lies substantially above average requirements;
3 = satisfactory	=	a performance which fulfils average requirements;
4 = sufficient	=	a performance which, despite deficiencies, still meets the requirements;
5 = failed	=	a performance which, due to considerable deficiencies, does not meet the requirements.

To allow a more differentiated assessment of examination results, interim grades may be given by increasing or decreasing the individual grades by 0.3; the grades 0.7, 4.3, 4.7 and 5.3 may not be used.

(2) Students receive a passing grade in an examination component if it has been graded as "sufficient" (4.0) or higher.

(3) Module examinations may consist of several sub-module examinations.

(4) When calculating final module grades, the overall grade pursuant to §19 paragraph 3, and the subject grade pursuant to § 19 paragraph 4, only the first decimal after the point is taken into consideration. The other decimals are dropped without rounding.

(5) In addition to the final grade calculated according to the German system, students who have passed examination components will also be awarded a letter grade (ECTS grade) according to the following scale:

A	the top 10%
B	the following 25%
C	the following 30%
D	the following 25%
E	the following 10%

The grades achieved by at least two previously graduating year groups may also be taken into account when calculating the relative grades for the current graduating year group, depending on the size of the graduating cohort. For degree grades, the ECTS grade must be included. For individual modules, the ECTS grade may be listed when possible and necessary.

§ 13 Retaking examination components

(1) If examinations are not passed, or are considered not to have been passed,

they may be retaken once.

(2) It is not permitted to retake an examination component which has been graded as passed.

(3) If an examination component is failed, it must be retaken within a period of one year. If candidates miss this deadline, they may not retake the examination component, unless they are not responsible for exceeding the deadline.

(4) If a compulsory module is failed at the first retake, a second retake may be granted. The second retake may take the form of an oral examination upon the candidate's request. A second retake is permitted only under exceptional circumstances and only for a maximum of four modules. Approval of a second retake must be requested in writing and granted by the examinations board. A second retake is not possible for the orientation examination and the Bachelor's thesis module.

(5) If a compulsory module examination is failed on the final attempt, the candidate will be dismissed from the academic programme. Failure of compulsory elective modules and optional modules may be offset by the successful completion of a different module.

Section II: Bachelor's examination

§ 14 Bachelor's examination admission requirements and procedure for the Bachelor's examination

(1) Admission to the individual components of the Bachelor's examination defined in § 15 Section 1 may only be granted to candidates who:

1. are enrolled in the Bachelor's degree programme in Applied Computer Science at Heidelberg University,
2. have not lost their entitlement to take the final examinations in the Bachelor's degree programme in Applied Computer Science, in other degree programmes with comparable content, or in the teaching degree programme in Computer Science. Candidates enrolled in the 50% track of the Bachelor's degree programme in Applied Computer Science at Heidelberg University who lose their entitlement to take the final examinations may not continue the programme by enrolling in the 100% track of the Bachelor's degree programme in Applied Computer Science at Heidelberg University; candidates enrolled in the 100% track of the Bachelor's degree programme in Applied Computer Science who lose their entitlement to take the final examinations may continue the programme by enrolling in the 50% track of the Bachelor's degree programme in Applied Computer Science.

(2) Certificates proving the following must be provided for admission to the Bachelor's thesis:

1. passed orientation examination,
2a. evidence of at least 120 credits for candidates enrolled in the 100% track, or
2b. for candidates enrolled in the 50% track, evidence of at least 120 credits earned from both subjects, with at least 60 CP earned in the applied computer science programme.

(3) The application for conferral of the Bachelor's degree must be made in writing and addressed to the chairperson of the examinations board. The application must include the following documents:

1a) For the 100% track: Proof of a total of 180 credits earned in the applied computer science programme and application area (Appendices 1 to 4) in accordance with the catalogue of compulsory and compulsory elective modules; in particular proof of the successfully completed Bachelor's thesis or
1b) for the 50% track with applied computer science as the first major: Proof of a total of 180 credits earned in both major subjects, interdisciplinary skills and the Bachelor's thesis.
2. A declaration pursuant to paragraph 1.

(4) The chairperson of the examinations board makes the decision on the application. Rejections must be substantiated and notified in writing along with instructions for appeal.

(5) If the candidate is unable to provide such evidence, the examinations board may accept other documents as proof.

(6) The application will be rejected if:

1. the documents are incomplete, or
2. the conditions set forth in paragraph 1 are not fulfilled , or
3. the candidate has lost their entitlement to take the final examinations in the applied computer science programme or in any other degree programme with comparable content, or in the computer science teaching degree programme, or
4. the candidate is currently undergoing an examination procedure in one of these programmes.

§ 15 Scope, nature and organisation of the Bachelor's examination

(1) The Bachelor's examination in the applied computer science degree programme consists of:

1. the orientation examination
2. the module examinations completed during the course of study in accordance with Appendices 1 to 4 for the 100 % track or Appendices 5 to 7 for the 50% track
3. the Bachelor's thesis plus presentation for the 100% track or for the 50% track with applied computer science as the first major.

(2) Examinations pursuant to paragraph 1 no. 2 are taken as an integrated part of

the lecture or course. They can be in written or oral form. The duration and nature of examinations pursuant to paragraph 1 no. 2 must comply with the specifications set forth in the module handbook and will be determined by the teacher responsible for the course, who will announce this information at the beginning of the course.

§ 16 Bachelor's thesis

(1) The purpose of the Bachelor's thesis is for candidates to prove that they are able to work independently, within a given period of time and using computer science methods, on a problem from the field of computer science or one of its application areas.

(2) The Bachelor's thesis may be assigned and supervised by any authorised examiner in accordance with § 6 paragraphs 1 and 2.

(3) The candidate must start working on the Bachelor's thesis no later than during the semester following successful completion of the final examination component pursuant to § 15 paragraph 1 no. 2. If the deadline is not met, the Bachelor's thesis will be graded as "failed" (5.0), unless the candidate is not responsible for the deadline being exceeded.

(4) The Bachelor's thesis topic will be determined by the thesis supervisor, having consulted with the candidate. If an application for assignment of a topic is submitted, the chair of the examinations board shall ensure that the candidate receives a topic for the Bachelor's thesis in due time. The candidate shall be given the opportunity to propose topics. However, this does not constitute a legal entitlement to a particular topic. The chairperson of the examinations board assigns the thesis topic; the date of assignment must be recorded.

(5) The topic, task and scope of the Bachelor's thesis must be limited in such a way that the candidate will be able to complete the Bachelor's thesis within three months of full-time work.

(6) The deadline for submission of the Bachelor's thesis is three months after assignment of the topic. If the examination components pursuant to § 15 paragraph 1 no. 2 have not yet been fully completed by the date of topic assignment, the period for completion will be extended to 4 months. In exceptional cases, the examinations board may extend this deadline by up to six weeks. If the deadline is exceeded, the Bachelor's thesis will be graded as "failed" (5.0), unless the candidate is not responsible for exceeding the deadline.

(7) The Bachelor's thesis may be written in German or English. It must contain German and English summaries.

§ 17 Submission and assessment of the Bachelor's thesis

(1) Three copies of the Bachelor's thesis must be submitted to the examinations board by the deadline; the submission date must be recorded.

(2) When submitting the Bachelor's thesis, the candidate must assure in writing that he/she is the author of the work and has used no sources or aids other than those indicated.

(3) The Bachelor's thesis is evaluated by the thesis supervisor. If the supervisor cannot evaluate the thesis due to serious reasons, he/she must inform the examinations board immediately. The examinations board, in turn, will arrange for another examiner to assess the thesis. In this case, the original supervisor will usually recommend a qualified substitute examiner. The assessment procedure should generally not exceed a four week period.

(4) If the thesis receives a “failing” grade (5.0), or the candidate submits a justified claim to the examinations board within 4 weeks after the initial evaluation of their Bachelor’s thesis, the examinations board will appoint another examiner to evaluate the thesis. In this case, the final grade will be decided by the examinations board. The final grade is based on the arithmetic mean of both evaluations. If one of the grades is “sufficient” (4.0) or higher and the other is a “fail” (5.0), the examinations board may request a third assessment from an additional examiner.

(5) If the Bachelor's thesis is graded as "failed" (5.0), it may be retaken with a new topic once; retaking the thesis with the previous topic is not possible.

§ 18 Presentation of the Bachelor's thesis

(1) As part of the Bachelor’s thesis, the candidate must give an oral presentation on the content of the thesis. Candidates shall present and defend the findings of their Bachelor’s thesis in a discussion with the examiner. In this presentation, the candidate must prove that they have sufficient knowledge of the basic principles of the Bachelor's thesis topic and associated fields. This oral presentation must generally be given within two weeks of submission of the Bachelor’s thesis.

(2) Pursuant to § 17 paragraph 3, the presentation of the Bachelor's thesis must be given in the presence of the examiner. Its result will be taken into account to determine the grade of the Bachelor’s thesis.

(3) The presentation of the Bachelor’s thesis lasts between 30 and 60 minutes.

(4) All computer science students and teaching staff will be informed of the date of the presentation. All members and students of the Faculty of Mathematics and Computer Science may attend the presentation of the Bachelor’s thesis if sufficient space is available. Other persons may be allowed to attend the examination upon the candidate’s request. Upon the candidate’s request, or for other valid reasons, listeners may be prohibited from attending.

§ 19 Passing the examination and overall grade

(1) The Bachelor's examination is passed if all required modules pursuant to Appendices 1 to 4 for the 100% track, or pursuant to Appendices 5 to 7 for the 50% option, and, where applicable, the Bachelor's thesis (including presentation), have been completed and graded as "sufficient" (4.0) or higher.

(2) § 12 applies to the assessment of all examination components and the overall grade.

(3) For the 100% track, the following grades are taken into account to calculate the overall grade of the Bachelor's examination:
- the grades of the subject-specific module examinations completed during the course of study pursuant to Appendix 2, however without taking into account the grades of the basic compulsory modules,
- the grades of the application area modules pursuant to Appendix 4,
- the grade of the Bachelor's thesis (including presentation).

The weighting of the grades is as follows:
- the average of the grades earned for the modules in Appendix 2 (without the basic compulsory modules) and Appendix 4, weighted according to the number of credits, accounts for 70%,
- and the grade of the Bachelor's thesis (including presentation) accounts for 30%.

(4) With respect to the 50% track, the subject grade for applied computer science is calculated as the average of the module examinations completed during the course of study specified in Appendix 6, weighted according to the number of credits earned, however without taking into account the grades of the basic compulsory modules.

If applied computer science is chosen as the first major subject of a double major (50% track), the overall grade of the Bachelor's examination is made up of the subject grades in computer science and the second major subject, and the grade of the Bachelor's thesis. The weighting of the grades is as follows: the two subject grades account for 35%, respectively, and the Bachelor's thesis accounts for 30% of the grade.

(5) The overall grade is determined as follows:

for an average up to/including 1.5	very good
for an average between 1.6 and up to/including 2.5	good
for an average between 2.6 and up to/including 3.5	satisfactory
for an average between 3.6 and up to/including 4.0	sufficient

If the overall grade is 1.0, the degree will be conferred with the notation: "with distinction".

§ 20 Bachelor's diploma

(1) After the Bachelor's examination is passed, a diploma will be issued within four weeks after the final examination. It lists all individual modules, including the Bachelor's thesis, and the respective grades and associated credits, as well as

the overall grade. The diploma must be signed by the chairperson of the examinations board and bears the date of completion of the last examination component. In case of a double major, the diploma will list all modules, grades and credits for both subjects.

(2) A Diploma Supplement in German and English is added, containing additional information about the course content and period of study.
The content complies with the European Diploma Supplement Model.

§ 21 Bachelor's certificate

(1) A Bachelor's certificate is issued with the diploma, bearing the same date. It certifies the conferment of the academic degree. In case of a double major (50% track), the second major subject will also be specified.

(2) The Bachelor's certificate is signed by the Dean of Studies and the chairperson of the examinations board, and bears the faculty seal.

(3) If the candidate fails the Bachelor's examination, a certificate will be issued on request and on presentation of relevant proof, listing completed examination components and the corresponding grades as well as the missing examination components required for passing the Bachelor's examination. It is signed by the chairperson of the examinations board and includes a note that the Bachelor's examination was failed. The same applies to the Bachelor's examination if failed on the final attempt.

Section III. Final provisions

§ 22 Invalidity of examinations

(1) If a candidate has deceived in an examination and this is only discovered after the diploma has been issued, the examinations board may accordingly change the examination results affected by the deception, and may declare the examination partially or completely failed.

(2) If the candidate fails to fulfil the requirements for admission to the examination, but concealment of this failure was unintentional on the part of the candidate, and this failure is only discovered after the diploma has been issued, the passed examination is considered to compensate for this shortcoming. If the candidate intentionally deceived in order to gain admission to the examination, the examinations board will make a decision on the matter.

(3) Before the decision is made, candidates will be given the opportunity to provide an explanation.

(4) Fraudulent examination diplomas will be confiscated and, if necessary, a new diploma will be issued. The Bachelor's certificate will be confiscated along with the fraudulent examination diploma if the examination was graded as "failed"

due to deception. In accordance with paragraph 1 and paragraph 2, clause 2, a decision may not be made more than five years after the date indicated on the examination diploma.

§ 23 Access to examination documents

Within a year after the examination procedure has been completed, the candidate may request access to written examination documents, examiners' reviews, and the examination minutes. The chairperson of the examinations board, in consultation with the candidate, decides when and where access will be given.

§ 24 Coming into force and transitional provisions

(1) These examination rules and regulations become effective on the first day of the month following their publication in the President's bulletin (Mitteilungsblatt des Rektors). At the same time, the examination rules and regulations of 3 July 2012 (President's bulletin of 23 July 2012, last modified on 7 February 2013 (President's bulletin of 28 February 2013, p. 59 ff) are suspended.

(2) Students already enrolled in the Bachelor's degree programme in Applied Computer Science at Heidelberg University on the date on which these examination rules and regulations come into force may apply to continue their course of studies in accordance with the previous examination rules and regulations for a period of up to two years. The application must be submitted to the examinations office within 6 months of the date of entry into force.

Heidelberg, 26 March 2015
Professor Dr. rer. nat. Bernhard Eitel
President

Appendix 1

Structure of the Bachelor's degree programme in Applied Computer Science (100% track)

Students may choose between two different curriculum options for the first three semesters. They differ with respect to the chosen mathematics modules.

Option 1:

1. Year:

1. Semester:

Introduction to Practical Computer Science	8 CP
Programming course	3 CP
Introduction to Computer Engineering	8 CP
Mathematics for Computer Science 1	8 CP

2. Semester:

Algorithms and Data Structures	8 CP
Operating Systems and Networks	8 CP
Preparatory seminar (*see note no. 3*)	3 CP
Mathematics for Computer Science 2	8 CP

May be freely distributed across the programme:

Application area and/or freely selectable cross-disciplinary skills	6 CP
	-------60 CP

2. Year:

3. Semester:

Software Engineering	8 CP

4. Semester:

Introduction to Theoretical Computer Science	8 CP
Databases	8 CP

May be freely distributed across the programme:

Beginner's Lab (*see note no. 3*)	6 CP
Introduction to Numerical Mathematics	8 CP
Compulsory elective	8 CP
Application area and/or freely selectable cross-disciplinary skills	14 CP
	-------60 CP

3rd year:

Advanced Lab	8 CP
Seminar	4 CP
Compulsory elective	18 CP
Application area and/or freely selectable cross-disciplinary skills	18 CP

Bachelor's thesis (plus presentation)	12 CP
	-------60 CP
	====== 180 CP

Option 2:

1. Year:

1. Semester:

Introduction to Practical Computer Science	8 CP
Programming course	3 CP
Linear Algebra	8 CP
Analysis	8 CP

2. Semester:

Algorithms and Data Structures	8 CP
Operating Systems and Networks	8 CP
Preparatory seminar (*see note no. 3*)	3 CP
Compulsory elective	8 CP

May be freely distributed across the programme:

Application area and/or freely selectable cross-disciplinary skills	6 CP
	-------60 CP

2. Year:

3. Semester:

Software Engineering	8 CP
Introduction to Computer Engineering	8 CP

4. Semester:

Introduction to Theoretical Computer Science	8 CP
Databases	8 CP

May be freely distributed across the programme:

Beginner's Lab (*see note no. 3*)	6 CP
Introduction to Numerical Mathematics	8 CP
Application area and/or freely selectable cross-disciplinary skills	14 CP
	-------60 CP

3rd year:

Advanced Lab	8 CP
Seminar	4 CP
Compulsory elective	18 CP
Application area and/or freely selectable cross-disciplinary skills	18 CP
Bachelor's thesis (plus presentation)	12 CP
	--------
	60 CP
	====== 180 CP

Explanations and Comments

1. The modules are interchangeable in terms of which semester they are taken, as long as this does not disrupt the sequence of the courses.

2. The modules are described in the Bachelor's module handbook and, for the compulsory electives, in the Master's module handbook. Students may (but are not obligated to) choose specialisations, which are also described in the Bachelor's module handbook.

3. The credits for the preparatory seminar and the beginner's lab consist of credits for subject-specific studies (S) and credits for interdisciplinary skills (IDS).

    a. Preparatory seminar: 1 CP (S) + 2 CP (IDS)
    b. Beginner's Lab: 2 CP (S) + 4 CP (IDS)

    Further interdisciplinary skills credits may be earned by completing coursework pursuant to Appendix 3 B.

4. In addition to the compulsory work placements, credits may be earned by completing a maximum of one other advanced lab.
5. It is recommended that students do a two-month industry placement.

Appendix 2

Subject modules for the 100 % track

A. Basic compulsory modules:

Computer Science:	
Introduction to Practical Computer Science	8 CP
Programming course	3 CP
Introduction to Computer Engineering	8 CP
Mathematics:	
Mathematics for Computer Science 1 or Linear Algebra 1	8 CP
Mathematics for Computer Science 2 or Analysis 1	8 CP

B. Further compulsory modules:

Computer Science:	
Algorithms and Data Structures	8 CP
Operating Systems and Networks	8 CP
Introduction to Theoretical Computer Science	8 CP
Databases	8 CP
Software Engineering	8 CP
Preparatory seminar (plus 2 CP of IDS)	1 CP
Seminar	4 CP
Beginner's Lab (plus 4 CP of IDS)	2 CP
Advanced Lab	8 CP
Bachelor's thesis (plus presentation)	12 CP
Mathematics:	
Introduction to Numerical Mathematics	8 CP

C. Compulsory elective modules

Computer Science:
The Bachelor's compulsory elective modules are listed in the Bachelor's module handbook. In addition, students may take the modules of the Master's degree programme in Applied Computer Science.

Mathematics:
One of the compulsory elective modules must be chosen as a mathematics compulsory elective module from the following module options: Analysis 2, Mathematical Logic or Introduction to Probability Theory and Statistics. In addition, up to another 8 CP may be earned from the mathematical subject modules of the Bachelor's degree programme in Mathematics. A total of 16 CP may be earned from the range of mathematics modules and courses.

Explanations and Comments

1. The basic compulsory modules will not form part of the overall grade pursuant to § 19 paragraph 3.
2. In the case of courses that constitute a combination of computer science and interdisciplinary skills, all credits will be included in the calculation of the overall grade pursuant to §19 Section 3.

Appendix 3

Interdisciplinary skills for the 100 % track

A. Key Skills:

Teaching key skills is part of the subject modules, and the credits awarded for these skills make up part of the module credits.

Presentation (integrated in the preparatory seminar)	2 CP
Working in a team (integrated in Beginner's Lab)	4 CP

Once the application area has been passed, additional credits will be awarded for:

Interdisciplinary work	6 CP

B. Compulsory elective modules:

The remaining 8 CP must be chosen from the following range of modules

- Courses and lectures offered by the university that are not part of the course offer of the Applied Computer Science degree programme or the application area (this also includes language courses, but not the courses offered by the University Computing Centre)
- Range of computer science IDS courses or application area IDS courses. Further details are specified in the module handbook's "Interdisciplinary Skills" chapter.

Appendix 4

Application areas for the 100% track

The typical application areas are listed below. Further requirements for these application areas are specified in the module handbook.
Upon request, additional application areas may be approved by the examinations board in accordance with § 3 paragraph 5.
Specialised application area modules with a focus on computer science may be recognised towards the electives component of the Bachelor's programme upon request.

A. Astronomy
B. Biosciences
C. Chemistry
D. Computational linguistics
E. Geography
F. Earth sciences
G. Mathematics
H. Philosophy
I. Physics
J. Economics

Appendix 5

Structure of the 50% track of the Bachelor's degree programme in Applied Computer Science

1st year:

1. Semester:

Introduction to Practical Computer Science	8 CP
Programming course	3 CP

2. Semester:

Algorithms and Data Structures	8 CP
Introduction to Theoretical Computer Science	8 CP
	--------27 CP

2. Year:

3. Semester:

Introduction to Computer Engineering	8 CP
Mathematics for Computer Science 1 or compulsory elective *(see note no. 4)*	8 CP

4. Semester:

Operating Systems and Networks 8 CP
Preparatory seminar or Computer Science and Society (*see note no. 5*) 3 CP
--------27 CP

3. Year:

5. Semester:
Software Engineering 8 CP

6. Semester:
Databases 8 CP
Optional: Bachelor's thesis (plus presentation) (12 CP)

May be freely distributed across the programme
Seminar 4 CP
Beginner's Lab or Computer Science and Society (*see note no. 5*) 6 CP
Freely selectable IDS 4 CP

--------30 CP

======
84 CP

Explanations and Comments

1. The described programme structure only lists the subject-specific studies in applied computer science with 74 CP and 10 CP of interdisciplinary skills. To this must be added the second major subject consisting of 74 CP, and an additional10 CP of interdisciplinary skills.

2. The credits obtained for the Bachelor's thesis in the first major subject are not included in the credit total for the third academic year or the subject component.

3. The modules are interchangeable in terms of which semester they are taken, as long as this does not disrupt the sequence of the courses.

4. Candidates who have successfully completed a mathematics course in the second major may apply to the examinations board in order to have the Mathematics for Computer Science 1 module replaced by a compulsory elective module of 8 CP in computer science (see 100% track, Appendix 2).

5. The credits for the preparatory seminar and the beginner's lab consist of credits for subject-specific studies (S) and credits for interdisciplinary skills (IDS).

   a. Preparatory seminar: 1 CP (S) + 2 CP (IDS)
   b. Beginner's Lab: 2 CP (S) + 4 CP (IDS)

   Additional interdisciplinary skills credits may be earned through credit-eligible

coursework pursuant to Appendix 7.

Students who choose the Teaching Degree option in order to orient the Bachelor's degree programme towards a later completion of a Master of Education programme leading to a teaching qualification for higher secondary schools (Gymnasium) must choose a course of 3 CP from the "Computer science and Society" (Informatik und Gesellschaft – IuG) range of courses in place of the preparatory seminar and beginner's lab.

6. In addition to the compulsory work placements, credits may be earned by completing a maximum of one other advanced lab.

7. It is recommended that students do a two-month industry placement.

Appendix 6

Subject modules for the 50% track

A. Basic compulsory modules:

Computer Science:	
Introduction to Practical Computer Science	8 CP
Programming course	3 CP
Introduction to Computer Engineering	8 CP
Mathematics:	
Mathematics for Computer Science 1	8 CP

B. Further compulsory modules:

Algorithms and Data Structures	8 CP
Operating Systems and Networks	8 CP
Introduction to Theoretical Computer Science	8 CP
Databases	8 CP
Software Engineering	8 CP
Seminar	4 CP
Optional: Bachelor's thesis (plus presentation)	12 CP

C. Compulsory elective modules:

Candidates who have completed a mathematics module in the second major in place of Mathematics for Computer Science 1, must instead choose compulsory elective modules of 8 CP in computer science (see 100% track, Appendix 2).

An additional 3 CP must be earned from the following options:

(a) Preparatory seminar (1 CP) and beginner's lab (2 CP)
(b) Computer Science and Society (3 CP)

Students should note that (a) requires an additional 6 CP of IDS.

Explanations and Comments

1. The basic compulsory modules will not form part of the overall grade pursuant to § 19 paragraph 4.
2. In the case of courses that constitute a combination of mathematics and interdisciplinary skills, all credits will be included in the calculation of the overall grade in pursuant to §19 paragraph 4.

Appendix 7

Interdisciplinary skills for the 50% track

With respect to the 50% track, these examination rules and regulations only cover 10 CP of interdisciplinary skills; the remaining 10 credits are subject to the rules and regulations applicable to the other major. For the Teaching Degree option, only the courses listed under C. apply.

A. Key Skills:

Teaching key skills is part of the subject modules, and the credits awarded for these skills make up part of the module credits.

Presentation (integrated in the preparatory seminar)	2
CP Working in a team (integrated in Beginner's Lab)	4
CP	

B. Compulsory elective modules:

The remaining 4 CP must be earned from the following range of courses:

- Courses and lectures offered by the university that are not part of the course offer of the Applied Computer Science degree programme or the application area (this also includes language courses, but not the courses offered by the University Computing Centre)
- Interdisciplinary skills courses on computer science. Further details are specified in the module handbook's "Interdisciplinary Skills" chapter.

C. Teaching Degree option:

Students who choose the Teaching Degree option in order to orient the Bachelor's degree programme towards a later completion of a Master of Education leading to a teaching qualification for German secondary schools (Gymnasium) must begin developing teaching skills during the Bachelor's degree programme. This entails gaining a total of 20 CP within the interdisciplinary skills, which can be recognised across subjects/separately (cf. Framework regulations for the Teaching Degree option).

The 20 CP are comprised of:

- Specialised didactics in subject 1 (2 CP)
- Specialised didactics in subject 2 (2 CP)
- Introduction to School Pedagogy/Pedagogical Psychology (6 CP)
- Basics of Education Studies (4 CP)
- Vocational placement (3 weeks) in a school (3 CP)
- Vocational placement (3 weeks) in an educational institution or school (3 CP)

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