TUD Dresden University of Technology
Faculty of Computer Science

Examination Regulations for the Consecutive Master's degree program in Computer Science

as of May 22nd, 2025

On the basis of § 35 para. 1 sentence 1 of the Saxon Higher Education Act (SächsHSG) in the version published on May 31, 2023 (SächsGVBl. p.329), last amended by Article 2 of the Act of January 31, 2024 (SächsGVBl. p. 83), TUD Dresden University of Technology issues the following Examination Regulations as statutes:

Content overview

Section 1: General regulations

§ 1 Standard period of study
§ 2 Degree program and examination structure
§ 3 Deadlines and dates
§ 4 General admission requirements and admission procedures
§ 5 Examined assessments
§ 6 Written examinations (*Klausuren*)
§ 7 Term papers
§ 8 Oral examinations
§ 9 Complex assessments
§ 10 Portfolios
§ 11 Scientific-practical assessments
§ 12 Language examinations
§ 13 Electronic examinations
§ 14 Students with a disability, chronic illnesses or with family responsibilities
§ 15 Assessment of examined assessments, calculation and weighting of grades, publication of examination results
§ 16 Withdrawal, extension of alloted times
§ 17 Cheating, violation of rules and regulations
§ 18 Waiving
§ 19 Passing and failing
§ 20 Free attempt
§ 21 Re-taking module examinations
§ 22 Recognition of study achievements and examined assessments, periods of study, and qualifications obtained outside a university
§ 23 Examination Committee
§ 24 Examiners and assessors
§ 25 Purpose of the graduation examination
§ 26 Final thesis and colloquium
§ 27 Examination certificate and transcript of records
§ 28 Voiding of an examination

§ 29 Access to examination documents and files

Section 2: Subject-specific regulations

§ 30 Duration, structure and scope of the degree program
§ 31 Subject-specific admission requirements for the final examination
§ 32 Bonus achievements
§ 33 Subject, nature and scope of the final examination
§ 34 Allotted time, form and copies of the final thesis; colloquium
§ 35 Weighting for the final and overall grades
§ 36 Additional information in graduation documents
§ 37 University degree

Section 3: Final regulations

§ 38 Entry into force, publication and interim arrangements

Appendix 1 (concerning § 33 para. 3) General Qualification Modules
Appendix 2 (concerning § 33 para. 3) Open Track Modules
Appendix 3 (concerning § 33 para. 3) Distributed Systems Engineering Track Modules

Section 1: General regulations

§ 1
Standard period of study

The standard period of study for the degree program includes on-site attendance, independent study, in some cases, supervised practice periods, and the final examination.

§ 2
Degree program and examination structure

(1) The program is divided into modules and is concluded with the final examination. The final examination in Bachelor's degree programs is the Bachelor's examination, in Master's degree programs the Master's examination, and in *Diplom* degree programs the *Diplom* examination.

(2) The final examination consists of module examinations as well as the final thesis and, if required in part 2: "Subject-specific regulations," the colloquium. A module is concluded by a module examination, which consists of at least one examined assessment. Examined assessments are accomplished throughout the program. The final thesis in Bachelor's degree programs is the Bachelor's thesis, in Master's degree programs the Master's thesis, and in *Diplom* degree programs the *Diplom* thesis.

(3) The required examined assessments in the modules as well as their type and structure are specified in the module descriptions. The subject matter of the examined assessments consist of the content and skills acquired in the module, if not stated otherwise in the module descriptions.

(4) For the components of the final examination pursuant to para. 2 sentence 1, subject-specific admission requirements may be specified. In particular, coursework may be required as preliminary academic work for module examinations if this is necessary (as an exception) to ensure that taking the examination is reasonable. Their number, type and design are regulated in the module descriptions, mere attendance is not deemed preliminary academic work. Additional subject-specific admission requirements may be specified in part 2: "Subject-specific regulations." If subject-specific admission requirements have been fulfilled in the form of elective compulsory modules, a later re-selection is feasible. Subject-specific admission requirements that would be fulfilled by a waiver pursuant to § 18 shall be deemed to have been fulfilled if the student makes a declaration to that effect.

(5) Students can take examinations in modules other than those covered by the final examination (additional modules). Optionally, these module examinations can be selected from the full range of modules offered at TU Dresden or a cooperating university after consultation with the examiner. They do not enter into the calculations of a student's workload nor of the overall grade.

§ 3
Deadlines and dates

(1) The final examination shall be taken within the standard period of study. A final examination that has not been taken within four semesters following the standard period of study will be considered as failed. A failed final examination can be repeated once within one year. Following the expiration of this deadline, it is deemed as failed again. A second repeat examination is only possible the next time it is held, thereafter the final examination is deemed to be irrevocably failed.

(2) Module examinations shall be taken by the end of the semester stated in the study schedule.

(3) TU Dresden, through its study regulations and courses offered, ensures that study achievements and examined assessments as well as the final thesis and, if required, the colloquium can be completed within the specified periods of time. The dates of the required study achievements and examined assessments as well as the dates of issue and submission of the final thesis and, if required, the date of the colloquium will be announced in the usual manner.

§ 4
General admission requirements and admission procedures

(1) Students can only be admitted to the final examination pursuant to § 2 para. 2 sentence 1 if:
1. they are enrolled in the degree program at TU Dresden, and
2. they have proven the subject-specific admission requirements, and
3. they have made a declaration regarding para. 4 no. 3 recorded in a data processing system.

(2) In order to submit or take examined assessments of the module examinations, students must register. Withdrawal is possible without giving reasons up to three working days before the examination date; the Examination Committee may, in consultation with the Academic Affairs Committee, determine a different date up to 14 days before the examination date at the earliest; this date must be announced at the beginning of the semester in the usual manner. The Examination Committee specifies the deadlines and procedures for registration and withdrawal, and publishes them at the beginning of each semester in the usual manner. The same applies to preliminary academic work.

(3) Admission is granted
1. to a module examination by the electronic examination administration system based on the automated verification of the admission requirements when the first registration for an examined assessment of this module examination is made,
2. to the final thesis by the chairperson of the Examination Committee on the basis of a student's request for issuance of the topic, or if § 26 para. 3 sentence 5 applies, upon issue of the topic, and
3. to the colloquium by the responsible Examination Office on the basis of the evaluation of the thesis with a grade of at least "pass" (4.0), provided that the final examination pursuant to § 2 para. 2 sentence 1 includes a colloquium.

(4) Admission is denied if
1. the requirements stated in para. 1 or the rules of procedure stated in para. 2 are not met, or
2. the documents are incomplete, or
3. the student has already irrevocably failed an examination required for the completion of the degree.

(5) Admission is refused by the Examination Committee.

§ 5
Examined assessments

(1) Examined assessments are
1. written examinations (*Klausuren*) (§ 6),
2. term papers (§ 7),
3. oral examinations (§ 8),
4. complex assessments (§ 9),
5. portfolios (§ 10),

6. scientific-practical assessments (§ 11), and
7. language examinations (§ 12).
Examined assessments or individual tasks can be carried out according to the multiple-choice (MC) method if this is accounted for in the regulations applicable to the degree program. If examined assessments or individual tasks are carried out according to sentence 2, the student should demonstrate the knowledge and skills detailed in the qualification objective of the module.

(2) Study achievements and examined assessments must be completed in German or, if indicated by the module descriptions, in English. If, according to the module description, a module primarily serves to acquire foreign language qualifications or subject-specific qualifications in a foreign language, study achievements and examined assessments may also have to be completed in the respective foreign language if required by the respective assignment. Upon a student's request, study achievements and examined assessments can also be taken in another language if the Examination Committee agrees to this in consultation with the examiner.

§ 6
Written examinations (*Klausuren*)

(1) Written examinations are taken on-site and produce a "physical result" (*gegenständlich*), e.g. written piece of work.

(2) In written examinations, students prove that they are able to solve tasks and analyze topics drawing on the required knowledge and using the standard methods of the degree program with time constraints and with limited resources.

(3) The duration of the written examinations is specified in the module descriptions and shall be no less than 60 minutes and shall not exceed 240 minutes.

§ 7
Term papers

(1) Term papers are completed as non-attendance learning assignments, and produce a "physical result" (*gegenständlich*), e.g. written paper.

(2) Term papers are intended to demonstrate the student's competence in dealing with selected issues on the basis of specialist literature and other sources within a limited period of time as well as to verify that fundamental techniques of scientific work can be applied. This includes the ability to work in a team, if required by the task at hand. Where indicated in the module descriptions, term papers also include the demonstration of the ability to coherently present and discuss aspects of the work at hand orally, in accordance with the respective assignment (combined term paper).

(3) The time required for term papers is specified in each case in the module descriptions and must not exceed 300 hours. Derived from this, the deadline for submission is to be determined as part of the respective assignment.

(4) For oral individual assessments of combined term papers, § 8 para. 5 shall apply accordingly.

(5) If the term paper consists of teamwork, the individual contributions must be clearly identifiable and assessable and must meet the requirements set out in para. 2.

§ 8
Oral examinations

(1) Oral examinations are taken on-site and do not produce a “physical result” (*nicht gegenständlich*). The focus is on what the student expresses.

(2) Oral examinations serve to provide the direct demonstration of linguistic and communicative competencies, in particular in the form of conversation, lectures, presentation or discussion, of the specialist knowledge corresponding to the level of study and of the understanding of the contexts of the examined field. The respective task determines which of the skills are the focus of the examination.

(3) Oral examinations are conducted as group examinations with up to five persons or as individual examinations as specified in the module descriptions.

(4) The duration of the oral examinations is specified in the module descriptions and shall be no less than 15 minutes and shall not exceed 60 minutes per student. Group examinations may not exceed a total duration of 75 minutes.

(5) Oral examinations shall be taken in the presence of at least two examiners (colleague examination) or one examiner and one expert assessor (§ 24). The main points and results of the oral examination shall be recorded in a protocol.

(6) Oral examinations may be conducted with or without the public being admitted. For public oral examinations, listeners may be admitted if the facilities allow for it, unless one of the examiners objects. For oral examinations which are not open to the public, the Examination Committee in agreement with the examiners (in case of a colleague examination) or with the examiner (if there is only one examiner) may only admit a student who wishes to take the same examination at a later examination date (than the examined student) as a listener upon application by the student and if the facilities allow for it, unless the student who takes the exam objects. Procedures and the deadline for the application are specified by the Examination Committee and published in the usual manner. The module descriptions stipulate whether the oral examination is public or non-public. The deliberation and announcement of the examination results always take place without listeners.

§ 9
Complex assessments

(1) Complex assessments can comprise on-site assessments and off-site assessments and can include written or other individual assessments involving a “physical result” (*gegenständlich*) as well as oral or other individual assessments not involving any “physical result” (*nicht gegenständlich*).

(2) Complex assessments serve to demonstrate the student's ability to develop, implement, and present concepts. The student shall demonstrate the competence to define goals for an overarching task and to develop solutions. This includes the ability to work in a team, if required by the task at hand.

(3) The time required for complex assessments is specified in each case in the module descriptions and must not exceed 450 hours. Derived from this, the deadline for the submission of individual assessments and the duration of individual assessments are to be determined as part of the respective assignment.

(4) For oral or other individual assessments not involving any “physical result,” § 8 para. 5 shall apply accordingly.

(5) If the complex assessment consists of teamwork, the individual contributions must be clearly identifiable and assessable and must meet the requirements set out in para. 2.

§ 10
Portfolios

(1) Portfolios can comprise on-site and off-site assessments, and produce a “physical result” (*gegenständlich*), e.g. written paper.

(2) Portfolios serve to demonstrate, by means of a compilation of similar or disparate individual assessments, the student's ability to place the aspects of professional, scientific activity that are specified by the respective task in an overarching context. This includes the ability to work in a team, if required by the task at hand.

(3) The time required for the portfolios is specified in each case in the module descriptions and must not exceed 300 hours. Derived from this, the deadline for the submission of individual assessments, the duration of individual assessments, and the deadline for the submission of the complete portfolio are to be determined as part of the respective assignment.

(4) If the portfolio consists of teamwork, the individual contributions must be clearly identifiable and assessable and must meet the requirements set out in para. 2.

§ 11
Scientific-practical assessments

(1) Scientific-practical assessments are taken on-site and do not produce a “physical result” (*nicht gegenständlich*). The focus is on the students' actions.

(2) Scientific-practical assessments serve to demonstrate the ability to perform tasks in accordance with the requirements of the discipline.

(3) The duration of scientific-practical assessments is specified in the module descriptions and shall be no less than 15 minutes and shall not exceed 45 minutes.

(4) § 8 para. 5 shall apply accordingly.

§ 12
Language examinations

(1) Language examinations are taken on-site and can include individual assessments involving a “physical result” (*gegenständlich*), e.g. a written assessment, as well as oral or other individual assessments not involving any “physical result” (*nicht gegenständlich*).

(2) Language examinations serve to demonstrate practical language skills.

(3) The duration of the language examinations is specified in the module descriptions and shall be no less than 15 minutes and shall not exceed 240 minutes. The ratio of written or other assessments involving a “physical result” and oral individual assessments is to be determined as part of the respective assignment.

(4) For oral or other individual assessments not involving any “physical result,” § 8 para. 5 shall apply accordingly.

§ 13
Electronic examinations

(1) In principle, the examinations according to § 6 to § 12 can also be conducted, evaluated and assessed using digital technologies. Only those digital technologies may be used that correspond to the generally recognized state of the art at the time of use. Data protection regulations must be adhered to.

(2) Prior to an examination that uses digital technologies, two examiners in consultation with the Examination Committee must determine the suitability of these technologies with regard to the intended examination tasks and the conduct of the electronic examination. The examination using digital technologies will be announced in the usual manner by the beginning of the registration period.

(3) The authenticity of the student and the integrity of the examination results must be ensured. For this purpose, the examination results in the form of electronic data must be clearly identified and be unmistakably and permanently assigned to the student's name. It must be ensured that the electronic data for evaluation and verifiability remains unchanged and complete.

(4) An automatically generated assessment of an examination shall be reviewed by an examiner at the request of the examined student.

§ 14
Students with a disability, chronic illnesses or with family responsibilities

(1) If a student proves that, due to an impairment or chronic illness, they are unable to accomplish an examined assessment in the stipulated form, they are entitled to compensation for disadvantages in the examination procedure if the relevant requirements are met. The student must submit an application to the Examination Committee to be granted compensation for a disadvantage, including the compensation sought, and must substantiate their request by the fulfillment of the requirements. For this purpose, the student may be required to submit a medical certificate and, in cases of doubt, an official medical certificate by a public health officer (*Amtsarzt*). The Examination Committee specifies the procedure and the deadline for the application and publishes them in the usual manner. If the Examination Committee identifies an entitlement pursuant to sentence 1, it shall decide on the granting of an appropriate compensation at its due discretion in consultation with the respective examiners. The Liaison Officers for Students with Disabilities and Chronic Illnesses, the Peer Counselor (ISL - *Interessenvertretung Selbstbestimmt Leben in Deutschland*) / Peer-to-Peer Advisor, and, if affected, the Services Disability and Visually Education Group may be consulted; in particularly difficult cases, they must be consulted. Suitable measures to compensate for disadvantages include the extension of the allotted time to complete the work, extended breaks, use of other media, use of other examination rooms within the university, another examination date, or taking an equivalent examined assessment in another form. If it is intended to deviate significantly from the requested compensatory measures, the student should be given the opportunity to comment before a decision is made.

(2) During pregnancy, after giving birth and while breastfeeding, the provisions of the Maternity Protection Act applicable to students shall apply. In particular, during the periods of maternity protection pursuant to § 3 of the Maternity Protection Act, no examination deadlines shall commence and they shall not be counted towards current examination deadlines; deadlines for the submis-

sion of (individual) off-site assessments as defined by § 9 para. 3 sentence 2 and § 10 para. 3 sentence 2 shall be extended. For the corresponding use of parental leave according to the Federal Parental Allowance and Parental Leave Act, students can take a leave of absence from their studies pursuant to § 12 para. 2 of the Enrollment Regulations. During leave of absence, no examination deadlines shall commence and they shall not be counted towards current examination periods.

(3) If a student proves that, due to taking care of their own children until they reach the age of 14 or caring for close relatives, examinations cannot be taken as stipulated, the student may be granted appropriate compensation upon request (extended compensation for disadvantages). The Examination Committee decides on this request in consultation with the respective examiner. Para. 1 sentences 2 and 4 to 8 shall apply accordingly. Close relatives are children including children-in-law, adopted children and foster children as well as children, adopted or foster children of the spouse or partner, grandchildren, parents, parents-in-law, grandparents, siblings, spouses, life partners and partners in a consensual union.

(4) Para. 1 to 3 shall apply accordingly to preliminary academic work, the final thesis, and the colloquium, if required.

§ 15
Evaluation of examined assessments, calculation and weighting of grades, publication of examination results

(1) The grade of an individual examined assessment is decided by the responsible examiner. In case of a colleague examination, the examiners jointly decide on the grade. The following grades shall be used:

1 = very good	=	an outstanding performance;
2 = good	=	a performance considerably exceeding average requirements;
3 = satisfactory	=	a performance that meets average requirements;
4 = pass	=	a performance that meets the requirements despite some inadequacies;
5 = fail	=	a performance that does not meet the requirements because of considerable inadequacies.

For a more differentiated assessment, individual grades can be raised or lowered by 0.3 to obtain intermediate values; whereby the grades 0.7, 4.3, 4.7 and 5.3 are excluded. An individual examined assessment is solely assessed as “passed” or “failed” (ungraded examined assessment) if the relevant module description provides an exception for this. Ungraded examined assessments that are assessed as “passed” do not enter into further grade calculations; ungraded examined assessments assessed as “failed” receive the “fail” (5.0). They are then included in further grade calculations. Part 2: In “Subject-specific regulations,” it may be stipulated that bonus achievements are to be taken into account in the assessment of examined assessments, and how this is to be done.

(2) Written examinations that students are required to pass in order to continue their studies shall be marked by two examiners as a general rule, however, in the case of the final repeat examination, two examiners are compulsory; in the case of oral examinations, oral or other individual assessments not involving any “physical result,” or scientific-practical assessments, § 8 para. 5 shall apply.

(3) The grade of an examined assessment corresponds to the assessment of the examiner or, in the case of para. 1 sentence 2, the joint assessment of the examiners. In all other cases, the grade of an examined assessment corresponds to the average of the individual evaluations in the case of an evaluation by several examiners or, in the case of an evaluation according to para. 1 sentence 5, to the matching individual evaluations; if the individual evaluations do not match, § 26

para. 9 sentences 1 and 2 shall apply accordingly. If a grade or a module grade, overall grade, final grade or, if applicable, combined area grade or study stage grade is calculated as the average of several individual evaluations according to para. 1 or of grades, module grades or the final grade, only the first decimal point is taken into account; all other decimals are omitted without rounding.

(4) The module grade is calculated as the average of the individual examination grades which may be weighted as specified in the module descriptions. On the basis of the averages, the module grades are:

1.5 and better	=	very good
1.6 to 2.5	=	good,
2.6 to 3.5	=	satisfactory
3.6 to 4.0	=	pass
4.1 and worse	=	fail.

If a module examination is not passed due to an examined assessment relevant to passing the examination pursuant to § 19 para. 1 sentence 2, the module grade shall be “fail” (5.0).

(5) Module examinations that solely consist of an ungraded examined assessment are assessed as either “passed” or “failed” in accordance with the grading of the examined assessment (ungraded module examinations). Ungraded module examinations do not enter into further grade calculations.

(6) For the final examination, an overall grade is calculated. The overall grade comprises the final grade of the final thesis and the module grades of the module examinations included in the final examination, weighted according to the credit points, insofar as part 2: “Subject-specific regulations” does not exempt specific module grades from the overall grade. The final grade of the final theses is composed of the grade of the final thesis and the grade of the colloquium. If the final examination pursuant to § 2 para. 2 sentence 1 does not include a colloquium, the final grade of the final thesis shall be the same as the grade of the final thesis. Part 2: “Subject-specific regulations,” provision can be made for combined area grades (*Bereichsnote*) or study stage grades (*Abschnittsnote*) to be formed. The formation of the final grade and, if applicable, combined area grades or study stage grades will be weighted according to the regulations in part 2: “Subject-specific regulations.” For the overall grade, final grade and, if applicable, combined area grades or study stage grades, para. 4 sentence 2 applies accordingly, if the average is 1.2 or better, the overall grade is “passed with distinction.”

(7) The result of an oral examination will be announced to the student directly after the oral examination. The time for assessing all other examined assessments shall not exceed four weeks; in the case of written examinations with more than 300 participants, the time for assessing shall not exceed eight weeks. Information on the results of these examinations shall be provided in the usual manner.

(8) In order for the examiner to review the assessment of an examination that has not yet become final, a reconsideration of the assessment decision (remonstration) can be requested. For this purpose, the student must submit a request to the examiner and make specific assessment objections. Taking into account the assessment objections raised, the examiner is obliged to review their assessment of the examination and change it if necessary. A downgrading of the examination result is excluded on principle. The student will be informed in writing or electronically about the outcome of the reconsideration process. This does not affect the right to appeal against the examination decision for the module examination in question. The reconsideration process (remonstration) shall be documented in the examination file. The reconsideration process can also take place

for the first time during the formal appeal procedure or a subsequent legal action against the examination decision of the corresponding module examination. In this case, in deviation from sentence 2, 1st half-sentence, it is initiated ex officio by the chair of the Examination Committee.

§ 16
Withdrawal, extension of allotted times

(1) If the student is unable to attend an examination date that is binding for them or is unable to meet a deadline for the submission of an examined assessment that is binding for them, they may withdraw from the examined assessment for valid reasons or apply for an extension of the deadline for the submission (allotted time) of (individual) non-attendance learning assignments pursuant to § 9 para. 3 sentence 2 and § 10 para. 3 sentence 2. A valid reason can be the illness of a child, including children-in-law, adopted children and foster children, as well as the children, adopted children or foster children of the spouse or life partner. The student must declare the withdrawal immediately in writing to the responsible Examination Office, and apply for the extension of the allotted time in due time. The reasons given must be substantiated without delay. In case of illness, the student must provide a doctor's note and, in cases of doubt, a note from a public health officer (*Amtsarzt*).

(2) Acceptance of the withdrawal and extension of the allotted time is subject to the decision of the Examination Committee. If the denial is made after the binding deadline, the examined assessment is deemed to have been assessed as "fail" (5.0) or "failed" if the off-site assessment was not handed in on time. Otherwise, the off-site assessment will be assessed according to § 15 para. 1. If the allotted time is extended, the student must be informed of the new submission date for the examined assessment. If a student does not take an examination that is binding for them and has not withdrawn from the examination, the examined assessment is assessed as "fail" (5.0) or "failed." The same shall apply when an examined assessment is not completed within the specified period of time.

(3) Para. 1 and 2 shall apply accordingly to preliminary academic work, the final thesis, and the colloquium, if required.

§ 17
Cheating, violation of rules and regulations

(1) If a student attempts to manipulate the result of the examined assessment by cheating, e.g. by bringing or using illicit aids, the examination concerned is to be assessed as "fail" (5.0) upon detection by the Examination Committee. Ungraded examinations shall be assessed as "failed" accordingly. A student who is disrupting the normal proceedings of an examination may be excluded from continuing the examination by the respective examiner or proctor; in this case, the examination is given the grade "fail" (5.0) or assessed as "failed." In serious cases, the Examination Committee may exclude the student from taking any further examinations.

(2) If, during an examination, a student has cheated and this is only detected after the publication of the result, the Examination Committee may change the result of the examination to the grade "fail" (5.0) or assess it as "failed" and subsequently change the module grade according to § 15 para. 4. If the requirements for taking a module examination have not been met and the student was not at fault, this irregularity is rectified by passing the module examination. If the student intentionally and unduly obtained admission to an examination, the Examination Committee may assess the module examination as "fail" (5.0) or "failed." In serious cases, the Examination Committee may exclude the student from taking further examinations.

(3) An automated plagiarism check of the result of an examination is only permissible if the Examination Committee has determined that there are actual and documented indications that the result or parts thereof show characteristics of plagiarism. An automated plagiarism check is only permitted in anonymized form. Prior to the automated plagiarism check, all features that allow conclusions to be drawn about the individual student and the examiners must be removed. The assessment of the examined assessment must not be based exclusively on the results of an automated plagiarism check.

(4) Para. 1 and 2 shall apply accordingly to preliminary academic work, the final thesis, and the colloquium, if required. Para. 3 shall apply accordingly to preliminary academic work and the final thesis.

§ 18
Waiving

If the student declares in writing to the relevant Examination Office that they wish to waive the completion of an examination, this examination will be considered “fail” (5.0) or “failed” in the respective examination attempt. The waiver is irrevocable and presupposes admission pursuant to § 4.

§ 19
Passing and failing

(1) In order to pass a module examination, the module grade needs to be at least "pass“ (4.0) or the ungraded module examination needs to be assessed as “passed”. In the cases specified by the module descriptions, the passing of the module examination is also dependent on the assessment of individual examined assessments as at least “pass” (4.0). If the module examination is passed, the credit points specified for the module in the module descriptions are awarded.

(2) The final examination is passed if the module examinations and the final thesis as well as the colloquium, if required, have been passed. The final thesis and the colloquium, if required, are passed, if they have been assessed as at least “pass” (4.0).

(3) A module examination is deemed failed if the module grade is not at least “pass“ (4.0) or if the ungraded module examination is assessed as “failed.” The final thesis and the colloquium, if required, are failed, if they have not been assessed as at least “pass” (4.0).

(4) A module examination is irrevocably failed if it has not been assessed as at least “pass” (4.0) or if the ungraded module examination is assessed as “failed” and cannot be re-taken. The final thesis and the colloquium, if required, are irrevocably failed if they have not been assessed as at least “pass” (4.0) and if they cannot be re-submitted/re-taken.

(5) The final examination is failed or irrevocably failed if either one of the module examinations or the final thesis or the colloquium, if applicable, have been failed or irrevocably failed. § 3 para. 1 remains unaffected. If a module examination is irrevocably failed in the elective compulsory field, the irrevocable failure of the final examination is only declared according to § 23 para. 4 if, within one month after the publication of the module examination results, the student does not change their module or if a change of the module is no longer possible due to the provisions of the study regulations. If a student has irrevocably failed the final examination, the student loses the right to take examinations for all parts of the final examination according to § 2 para 2 sentence 1.

(6) The student will receive an attestation of grades upon request. If a student irrevocably failed the final examination, the attestation must list the completed parts of examined assessments including the results, as well as those that have not been completed (if any), and show that the final examination has been failed.

§ 20
Free attempt

(1) Module examinations may also be taken prior to the semesters specified in the study schedule if the admission requirements are met. In this case, taking the module examination for the first time is considered a free attempt, if and to the extent that part 2: "Subject-specific regulations" allow for that.

(2) Upon application by the student, module examinations or examined assessment graded at least "pass" (4.0) may be repeated once the next time the examination is regularly held in order to improve the grade. In this case, the better assessment counts. The Examination Committee specifies the procedure and the deadline for the application and publishes them in the usual manner. Once the next regular examination date or the application deadline has passed, students can no longer improve their grade. When a module examination is repeated in order to improve the grade, examination results that were graded at least "pass" (4.0) in the free attempt will be credited upon the student's request. Examined assessments that were assessed as "passed" in the free attempt will be credited ex officio.

(3) A module examination that has not been passed in the free attempt shall be deemed not to have been taken. Examined assessments that have been assessed with at least "pass" (4.0) or with "passed" will be credited in the following examination procedure. If the option to improve grades pursuant to para. 2 is used for examined assessments, the better grade will be credited.

(4) In addition to § 14 para. 2, periods of interruption of studies due to a prolonged illness of the student or a child to be cared for predominantly by the student, including children-in-law, adopted and foster children, as well as children, adopted or foster children of the spouse or partner, and periods of study abroad shall not be counted when applying the free attempt rule.

§ 21
Re-taking module examinations

(1) Failed module examinations can be repeated in a second examination attempt once within one year following the first examination attempt. This period of time begins with the announcement of the first failed attempt of the module examination. Following the expiration of this deadline, the examination is deemed to be failed again.

(2) A module examination can only be repeated a second time in a third examination attempt the next time it is held. After that, the module examination is deemed to have been irrevocably failed. Another repeat examination is not permissible.

(3) Repeating a failed module examination that consists of several parts entails only those examined assessments that were not assessed as at least "pass" (4.0) or "passed." When repeating a failed module examination that includes one or more elective examined assessments, students are not bound to the previous selection of an examined assessment not graded with at least "pass" (4.0) or with "passed."

(4) Repeating a module examination that has been passed is only permitted in the case regulated in § 20 para. 2 and includes all examined assessments.

(5) Failed attempts at the module examination in the same or in other degree programs are taken into account.

§ 22
Recognition of study achievements and examined assessments, periods of study, and qualifications obtained outside a university

(1) Studies and examined assessments accomplished at a different university are recognized upon request of the student if there are no substantial differences in the acquired skills. Further agreements between TU Dresden, the German Rectors' Conference, the Standing Conference of the Ministers of Education and Cultural Affairs, as well as agreements ratified by the Federal Republic of Germany shall be observed, if applicable.

(2) Qualifications obtained outside a university are recognized upon request of the student if they are deemed to be at least equivalent. Qualifications are equivalent if their contents, scope and requirements are fundamentally similar to parts of the degree program. The qualification comparison shall not be schematic, instead it should be considered and assessed in its entirety. Qualifications acquired outside of a university can substitute for a maximum of 50% of the degree program.

(3) Study achievements and examined assessments accomplished at a different university can be recognized despite substantial differences if, when assessed as a whole, their contents and qualification objectives are equivalent to the intent and purpose of the modules included in the degree program, and they are thus structurally equivalent (structural recognition). The degree certificate shows the assessments that were actually accomplished.

(4) If study achievements and examined assessments are recognized or if qualifications obtained outside a university are recognized, the respective study periods are ex officio recognized as well. If the grading systems are comparable, grades are transferred and enter into further grading calculations. If the grading systems cannot be compared, a note “passed” is added and the grades do not enter into further grading calculations. Recognition is marked as such in the degree certificate.

(5) For recognition and crediting, students must submit the required documents. Once all documents have been submitted completely, the recognition procedure must not exceed two months. If recognition is denied, § 23 para. 4 sentence 1 shall apply. If the student takes the corresponding examined assessment during an ongoing recognition procedure, the assessment of the recognized examination shall apply instead of the assessment of the examination taken, if the request for recognition is granted.

(6) The Examination Committee is responsible for the recognition. It may appoint a dedicated officer for recognition. They carry out the recognition procedure independently. § 23 para. 4 sentence 1 shall apply accordingly to the recognition officer.

§ 23
Examination Committee

(1) An Examination Committee for the degree program is established that will conduct and organize examinations and take on the tasks assigned in the Examination Regulations. The Examination Committee consists of four lecturers, one research associate, and two students. With the exception of the students, the term of office shall be three years. The term of office of the student members shall be one year.

(2) The members and their deputies are appointed by the Faculty Board, Scientific Council, or School Committee of the body managing the degree program, or the Faculty Boards, Scientific Councils or School Committees of the bodies managing the degree program; the student members and their deputies are appointed upon proposal of the Faculty Student Council. The chairperson and the deputy chairperson are elected by the Examination Committee from among its members and must each be a university lecturer.

(3) The Examination Committee ensures that the stipulations of the Examination Regulations are adhered to. The Committee reports on a regular basis to the body or bodies managing the degree program as well as to the faculties, centers or Schools that are involved in the teaching for the degree program on the development of examination and study periods including the actual time spent on the final thesis, as well as about the distribution of the module and overall grades. The Examination Committee makes suggestions to reform the examination regulations and the study regulations.

(4) Decisions that adversely affect students must be announced to them in writing or electronically, including a justification and information about legal appeal options. As the appeal authority, the Examination Committee decides on appeals within a reasonable period of time, and communicates its decisions concerning the appeal.

(5) The chairperson normally manages the Examination Committee. The Examination Committee may also delegate individual tasks to the chairperson for independent processing and decision-making if the student members all agree; a resolution must be passed to this effect that also includes the way in which the members are to be informed about the decisions made by the chairperson. This does not apply to decisions pursuant to para. 4 sentence 2. If any or all of the members of the Examination Committee are reappointed, any previous delegation shall expire.

(6) The Examination Committee can allow guests without voting rights to attend its meetings. The members of the Examination Committee are entitled to attend any examination as well as the colloquium.

(7) The members of the Examination Committee and their deputies must abide by the duty of official confidentiality. The chairperson shall oblige any members who are not public service staff to maintain official confidentiality. The same applies to guests.

(8) The Examination Office assigned as responsible organizes the examinations and manages the examination files.

§ 24
Examiners and assessors

(1) The Examination Committee appoints the examiners from individuals who are authorized to be examiners under Saxon State Law. The respective examiner appoints the assessors, who must be experts in the field; they should have at least the degree that is sought by the examination.

(2) The student may nominate the examiners for their final thesis, the oral examination and the colloquium, if any. The nomination does not bear any entitlement.

(3) For examiners and assessors, § 23 para. 7 shall apply accordingly.

(4) The names of the examiners should be made known to the student in good time.

§ 25
Purpose of the graduation examination

(1) Passing the final examination concludes the degree program and qualifies the student for professional work.

(2) Passing the Bachelor's examination proves that the student has an overview of the subject-specific contexts, has a critical understanding of the most important theories, principles and methods of the field of study, is able to deepen knowledge beyond the discipline, and has acquired the in-depth specialized knowledge required for entering professional life. Moreover, passing the Bachelor's examination proves that the student is qualified to pursue a Master's program.

(3) Passing the *Diplom* or Master's examination proves that the student has an overview of the subject-specific contexts, can apply their knowledge and understanding as well as problem-solving skills in new and unfamiliar situations that have a broader or multidisciplinary connection with the field of study, and has acquired the in-depth specialized knowledge required for entering professional life. Moreover, passing the *Diplom* or Master's examination proves that the student is qualified to commence doctoral studies.

§ 26
Final thesis and colloquium

(1) The purpose of the final thesis is to prove that the student is able to analyze issues of the degree program through independent work and within a given period of time, using academic methods.

(2) The final thesis must be supervised by one of the examiners according to para. 7. This examiner determines the topic of the final thesis, and supervises and supports the student in the preparation of the final thesis. The examiner may delegate the supervision of the final thesis to a qualified person.

(3) The Examination Committee issues the topic of the final thesis. The topic, date of issue, and scheduled date of submission must be documented. Students are allowed to suggest a topic. Upon the request of the student, the Examination Committee issues the topic of the final thesis in a timely manner. The Examination Committee issues the topic ex officio at the latest at the beginning of the semester that follows the completion of the last module examination.

(4) The topic can be changed only once and only within the first half of the time allocated for submission. In case of re-submission of the final thesis, changing the topic is only permitted if the student did not use this option previously in this degree program. If a student has changed their topic, they are immediately issued a new topic in accordance with para. 3 sentences 1 to 3.

(5) The final thesis must be submitted in German or, depending on the topic, in another language. Upon a student's request, it may be submitted in another language if the Examination Committee agrees to this in consultation with the examiner pursuant to para. 2 sentence 1. It may also be produced as a group thesis if the individual contribution to be assessed as the student's final thesis is clearly distinguishable and assessable due to the indication of sections, page numbers or other objective criteria that allow a clear delimitation, and if this contribution fulfills the requirements pursuant to para. 1.

(6) The final thesis must be submitted to the relevant Examination Office in the form and with the number of copies specified in part 2: "Subject-specific regulations" in due time; the date of submission must be documented. The student must declare in writing that they have written the

thesis or, in the case of a group thesis, the appropriately marked part of the paper, independently and has not used any sources or aids other than those indicated.

(7) The final thesis must be marked by two examiners independently according to § 15 para. 1 sentences 3 and 4. The time for marking the thesis shall not exceed six weeks. In Section 2: in the "Subject-specific regulations," it may be provided that an examiner is or may be replaced by a board of examiners. The members of the board of examiners will jointly determine the individual grade of the final thesis in accordance with § 15, para. 1, sentences 3 and 4.

(8) The grade for the final thesis is calculated as the average of the individual grades given by the two examiners. If the two individual grades given by the examiners differ by more than two grades, the Examination Committee shall obtain an assessment from a further examiner. In this case, the grade of the final thesis is calculated as the average of the three individual grades. § 15 para. 3 sentence 3 shall apply accordingly.

(9) If one of the examiners has assessed the final thesis as at least "pass" (4.0) and the other examiner as "fail" (5.0), the Examination Committee arranges for the thesis to be marked by an additional examiner. The additional examiner then decides whether the final thesis is passed or failed. If the thesis is then deemed to be passed, the grade of the final thesis is calculated as the average of the individual grades given in favor of pass, in the opposite case in favor of fail. § 15 para. 3 sentence 3 shall apply accordingly.

(10) A failed final thesis can be re-submitted once within a one-year period. Following the expiration of this deadline, it is deemed as failed again. A second re-submission is only possible at the next available examination date, following that date it is deemed to be irrevocably failed. Any further re-submission or a re-submission after already having passed the final thesis is not permitted.

(11) If the final examination pursuant to § 2 para. 2 sentence 1 includes a colloquium, the student must present their final thesis in a public colloquium in front of at least one of the examiners and one assessor. As a subject-specific admission requirement, the final thesis must have been assessed with a grade of at least "pass" (4.0) prior to the colloquium. The colloquium is intended to demonstrate that the student is able to coherently present the results of the final thesis and to discuss them with expert knowledge. Additional examiners may be called in (colleague examination). Para. 10 as well as § 8 para. 5 sentence 2, § 15 para. 1 sentences 1 to 4 and § 15 para. 7 sentence 1 shall apply accordingly.

(12) If, for reasons for which the student is not responsible, the time already taken to complete the final thesis reaches twice the allotted time, the Examination Committee may decide ex officio to discontinue the thesis with no result. Prior to a decision, both the examiner pursuant to para. 2 sentence 1 and the student must be heard. An inconclusive termination may occur if the examination purpose of the final thesis can no longer be achieved in relation to the time already spent to complete the thesis. When making the decision, the reasons for the time spent, the consequences of the termination for the student and the options for continuing the examination procedure in a reasonable way must be taken into account and weighed up against each other. If the Examination Committee discontinues the thesis with no result, the examination attempt is retained; ongoing examination deadlines will be extended. The Examination Committee will also determine how the examination process is to be continued. The student will receive a notification that is open to appeal.

§ 27
Examination certificate and transcript of records

(1) The student shall receive an examination certificate and a supplement to the certificate without delay, if possible within four weeks, confirming that they have passed the final examination. Part 2: The “Subject-specific regulations” may stipulate that the student be issued an additional supplement to the certificate. If part 2: “Subject-specific regulations” provides for a division into study periods, the student shall receive an interim certificate on the first study period without delay, if possible within four weeks after passing the last module examination included in this study period.

(2) The examination certificate shall include the module results of the module examinations included in the final examination and, where applicable, an indication of the recognized achievements and results, the topic of the final thesis, its final grade pursuant to § 15 para. 6 sentences 3 and 4, the examiners of the final thesis, the overall grade pursuant to § 15 para. 6 sentence 2 as well as the credit points. The grades and, where applicable, an indication of the recognized achievements and results of the individual examined assessments, the final thesis and the colloquium, if any, are indicated on the supplement to the certificate. The interim certificate shall contain the module assessments of the module examinations covered by this study period as well as the corresponding credit points and, if applicable, an indication of the recognized achievements and results.

(3) The examination certificate and the interim certificate are issued with the date of completion of the last part of the examination pursuant to § 19 para. 2 or § 19 para. 1 sentence 1. They are signed by the chairperson of the Examination Committee and bear the seal of TU Dresden that is used by the managing body of the degree program or by one of these bodies. The supplements to the certificate are signed by the chairperson of the Examination Committee and bear the date of the certificate.

(4) Concurrent with receiving the examination certificate, the student receives the degree certificate with the date identical to that of the examination certificate. This document certifies the award of the university degree. In Bachelor's degree programs, the Bachelor’s degree is awarded, in Master’s degree programs the Master's degree is awarded, and in *Diplom* degree programs the *Diplom* degree is awarded pursuant to the regulations in part 2: “Subject-specific regulations.” The degree certificate is signed by the chairperson of the Examination Committee and bears the handwritten or electronic signature of the Rector, alongside the seal of TU Dresden. Additionally, students are provided with an English translation of both the degree certificate and the examination certificate. If part 2: “Subject-specific regulations” provides for a cooperation with joint awarding of the university degree, the degree certificate is issued jointly by TU Dresden and the cooperation partners.

(5) TU Dresden issues a Diploma Supplement (DS) in accordance with the Diploma Supplement model of the European Commission, the Council of Europe, and UNESCO/CEPES. For information on the German higher education system (DS para. 8), the text agreed upon by the Conference of the Ministers of Education and Cultural Affairs and the German Rector’s Conference shall be used as amended.

(6) Part 2: “Subject-specific regulations” may specify which additional information is to be shown on the examination certificate, the supplements to the certificate, the interim certificate, if any, and the degree certificate.

§ 28
Voiding of an examination

(1) If a student has cheated in an examined assessment and if this cheating is only discovered after the interim certificate or examination certificate has been issued, the result of the examined assessment can be amended according to § 17 para. 2 sentence 1. If applicable, the Examination Committee may declare the grade of the module examination as “fail” (5.0) and the final examination as “failed.” The same applies to ungraded module examinations, the final thesis, and the colloquium.

(2) If the requirements for taking a module examination had not been met and this was discovered prior to issuing the interim certificate or the examination certificate and the student was not at fault, this irregularity is rectified by passing the module examination. If the student intentionally and unduly obtained admission to a module examination, the Examination Committee may assess the module examination as “fail“ (5.0) and the final examination as "failed.” The same applies to ungraded module examinations, the final thesis, and the colloquium.

(3) An incorrect interim certificate or an incorrect examination certificate and its translation as well as all other documents issued upon graduation shall be withdrawn by the chairperson of the Examination Committee and, if necessary, reissued. If the final examination has been declared “failed” due to cheating, the degree certificate, any translations, and the Diploma Supplement shall be retracted together with the now invalid examination certificate. Following a period of 5 years since the date of the examination certificate, a decision according to para. 1 and para. 2 sentences 2 or 3 is no longer permissible.

§ 29
Access to examination documents and files

(1) Once the result of the examination has been announced, the student will be granted access to their written examinations, to reviewers’ reports, and to examination protocols. For this purpose, there are usually central dates for accessing the results within a reasonable period of time, but no later than eight weeks after the examination result has been announced. If, due to the type of examination or for organizational reasons, no central date is possible or scheduled, the student will be granted an individual date upon request. In this case, the application must also be submitted to the relevant Examination Office no later than eight weeks after the announcement of the examination result. It must be ensured in any case that the student only has access to the documents concerning themselves.

(2) Irrespective of the possibility to access the examination documents according to para. 1, the student has the right to access their examination file kept by the relevant Examination Office. The statutory provisions shall apply.

Section 2: Subject-specific regulations

§ 30
Duration and scope of the degree program

(1) The standard period of study according to § 1 is four semesters.

(2) By passing the final examination pursuant to § 2 para. 2 sentence 1, a total of 120 credit points are acquired for modules, the final thesis, and the colloquium.

§ 31
Subject-specific admission requirements for the final examination

Prior to the topic of the final thesis being issued, students must have earned at least 72 credits.

§ 32
Bonus achievements

Students may voluntarily earn bonus credits for specific examined assessments by completing certain study achievements (bonus achievements). If the examined assessment was assessed with at least “pass” (4.0), bonus credits can replace a maximum of 10 percent of the total number of credits of the associated examined assessment in addition to the assessment credits acquired by the student. The type and form of the bonus achievements as well as their assignment to an examined assessment must be regulated in the module descriptions. The number of bonus credits that can be earned through bonus achievements, as well as the total number of credits that can be earned in the associated examined assessment, will be announced in the usual manner at the beginning of each semester. Earned bonus credits will only be counted towards the next examination date that follows the bonus achievement and that is binding for the student. § 4 para. 2, § 14 paras. 1 to 3, § 16 para. 1 and 2 and § 17 para. 1 to 3 shall apply accordingly to bonus achievements.

§ 33
Subject, nature and scope of the final examination

(1) The final examination pursuant to § 2 para. 2 sentence 1 comprises the module of the compulsory field and the module examinations of the selected modules of the elective compulsory field.

(2) The compulsory field comprises the research project module.

(3) The elective compulsory field comprises modules from the General Qualification, one of which (worth five credit points) shall be selected in accordance with Appendix 1 to these Examination Regulations, as well as the Open Track and the Distributed Systems Engineering Track, one of which, along with modules totaling 72 credit points each, shall be selected in accordance with Appendices 2 and 3 to these Examination Regulations.

§ 34
Allotted time, form and copies of the final thesis; colloquium

(1) Students have 22 weeks to complete their final thesis, and 29 credits are awarded for it. In specific cases and upon justified request by the student, the Examination Committee may extend the period by up to a maximum of half of the alloted time, the number of credits awarded remains unaffected.

(2) The final thesis must be submitted as a digital text file in PDF/A format or in an accessible PDF/UA format. The final thesis must be submitted electronically. This requires the student to use the personal email mailbox provided to them by the ZIH upon enrollment. The specific organizational details will be communicated to the student in the usual manner prior to the date of issuance. Only those digital technologies may be used that correspond to the generally recognized state of the art at the time of use. If technical problems arise during the submission of the final

thesis that are attributable to the Examination Office and result in the student missing the deadline, the student is required to report the technical problem immediately. If reported immediately, the Examination Committee will decide on a case-by-case basis whether the technical malfunction during the submission of the final thesis was significant and may, to compensate for the technical malfunction, set a later submission deadline in favor of the student. Upon a student's substantiated request, the Examination Committee may decide, on a case-by-case basis, that the final thesis may be submitted in two printed copies if the student can demonstrate that they are unable to provide the necessary equipment for an electronic submission.

(3) The final examination pursuant to § 2 para. 2 sentence 1 includes a colloquium. The colloquium shall run for 60 minutes. 1 credit point shall be awarded.

§ 35
Weighting for the final and overall grades

(1) When calculating the final grade pursuant to § 15 para. 6, the grade of the final thesis will be weighted three times and the grade of the colloquium will be weighted once.

(2) When calculating the overall grade pursuant to § 15 para. 6, the final grade of the final thesis will be weighted 60 times.

§ 36
Additional information in graduation documents

The examination certificate will also include, at the student's request, the grades for additional modules and the corresponding credit points. The supplement to the certificate will also include the topic of the comprehensive assessment for the Research Project module, the names of the examiners for each assessment, and, at the student's request, the grades for assessments in additional modules.

§ 37
University degree

If the final examination is passed, the "Master of Science" degree (abbr. M.Sc.) is awarded.

Section 3: Final regulations

§ 38
Entry into force, publication and interim arrangement

(1) These Examination Regulations shall enter into force on the day following their publication in the Official Announcements of TU Dresden.

(2) They apply to all newly enrolled students in the Master's degree program in Computer Science in the 2025/2026 winter semester or later.

(3) For students enrolled earlier than the 2025/2026 winter semester, the version of the Examination Regulations for the consecutive Master's degree program in Computer Science previously valid for them continues to apply.

(4) By way of deviation from paragraph 3, § 23 para. 1, sentence 2, shall apply to all students enrolled in the Master's degree program in Computer Science beginning with the 2025/2026 winter semester.

(5) From the 2026/2027 winter semester, these Examination Regulations apply to all students enrolled in the Master's degree program in Computer Science.

(6) If students switch to the new regulations, primarily the module examinations already taken including the grades, and subordinately also individual examination achievements will be transferred ex officio on the basis of equivalence tables, which have been determined by the Examination Committee and announced in the usual manner. With the exception of § 21 para. 5, module examinations and examined assessments not graded with at least "sufficient" (4.0) or "passed" will not be transferred. The module grade is generally not recalculated based on exclusively transferred examined assessments; exceptions are listed in the equivalence tables.

Issued pursuant to the resolution of the Faculty Board of Computer Science dated March 17, 2025, and the approval of the University Executive Board dated April 29, 2025.

Dresden, as of May 22nd, 2025)

The Rector
of TUD Dresden University of Technology

Prof. Ursula M. Staudinger

Appendix 1 (concerning § 33 para. 3)
General Qualification modules

The General Qualification modules are

1. Foreign language A1 advanced - Arabic,
2. Foreign language A1 advanced - Chinese,
3. Foreign language A1 advanced - German as a foreign language,
4. Foreign language A1 advanced - Finnish,
5. Foreign language A1 advanced - French,
6. Foreign language A1 Advanced – Italian,
7. Foreign language A1 Advanced – Japanese,
8. Foreign language A1 Advanced – Polish,
9. Foreign language A1 Advanced – Portuguese,
10. Foreign language A1 Advanced – Russian,
11. Foreign language A1 Advanced - Swedish,
12. Foreign language A1 Advanced - Spanish,
13. Foreign language A1 Advanced - Czech,
14. Foreign language A2 - Arabic,
15. Foreign language A2 - Chinese,
16. Foreign language A2 - German as a foreign language,
17. Foreign language A2 - Finnish,
18. Foreign language A2 – Japanese,
19. Foreign language A2 – Polish,
20. Foreign language A2 – Russian,
21. Foreign language A2 - Czech,
22. Foreign language A2 advanced - Arabic,
23. Foreign language A2 advanced - German as a foreign language,
24. Foreign language A2 advanced - French,
25. Foreign language A2 Advanced – Italian,
26. Foreign language A2 Advanced – Polish,
27. Foreign language A2 Advanced – Portuguese,
28. Foreign language A2 Advanced – Russian,
29. Foreign language A2 Advanced - Swedish,
30. Foreign language A2 Advanced - Spanish,
31. Foreign language A2 Advanced - Czech,
32. Foreign language A2 advanced - Chinese,
33. Foreign language A2 Advanced – Japanese,
34. Foreign language B1 - Arabic,
35. Foreign language B1 - German as a foreign language,
36. Foreign language B1 - French,
37. Foreign language B1 – Italian,
38. Foreign language B1 – Portuguese,
39. Foreign language B1 – Russian,
40. Foreign language B1 - Spanish,
41. Foreign language B1 - Chinese,
42. Foreign language B1 – Japanese,
43. Foreign language B1 advanced - Arabic,
44. Foreign language B1 advanced - German as a foreign language,
45. Foreign language B1 advanced - French,
46. Foreign Language B1 Advanced – Italian,
47. Foreign language B1 Advanced – Russian,
48. Foreign language B1 Advanced - Swedish,

49. Foreign language B1 Advanced - Spanish,
50. Foreign language B1 Advanced – Portuguese,
51. Foreign language B1 advanced - Chinese,
52. Foreign language B1 Advanced – Japanese,
53. Foreign language B2 - German as a foreign language,
54. Foreign language B2 - French,
55. Foreign language B2 – Italian,
56. Foreign language B2 – Portuguese,
57. Foreign language B2 – Russian,
58. Foreign language B2 - Spanish,
59. Foreign language B2 - Swedish,
60. Academic language skills - B2 advanced - German as a foreign language,
61. Academic language skills - B2 advanced - French,
62. Academic language skills - B2 advanced - Russian,
63. Academic language skills - B2 advanced - Spanish,
64. Professional language skills - B2 advanced - German as a foreign language,
65. Professional language skills - B2 advanced - French,
66. Professional language skills - B2 advanced - Russian,
67. Professional language skills - B2 advanced - Spanish,
68. Academic language skills - C1 - German as a foreign language,
69. Academic language skills - C1 - French,
70. Academic language skills - C1 - Russian,
71. Academic language skills - C1 - Spanish,
72. Professional language skills - C1 - German as a foreign language,
73. Professional language skills - C1 - French,
74. Professional language skills - C1 - Spanish and
75. *Studium Generale*

of which students must select one module.

Appendix 2 (concerning § 33 para. 3)
Open Track Modules

I. Modules of the subject areas are

1. Subject area - Theoretical Computer Science and Symbolic Artificial Intelligence
   a) Knowledge Models,
   b) Model Checking,
   c) Advanced Theoretical Computer Science and Symbolic Artificial Intelligence,
   d) Advanced Symbolic Artificial Intelligence,
   e) Advanced Problem Solving and Search, as well as
   f) Complexity Theory;

2. Subject area - Software Technology and Programming Languages
   a) Compiler Design,
   b) Self-Adaptive Software and Cobotics,
   c) Foundations of Certified Programming Language and Compiler Design,
   d) Immersive and Interactive Software Development,
   e) Software Management and Quality Assurance,
   f) Component-Based Software Engineering,
   g) Advanced Software Engineering,
   h) Requirements and Test Management,
   i) Design Patterns and Frameworks,
   j) Future-Proof Software Systems, and
   k) Model-Driven Software Development in Technical Spaces;

3. Subject area - Secure Computing
   a) Foundations of Concurrent and Distributed Systems,
   b) Privacy-Enhancing Technologies,
   c) Software Fault Tolerance,
   d) Confidential Computing,
   e) Concurrent and Distributed Systems Lab, and
   f) Network and Distributed Systems Security,
   g) Systems Security Lab, and
   h) Software Fault Tolerance Lab;

4. Subject area - Architecture
   a) Systems Engineering,
   b) Scalable Data Engineering,
   c) Scalable Data Management,
   d) Distributed Systems,
   e) Service and Cloud Computing,
   f) IoT Communication,
   g) Advanced Computer Networks,
   h) Wireless Sensor Networks,
   i) Internet and Web Applications,
   j) Resilient Systems,
   k) Database Management and -Engineering Lab,
   l) Advanced Operating Systems,
   m) Operating-System Construction,
   n) Hauptseminar Data Management,
   o) Microkernel Construction,
   p) Microkernel-Based Operating Systems,
   q) Engineering Adaptive Mobile Applications,

r) Internet Measurements,
s) Prediction and Estimation Techniques, and
t) Decentralized Systems;

5. Subject area - Cyber Physical Systems
   a) Foundations of Cyber Physical Systems,
   b) Industrial Communications,
   c) Cooperative Mobile Systems,
   d) Cyber Physical Systems Modeling Lab,
   e) Vehicular Networking,
   f) Model-Driven Automation,
   g) Closed-Loop Control in Networked Control Systems,
   h) Cyber Physical Systems Modeling Lab Advanced,
   i) Industrial Internet of Things,
   j) Engineering and Management of Industrial Networks, and
   k) Industrial Cyber Physical Systems Lab;

6. Subject area - Visual Computing and Machine Learning
   a) Foundations of Computer Graphics,
   b) Foundations of Data Visualization,
   c) Machine Learning,
   d) Computer Vision,
   e) Geometric Modeling and Animation,
   f) Interactive Information Visualization,
   g) Advanced Virtual Reality,
   h) Scientific Visualization,
   i) Creative Computing,
   j) Physics Based Graphics,
   k) Foundations of Virtual Reality,
   l) Computer- and Robot-Assisted Surgery, and
   m) Spatial Computing;

7. Subject area - Human-Computer Interaction and Interactive Media
   a) User Interface Engineering,
   b) Advanced User Interfaces,
   c) Multimodal User Interfaces,
   d) OUTPUT.DD Live,
   e) Audio Interfaces,
   f) Applied Immersive Media,
   g) Interactive Multimedia Information Retrieval,
   h) Artistic Interaction Technology,
   i) Audio Processing,
   j) OUTPUT.DD Workshop,
   k) Philosophy and Computing, and
   l) Experiments in Immersive Media;

8. Subject area - Computer Engineering and High Performance Computing
   a) High Performance Computing,
   b) Performance Analysis of Computing Systems,
   c) Efficient Parallel Algorithms,
   d) Highly Parallel Programming of GPUs,
   e) Adaptive Dynamic Systems Lab,
   f) Structure and Operation Principle of Processors,
   g) Digitization and Data Analytics,

h) Design and Programming of Embedded Multicore Architectures,
i) Introduction to Computer Engineering, and
j) Hardware Modeling and Simulation.

of which students must select modules from three subject areas, each worth 12 credit points; however, these modules cannot be selected if they have already been chosen as supplementary modules.

II. The supplementary modules are

1. Knowledge Models,
2. Model Checking,
3. Advanced Theoretical Computer Science and Symbolic Artificial Intelligence,
4. Advanced Symbolic Artificial Intelligence,
5. Advanced Problem Solving and Search,
6. Complexity Theory,
7. Compiler Design,
8. Self-Adaptive Software and Cobotics,
9. Foundations of Certified Programming Language and Compiler Design,
10. Immersive and Interactive Software Development,
11. Software Management and Quality Assurance,
12. Component-Based Software Engineering,
13. Advanced Software Engineering,
14. Requirements and Test Management,
15. Design Patterns and Frameworks,
16. Future-Proof Software Systems,
17. Model-Driven Software Development in Technical Spaces,
18. Foundations of Concurrent and Distributed Systems,
19. Privacy-Enhancing Technologies,
20. Software Fault Tolerance,
21. Confidential Computing,
22. Concurrent and Distributed Systems Lab, and
23. Network and Distributed Systems Security,
24. Systems Security Lab,
25. Software Fault Tolerance Lab,
26. Systems Engineering,
27. Scalable Data Engineering,
28. Scalable Data Management,
29. Distributed Systems,
30. Service and Cloud Computing,
31. IoT Communication,
32. Advanced Computer Networks,
33. Wireless Sensor Networks,
34. Internet and Web Applications,
35. Resilient Systems,
36. Database Management and -Engineering Lab,
37. Advanced Operating Systems,
38. Operating-System Construction,
39. Advanced seminar - Data Management,
40. Microkernel Construction,
41. Microkernel-Based Operating Systems,
42. Engineering Adaptive Mobile Applications,
43. Internet Measurements,
44. Prediction and Estimation Techniques,

45. Decentralized Systems,
46. Foundations of Cyber Physical Systems,
47. Industrial Communications,
48. Cooperative Mobile Systems,
49. Cyber Physical Systems Modeling Lab,
50. Vehicular Networking,
51. Model-Driven Automation,
52. Closed-Loop Control in Networked Control Systems,
53. Cyber Physical Systems Modeling Lab Advanced,
54. Industrial Internet of Things,
55. Engineering and Management of Industrial Networks,
56. Industrial Cyber Physical Systems Lab,
57. Foundations of Computer Graphics,
58. Foundations of Data Visualization,
59. Machine Learning,
60. Computer Vision,
61. Geometric Modeling and Animation,
62. Interactive Information Visualization,
63. Advanced Virtual Reality,
64. Scientific Visualization,
65. Creative Computing,
66. Physics Based Graphics,
67. Foundations of Virtual Reality,
68. Computer- and Robot-Assisted Surgery,
69. Spatial Computing,
70. User Interface Engineering,
71. Advanced User Interfaces,
72. Multimodal User Interfaces,
73. OUTPUT.DD Live,
74. Audio Interfaces,
75. Applied Immersive Media,
76. Interactive Multimedia Information Retrieval,
77. Artistic Interaction Technology,
78. Audio Processing,
79. OUTPUT.DD Workshop,
80. Philosophy and Computing,
81. Experiments in Immersive Media,
82. High Performance Computing,
83. Performance Analysis of Computing Systems,
84. Efficient Parallel Algorithms,
85. Highly Parallel Programming of GPUs,
86. Adaptive Dynamic Systems Lab,
87. Structure and Operation Principle of Processors,
88. Digitization and Data Analytics,
89. Design and Programming of Embedded Multicore Architectures,
90. Introduction to Computer Engineering,
91. Hardware Modeling and Simulation,
92. Analysis of a Research Topic,
93. Fundamentals of Acoustics,
94. Advanced Acoustics – Virtual Reality,
95. Fundamentals of Computational Laser Metrology,
96. Advanced Computational Laser Metrology,

97. Fundamentals of Geoinformatics,
98. Advanced Geoinformatics,
99. Fundamentals of Mathematics,
100. Advanced Mathematics,
101. Fundamentals of Photogrammetry,
102. Advanced Photogrammetry,
103. Production Engineering Fundamentals − Manufacturing Technology and Production Planning,
104. Production Engineering Advanced − Manufacturing Technology and Automated Parts Production,
105. Fundamentals of Psychology,
106. Advanced Psychology,
107. Fundamentals of Economics,
108. Advanced Economics – Microeconomics,
109. Fundamentals of Business Administration,
110. Advanced Business Administration,
111. Fundamentals of Biomedical Engineering,
112. Biomedical Engineering – Clinical Specialization,
113. Fundamentals of Technical Logistics, and
114. Advanced Technical Logistics,

of which students must select modules from three subject areas, each worth 36 credit points; however, these modules cannot be selected if they have already been chosen as supplementary modules. If a module is selected from numbers 93 through 114, they may only be selected in combination with numbers 93 and 94, or numbers 95 and 96, or numbers 97 and 98, or numbers 99 and 100, or numbers 101 and 102, or numbers 103 and 104, or numbers 105 and 106, or numbers 107 and 108, or numbers 109 and 110, or 111 and 123, as well as numbers 113 and 114, for a total of 12 credit points.

Appendix 3 (concerning § 33 para. 3)
Distributed Systems Engineering Track Modules

I. The compulsory modules are

1. Distributed Systems,
2. Systems Engineering,
3. Scalable Data Management,
4. Design Patterns and Frameworks,
5. Network and Distributed Systems Security, and
6. Advanced Operating Systems.

II. The elective compulsory modules are:

1. IoT Communication,
2. Advanced Computer Networks,
3. Self-Adaptive Software and Cobotics,
4. Operating-System Construction,
5. Cooperative Mobile Systems,
6. Vehicular Networking,
7. Component-Based Software Engineering,
8. Internet and Web Applications,
9. Wireless Sensor Networks,
10. Foundations of Concurrent and Distributed Systems,
11. Concurrent and Distributed Systems Lab, and
12. Software Fault Tolerance,
13. Confidential Computing,
14. Design and Programming of Embedded Multicore Architectures,
15. Resilient Systems,
16. Microkernel Construction,
17. Decentralized Systems,
18. Microkernel-Based Operating Systems,
19. Future-Proof Software Systems,
20. Internet Measurements,
21. Engineering Adaptive Mobile Applications,
22. Prediction and Estimation Techniques,
23. Software Fault Tolerance Lab,
24. Hardware Modeling and Simulation,
25. Model-Driven Software Development in Technical Spaces, and
26. Requirements and Test Management,

of which modules amounting to at least 36 credit points must be selected.