Technische Universität Dresden
Faculty of Computer Science
Faculty of Mathematics
Center for Molecular and Cellular Bioengineering

Examination regulations for the consecutive Master's programme in Computational Modelling and Simulation

From April 20, 2018

On the basis of § 34 paragraph 1 sentence 1 of the Act on the Autonomy of Institutions of Higher Education in the Free State of Saxony in the version of the announcement of 15 January, 2013 (SächsGVBl. p. 3), Technische Universität Dresden issues the following examination regulations as statutes.

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Section 1: General provisions

§ 1
Standard study period

The standard study period for the Master's degree in Computational Modelling and Simulation includes, in addition to attendance, the completion of self-directed studies and the Master's examination.

§ 2
Examination Structure

The Master's examination consists of module examinations, as well as a Master's thesis and its defence. The role of the module examination is to conclude the module, and it generally involves at least one examination performance. The scores for the examination performances will be collected during the course of studies.

§ 3
Deadlines and Scheduling

(1) The Master's examination is to be completed within the standard study period. A Master's examination is graded with "Not Passed" or F (= failed), if it has not been taken within four semesters after completion of the standard study period. A failed Master's thesis can be repeated once, within one year. After that time limit, it shall be graded as "Not Passed", again. A second retake of the examination is only possible at the next possible examination date. Thereafter, the module examination is considered as permanently failed.

(2) Module examinations should be completed before the end of the semester, as given by the degree completion plan.

(3) Technische Universität Dresden, through its study regulations and course offers, ensures that studies and examination performances, as well as the Master's thesis with its defence, can be completed within the fixed time frames. The students will be informed in due time about the type and number of study- and examination performance to be completed, as well as about the dates by which these are to be delivered, as well as on the start date and submission time for the Master's thesis and the date of its defence. The students must also be informed about the option of retake for each module examination.

(4) During maternity protection times no deadline count-down begins and these times are not counted towards currently running completion periods. With regard to the use of parental leave, reference is made to § 12 (2) of the enrolment regulations of Technische Universität Dresden.

§ 4
Common Admission Requirements and Admission Process

(1) According to § 2 sentence 1, only those are allowed to take the examinations for the Master's thesis, who:

1. are enroled in the Master's Degree in Computational Logic programme at Technische Universität Dresden and
2. proved that they fulfill the professional requirements as laid out in § 24 and

3. who have provided a declaration on paragraph 4 (3) in writing, or otherwise processed with data-processing technology.

(2) The student has to register for the delivery of examination performances. This may take place at any time, without notice, and without stating any reason. The deadline for canceling a registration ends two weeks for examinations in accordance with § 9 of the Examination Regulations, and three working days before the examination date for all other examinations. The form and deadline for signing up for / or cancelling the examination are regulated by the Examination Board, and are usually announced at the beginning of each semester, in the Faculty of Computer Science. Similar considerations apply to preliminary examinations.

3. Admission to an examination service takes place
1. based on the registration,
2. to the Master 's thesis on the basis of the application by the student to receive the topic or, in the case of § 20 Section 3 sentence 5, with the issue of the topic and
3. for the defence of the Master's thesis, based on the grading of the Master's thesis with at least "Sufficient" (4.0).

(4) Admission to the examination is to be declined if
1. the conditions referred to in Section 1, or the procedural rules referred to in Section 2 are not met, or
2. the documents are incomplete, or
3. the student has already failed a final examination required for the completion of the Master's degree programme in Computational Modelling and Simulation.

(5) The Examination Board is in charge of deciding about admission. The announcing of the examination results may take place publicly. § 17 Section 4 shall remain unaffected.

§ 5
Types of Examination Performance

(1) Examination performances are to be delivered in the form of
1. Written examinations (§ 6),
2. Seminar Papers and other related written work (§ 7),
3. Project work (§ 8),
4. Oral examination performances (§ 9),
5. Presentations (§ 10) and/or
6. Other examination performance

(§ 11). In modules, which are clearly subject to several examination regulations, synonyms are permitted for examinations with identical content. Written (multiple choice) examination performances are excluded.

(2) Study- and examination performances are to be delivered in English, or, according to the module description, in the German language.

(3) If the student provides credible evidence that he or she is unable to complete the examinations, in whole or in part, in the required format due to physical disability or chronic illness, he or she shall be permitted, upon written request to the Examination Board, to be provided with additional time or an alternative format to take the examination. A medical certificate, and, in cases of doubt, an official medical certificate may be required for this. Similar considerations apply to preliminary examinations.

(4) If the student has provided credible evidence that he or she is unable to deliver the examination performances as required due to the supervision of his / her own children up to the age of 14, or due

to the care of a close relative, the Chairperson of the Examination Board permits the examination to be carried out in an equivalent manner, upon request. As close relatives count children, parents, Grandparents, spouses and life-partners. How exactly the examination should take place in such a case is decided by the Chairperson of the Examination Board, in consultation with the exam supervisor in charge, at his / her due discretion. The chair of the Examination Board decides on an appropriate measure for the compensation of disadvantages. Suitable measures for compensating for disadvantages are, for example, extended processing times, processing breaks, use of other media, use of other examination rooms within the university, or scheduling another examination date. Similar considerations apply to preliminary examinations.

§ 6
Written Examinations

(1) In written examinations, the student should prove that he / she, relying on the necessary basic knowledge, can solve problems and deal with topics within a limited time frame, and with limited resources, using the usual methods of the study subject.

(2) Written examination the passing of which are prerequisites for continuing the study, are usually, but at least in case of a retake, to be graded by two evaluators. The grade is determined from the average of the individual assessments pursuant to § 12 (1); only the first decimal place after the decimal point is considered, all other places are deleted without rounding. The evaluation shall not exceed four weeks.

(3) The duration of the written exam is determined in the module descriptions, and shall be at least 90 minutes, but not exceed 240 minutes.

§ 7
Seminar Papers and Other Related Written Work

(1) The student shall prove that he / she possesses the competence to deal with selected questions on the basis of the subject literature and other relevant materials, within a limited time frame, through seminar work. Further, it shall be determined whether he / she is in possession of basic techniques in scientific work. Other related written works, namely project reports and papers, are treated the same as seminar papers.

(2) For seminar work, § 6 Section 2 shall apply, accordingly.

(3) Seminar work and other, similar writing assignments shall not exceed a maximum length of 120 hours. The exact scope shall be determined by the module descriptions. Based on this, the deadline for submission is to be determined within the framework of the task.

§ 8
Project Work

(1) Through the projects, as a rule, the student should demonstrate the ability to work in teams, and in particular to scientifically develop, implement and present concepts. In doing so, the student should demonstrate the competence to define objectives and to develop concepts and solution sets, for a larger task.

(2) For project work, § 6 Section 2 shall apply, accordingly.

(3) The exact scope of project work shall be determined by the module descriptions, and shall not exceed 15 weeks. Based on this, the deadline for submission is to be determined within the framework of the task.

(4) If the project work involves teamwork, the individual contributions must be clearly identifiable and assessable, and must meet the requirements of Section 1. If parts of the project work are provided orally, § 9 (4) sentence 1 applies accordingly.

§ 9
Oral Examination Performances

(1) The student shall prove that he / she possesses the competence to recognise the relationships across the examination areas, and to place specific questions within these contexts, through oral examinations. In the process, it should be determined if the student has acquired the necessary professional knowledge base.

(2) As a rule, oral examinations are to be conducted by at least two examiners (peer review) or completed before an examiner in the presence of a competent assessor or a qualified observer (§ 18) as individual exams, unless a group examination with up to three persons is planned in accordance with the module description.

(3) Oral examinations shall last between 15 to 45 minutes. The exact duration shall be determined by the module descriptions.

(4) The main topics and results of the oral examination are to be recorded in a log. The performance result is to be shared with the students following the oral examination performance.

(5) Students who wish to take the same examination at a later examination date may be admitted as listeners depending on the room conditions, unless the examination candidate objects to this. No notes of these, and certainly no photocopies, may be taken. This permission does not extend to the discussion and announcement of the examination results to the examination candidate.

§ 10
Presentations

(1) The student shall prove that he / she possesses the competence to prepare and present special questions, through presentations. Based on this, the deadline for submission is to be determined within the framework of the task.

(2) § 6 Section 2 Sentence 1 and 2 are accordingly valid. The lecturer in charge of the teaching session in which the presentation topic is assigned and / or the presentation is delivered, shall be one of the examiners.

(3) § 9 Section 4 sentence 1 shall apply, accordingly.

§ 11
Other Examination Performances

(1) By means of other controlled examinations which can be assessed at the same scale and specified in the module descriptions including the requirements and, if applicable, the duration or the length of time of the specified performances (other examinations), the student shall deliver these

specified performances. Based on this, the deadline for submission is to be determined within the framework of the task. Other examination performances include colloquia, internship protocols, presentations, research and tests.

(2) The examination performances are defined, per Section 1, as follows:

1. The colloquium is a summary of a self-produced result in a lecture, followed by a technical discussion.
2. The internship protocol is a formalised report on the course and outcome of an internship, which proves that the student has the competence to present the course or results achieved, in an appropriate manner.
3. The presentation is an oral or even media-supported lecture of a student, according to the task with demarcated individual contributions of several students, in which results achieved by independent work are presented in a structured form, usually utilising visual aids.
4. In the case of a research, the information obtained from research on a given topic is recorded in written form with the sources specified.
5. The test is a written examination of the student's knowledge of a selected topic, in a limited time frame.

(3) For other written examination performances, § 6 Section 2 shall apply, accordingly. For other non-written examination performances, § 9 Sections 2 and 4 apply, accordingly.

§ 12
Assessment of the examination performances, formation and weighting of the grades, announcement of the examination results

(1) The evaluation of the individual examination performances is determined by the respective examiners. The following grades are to be used for grading:

1 = Very good	=	an outstanding performance;
2 = Good	=	a performance that is significantly above the average requirements;
3 = Satisfactory	=	a performance that corresponds to the average requirements;
4 = Sufficient	=	a performance that is despite its shortcomings is sufficient to satisfy the requirements;
5 = Insufficient	=	a performance that does not meet the requirements due to significant deficiencies.

For the differentiated evaluation, individual grades can be raised or lowered by 0.3 to intermediate values; the grades 0.7, 4.3, 4.7 and 5.3 are excluded. A single examination performance which consist only of one ungraded examination, is only graded as "passed" or "failed" (ungraded module examinations) if the corresponding module description foresees this as an exception. Examination performances graded as "passed" do not factor into further grade calculations; non-graded examination performances graded "failed" will be included in the further grade calculation with the grade "Insufficient" (5.0).

(2) The module score is the weighted average of the grades earned in the individual examination performances, as specified in the module descriptions. Only the first decimal number after the decimal point is taken into account; all other digits are deleted without rounding. The module grade ranges, in the average

For an average of up to and including 1.5	= Very good,
For an average of 1.6 to and including 2.5	= Good,
For an average of 2.6 up to and including 3.5	= Satisfactory,
For an average of 3.6 up to and including 4.0	= Sufficient
at or above 4.1	= Insufficient.

(3) Module examinations, which consist only of an ungraded examination, are only graded as

"passed" or "failed" according to the assessment of the examination (ungraded module examinations). The ungraded examinations do not factor into the further grade calculation.

(4) For the purpose of the Master's examination a total grade shall be created. The final grade of the Master's thesis with a 60-fold weight and the module grades weighted according to the credit points in accordance with § 25 (1) comprise the overall grade of the Master's examination. The final grade of the Master's work consists of the grade achieved on the Master's thesis with a three-fold weight, and the grade on its defence with a single weight. For the total and the final grades, Section 2, sentence 2 and 3 are valid. In the case of outstanding performance (overall grade of the Master's examination is better than or equal to 1.3 and the final grade of the Master's thesis is equal to 1.0), the examination board will award the title "passed with distinction".

(5) The total grade of the Master's examination will be, additionally, listed as relative grade, in accordance with the ECTS-Evaluation Scale.

(6) The modalities for the publication of the examination results must be communicated to the students by means of customary announcement in the Faculty of Computer Science.

§ 13
Failure, Withdrawal, Cheating and Violation of Regulations

(1) Examination performance is rated as "Insufficient" (5.0 or F), if the student fails a binding examination date without a good reason, or withdraws without a good reason. The same is valid for not completing the examination within the required processing time.

(2) The reason for the withdrawal or the failure to pass must be reported to the Examination Office of the Faculty of Computer Science immediately, in a credible, written format. In the case of illness, the student is usually asked to provide a medical certificate; in case of any doubt, an official medical certificate. In so far as the observance of deadlines for the first-time examinations, the retake of examinations, the reasons for the failure of examinations and the observance of the processing times for examination work are affected, the illness of the student equals the illness of a child in the student's (mostly) sole custody. If the cause is acknowledged, then a new scheduled time is determined for the exam. In this case, the already available from examination performance results are to be taken into account. The Examination Board shall decide about granting withdrawals or the acknowledgement of the reason for failure.

(3) If the student attempts to influence the results of his/her examination work by cheating or using non-approved tools, the examination performance is graded as "Insufficient" (5.0), on the basis of a corresponding determination by the examination board. Accordingly, ungraded examinations are graded as "failed". Students who disrupt the orderly process of an examination may be excluded from the continuation of the examination by the examiner or the examination proctor; in this case, the exam will be graded as "Insufficient" or "failed" (5.0). In serious cases, the Examination Board may exclude the student from the delivery of further examination performances.

(4) If the student has cheated during an examination performance, and this fact only gets discovered after the grade has been announced, the examination board may change the grade of the examination to "Insufficient" (5.0) and then the grade of the module examination may be also amended, in accordance with § 12 Section 2. If the prerequisites for passing a module examination were not fulfilled without the student's deception on the matter, this defect will be remedied by passing the module examination. If the student deliberately and wrongfully obtained the completion of a module examination, the module examination can be declared by the Examination Board "Insufficient" (5.0), and the Master's examination can be declared as "Not passed" (Failed). In serious

cases, the Examination Board may exclude the student from the delivery of further examination performances.

(5) Paragraphs 1 to 4 shall apply for the Master's thesis and its defence, respectively.

§ 14
Passing and Failing

(1) A module examination is passed if the module grade is at least "Sufficient" (4.0) or if the ungraded module examination was graded as "passed". If the module examination has been passed, the performance points assigned to the module per the module description will be awarded.

(2) The Master's examination counts as passed, if the module exams and the Master's thesis, as well as its defence, are passed. If a module examination comprises several examinations, the module exam is only passed when each examination was assessed at least as 'Sufficient' (4.0).

(3) A module examination counts as not passed if the module grade is not at least "Sufficient" (4.0) or if the ungraded module examination was graded as "not passed". Master's work and defence is only passed when each was graded at least as 'Sufficient' (4.0).

(4) A module examination counts as permanently failed if the module grade is not at least "sufficient" (4.0) or if the non-graded module examination has been graded "failed" and its retake is no longer possible. A Master's thesis and its defence are considered permanently failed, if the grade is not at least "Sufficient" (4.0), and a retake of the exam is no longer possible.

(5) A Master's examination is failed or permanently failed if either a module examination, or the Master's thesis or its defence was failed, or permanently failed. § 3 Section 1 shall remain unchanged. In the case of the permanent failure of a compulsory elective module examination, the final failure of the Master's examination will only be granted in accordance with § 17 (4) if the student does not select, within one month of the announcement of the result of the module examination, another module examination, or if pursuant to § 6 (2) sentence 12 Study Regulations such re-selection is no longer possible. If the student has permanently failed the Master's examination, he or she loses the right to the examination for all components of the Master's examination, in accordance with § 2 sentence 1.

(6) If the student has failed a module examination, the Master's thesis or the defence, the student will be given information as to whether and, if so, to what extent and within which period of time, the examination in question may be retaken.

(7) If the student has not passed the Master's examination, a certificate will be issued to her / him upon request and upon presentation of the relevant evidence, as well as a certificate of exmatriculation containing the components of the examination and their evaluation and, if applicable, the remaining parts of the examination and that the Master's examination is not passed, in a clearly discernible manner.

§ 15
Retaking Module Examinations

(1) Failed module examinations may be retaken once, within one year after closing the first examination attempt. The period commences upon the written publication of the decision that the student failed the module examination. After the end of this time limit, these shall be graded as "Not Passed" (F = Failed) again.

(2) A second retake of the examination is only possible at the next possible examination date. Thereafter, the module examination is considered as permanently failed. Another retake of the exam is not allowed.

(3) The retake of a failed module examination, which consists of several examination performances, comprises only the examination performances that were not graded with at least "Sufficient" (4.0). In the case of the repetition of a failed module examination, which includes one or more elective examinations, the students are not bound by the prior choice of an examination that was not graded at least "sufficient" (4.0) or "passed".

(4) Re-taking a module examination graded with a passing score is not permitted.

(5) Failed module examinations from the same, or other study programmes will be taken over.

§ 16
Accreditation of course work- and examinations, study time and qualifications acquired outside a university

(1) Study- and examination performances already completed as part of a programme at a state or state-accredited higher education institution may be credited, upon request, as meeting the requirements of our university programme, unless there are significant differences in terms of the acquired learning competences. Extensive agreements between Technische Universität Dresden , German Rector´s Conference, the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany and those which have been ratified by the Federal Republic of Germany are to be observed, as necessary.

(2) Qualifications obtained outside a university are credited upon request by the student, insofar as they are equivalent. Equivalence is present if the content, scope and requirements of the studies essentially correspond with those of the Computational Modelling and Simulation Master's degree programme at Technische Universität Dresden . This does not require a schematic comparison, but the utilisation of an overall view and evaluation.

(3) The study- and examination performances achieved in the same course of study within the Federal Republic of Germany shall be accepted ex officio.

(4) The study- and examination performances achieved at a university can be credited despite substantial differences if, as a result of their contents and qualification objectives, they all correspond to the sense and purpose of electives available in this study programme, and therefore they represent a structural equivalent. In the transcript, the actual performances will be exhibited.

(5) If the study- and examination performances are calculated according to paragraphs 1, 3 or 4, or taken over or acquired outside a university according to paragraph 2, the corresponding credits of study periods are also ex officio. Grades are to be accepted - as long as the grading systems are comparable - and to be included in the further process of grade composition. If the grading systems are not similar, the performance is marked as "Passed," and the grades will not be included in the further process of grade composition. The credit will be marked in the transcript.

(6)The crediting process is overseen by the Examination Board. For this purpose, the student must provide all necessary documents. Starting with that time-point, the crediting process must not take longer than one month. In case no crediting is possible, Article 17 Section 4, sentence 1 applies.

§ 17

Audit Committee

(1) An Examination Board will be established for the Master's programme in Computational Modelling and Simulation, to deal with the conducting and organisation of examinations, as well as the organisational tasks arising from the examination regulations. There will be three university lecturers assigned to the Examination Board, as well as a scientist and two students. With the exception of the student members of the Board, the term in office for the Board members shall be three years. The term in office for the student members shall be one year.

(2) The Chairperson, the Vice-Chairperson and the other members and their deputies shall be appointed by the Faculty Council of the Faculty of Computer Science in consultation with the Faculty Council for Mathematics and the Scientific Council of the Center for Molecular and Cellular Bioengineering (CMCB) student members at the suggestion of the Student Council. As a rule, the Chairman leads the activities of the Examinations Committee.

(3) The Examination Board shall ensure that the examination regulations are followed. It regularly informs the Faculty Council of Informatics, the Faculty of Mathematics and the Science Council on the development of study times and the duration of examinations, including the actual process times for the Master's thesis, as well as on the awarding of module- and final grades. The Examination Board provides suggestions for necessary modifications to the examination regulations, the study regulations, the module descriptions and the degree completion plans.

(4) Negative decisions must be communicated to the affected students in writing, justified and accompanied by information on legal remedies. The Examination Board, as an examining authority, decides about appeals, within a reasonable period of time, and issues the appeal notifications.

(5) The Examination Board may also invite guests without voting rights. The members of the Examination Board and their deputies have the right to sit in on examinations and Master's thesis defence.

(6) The members of the Examinations Committee and their deputies are subject to official secrecy. Unless they are in the public service sector, they are obliged to pledge non-disclosure to the Chairperson.

(7) On the basis of the decisions by the Examination Board, the Examination Office of the Faculty of Computer Science shall organise the examinations and manage the examination files.

§ 18
Examiners, Assessors and Proctors

(1) Examiners will be appointed by the Examination Board from the ranks of university lecturers and other persons who are lawfully qualified to oversee the examinations per state law. Only persons who possess a relevant Master's degree or at least comparable qualifications, may become observers at examination.

(2) The student may propose a supervisor for his / her Master's thesis and for the oral examinations, as well as the examiners for the defence. The proposal is not equal to approval of these choices.

(3) § 17 Section 6 shall apply accordingly, for examiners and observers.

§ 19

Purpose of the Master's Examination

The passing of the Master's examination creates the conclusion of the programme with professional qualification. The final examination serves to determine whether the student has acquired an overview of the relationships within the subject, the ability to apply academic methods and findings and the in-depth expertise necessary for the transition into professional practice.

§ 20
Purpose, issue, delivery, evaluation and retake of the Master's thesis and the defence

(1) The Master's thesis should prove that the student is able to independently work on a problem in his / her field of specialisation, using scientific methods, within a given period of time.

(2) The Master's thesis may be supervised by a professor or another authorised person in accordance with the Act on the Autonomy of Institutions of Higher Education in the Free State of Saxony, as long as the latter is employed at the Department of Computational Modelling and Simulation at Technische Universität Dresden . If the Master's thesis is to be supervised by a person who is an external authorised person, permission is to be requested from the Chairperson of the Examination Board.

(3) The issuing of the topic for the Master's thesis is performed via the Examination Board. The topic and the date of issue are to be recorded. The student may express his / her preference on thesis topics. The timely issuing of the topic for the Master's thesis is performed by the Examination Board, upon request by the student. The topic is issued ex officio by the Examination Board at the beginning of the semester following the completion of the last module examination.

(4) The topic can only be returned once, and only within two months after it was issued. However, if the Master's thesis involves a second attempt, a return of the topic is only permissible if the student has not made use of this option so far. If the student has returned the topic, a new one will be issued immediately to him / her, in accordance with Section 3, Sentences 1 to 3.

(5) The Master's work is to be delivered as individual work.

(6) The Master's thesis is to be submitted in English in two bound copies of machine-processed writing, as well as in digital text form on a suitable data storage medium, to the Examination Office of the Faculty of Computer Science, in a timely manner; the date of submission must be documented. Upon submission, the student has to declare, in writing, whether or not he / she has written the thesis - in the case of group work, his / her share of the work as marked - independently, and has not used any sources or tools other than those specified and referenced. In appropriate cases, the Master's thesis can be provided also in the German language with the documented agreement of the supervisor or, if the Examination Board approves the student's application.

(7) The Master's thesis has to be graded by two examiners individually, according to § 12 Section 1 sentences 1 to 3. The supervisor of the Master's thesis shall be one of the examiners. The evaluation shall not exceed four weeks.

(8) The grade on the Master's thesis is derived from the average of the two individual grades issued by the examiners. If the individual scores of the examiners deviate by more than two grades, the average of the two individual scores only takes precedence if both examiners agree. If this is not the case, the Examination Board will seek the evaluation of the thesis from a third examiner. The grade on the Master's thesis will then be derived from the average of the three individual grades issued by the examiners. § 12 Section 2 sentences 2 and 3 apply, accordingly.

(9) If an examiner has assessed the Master's thesis at least with "Sufficient" (4.0), the other with "Insufficient" (5.0), the examination committee obtains an evaluation of another examiner. This person shares his / her decision whether or not the student should receive a passing grade on the Master's thesis. If the student received a passing grade on the Master's thesis, the final grade on the thesis is formed from the average of the individual notes of the examiners who voted for the passing grade; otherwise, the grade will be formed from the evaluations with the "Not passed" evaluations. § 12 Section 2 sentences 2 and 3 apply, accordingly.

(10) A failed Master's thesis can be repeated once, within one year. After that time limit, it shall be graded as "Not Passed", again. A second retake of the examination is only possible at the next possible examination date, after which the Master's examination is graded with the permanent grade of "Not Passed". Further retake, or the retake of a passed Master's work is not permitted.

(11) The student must explain his / her Master's thesis in a public defence in front of the thesis supervisor as an examiner, and an assessor. The defence takes place in the language in which the Master's work was composed. Additional examiners may be included. Section 10, as well as § 9 Section 4 and § 12 Section 1 to 3 shall apply, accordingly.

§ 21
Transcript and Master's Diploma

(1) The student will receive a certificate of completion of the passed Master's examination without delay, if possible within four weeks. In the certificate of the Master's examination are the module assessments according to § 25 paragraph 1, as well as the corresponding credit points, the track, the topic of the Master's thesis, their final grade and supervisor, as well as the final grade and if applicable the predicate according to § 12 paragraph 4 sentence 5 are to be recorded. The grades of the individual examination performances have to be presented on a supplementary page attached to the certificate. At the request of the student, the assessments of additional modules and the required length of study until the completion of the Master's examination are included in the certificate and the assessments of examinations in additional modules are indicated in an attached form.

(2) At the same time as the certificate of the Master's examination is issued, the student receives the Master's degree diploma, with the date of the certificate. The diploma documents the awarding of the Master's degree. The Master's degree diploma is signed by the Rector and the Chairperson of the Examination Board, and is marked with the seal of Technische Universität Dresden. Additionally, the student receives the translated copies of the diploma and the certificate, in the English language.

(3) The certificate bears the date of the day on which the last examination was taken, in accordance with § 14 Section 2. The Master's degree certificate is signed by the Chairperson of the Examination Board, as well as the Dean of the Faculty of Computer Science, and is marked with the Faculty seal of Technische Universität Dresden.

(4) Technische Universität Dresden is providing a diploma supplement (DS), according to the "Diploma Supplement Model" of the European Union / Council of Europe / UNESCO. As a representation of the national education systems (DS Section 8), the text approved by the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany and the German Rector´s Conference are to be used, in their respective latest version.

§ 22
Invalidity of the Master's Examination

(1) If the student has cheated during an examination performance, and this fact only gets

discovered after the certificate has been awarded, the assessment of the examination performance may be amended in accordance with § 13 Section 3. In this case, the module examination can be declared "Insufficient" (5.0) and the Master's examination declared as "Not passed". The same applies for the Master's thesis and its defence.

(2) If the prerequisites for completing a module examination were not fulfilled, without intentional deceit on the student's part, and if this fact emerges after issuance of the certificate, this shortcoming is remedied by passing the examination performance. If the student deliberately and wrongfully obtained the completion of a module examination, the module examination can be declared by the Examination Board "Insufficient" (5.0), and the Master's examination can be declared as "Not passed". The same applies for ungraded module examinations, the Master's thesis and its defence.

(4) The incorrect certificate is to be retrieved by the Chairperson of the Examination Board, and, where appropriate, a new certificate is to be issued. Along with the incorrect certificate, the Master's certificate will also be withdrawn if the Master's examination was declared "Not passed", because of cheating. A decision pursuant to Section 1 and Section 2 sentences 2 or 3 shall be excluded after a period of five years from the date of the certificate.

Section 2: Subject-specific regulations

§ 23
Study-duration, degree completion plan and scope of studies

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

(2) The programme is built with modules, and it is completed with the Master's thesis and its defence.

(3) Including the passing of the Master's Examination, a total of 120 performance points are acquired from the modules, as well as from the Master's thesis and its defence.

§ 24
Professional requirements of the Master's Examination

Study performances may be required as prerequisites for the examination performances. Their number, type and design are to be regulated in the module descriptions, as well as the number of retake possibilities can be limited. Before the defence, the Master's thesis has to be assessed at least as 'Sufficient' (4.0).

§ 25
Objective, Nature and Scope of the Master's Examination

(1) The Master's examination covers all module examinations of the compulsory education area, those of the selected modules of the elective area, as well as the Master's thesis with its defence.

(2) The modules of the compulsory education area are:
1. Soft Skills
2. Research Project
3. Literature Review in Computational Modelling

(3) The modules of the compulsory elective area of the basic education are:

1. Machine Learning and Data Mining
2. Parallel Programming and high performance computing
3. Basic Numerical Methods
4. Stochastics and Probability
5. Statistical Principles and Experimental Design
6. Data Visualisation,

from which three must be selected.

(4) The following tracksare available to students for professional profiling:

1. Computational Life Science,
2. Computational Mathematics,
3. Visual Computing,
4. Computational Modelling in Energy Economics,
5. Computational Engineering.

from which three must be selected. The contents of the modules for each track are described in Annex 1.

(5) The necessary examination performances, the type and design assigned for the modules are specified in the module descriptions. As long as it is not regulated differently in the module descriptions, the focus of the examination performance is on the contents and competencies to be acquired within each module.

(6) The student can subject herself / himself to further examinations in (additional) modules, beyond those listed in Section 1. These module examinations can be provided optionally by the respective provider or examiner from the entire module offer of Technische Universität Dresden , or a collaborating university. They do not enter into the calculation of the student's workload, and are not taken into account in the calculation of the total grade.

§ 26
Processing Time of the Master's Thesis and its Defence

(1) The processing time for the Master's thesis encompasses 22 weeks, and 29 performance points can be achieved. The topic, the task and scope of the Master's thesis must be limited by the supervisor in such a way that these do not interfere with the deadline for the submission of the Master's thesis. In individual cases, the Examination Board may extend the processing time, acting upon a justified request by an exceptional maximum of 12 weeks. The number of performance points remains unaffected by this.

(2) The defence has a duration of 60 minutes. Through the defence, students may earn 1 performance point.

§ 27
Master's Degree

If the Master's Examination is successfully passed, the Graduate degree of "Master of Science" (abbreviated as M.S.) is awarded.

Section 3: Final Provisions

§ 28
Entry into force and Publication

(1) This examination regulation shall take effect starting 1st October 1 2018 and will be published in the official notices of Technische Universität Dresden .

(2) It shall apply to all students enrolled in the Master's degree programme in Computational Modelling and Simulation, starting with the Winter semester of 2018/2019.

Issued at the Technical University of Dresden on the basis of the resolutions of the Faculty Council of the Faculty of Computer Science on 17th January 2018 and the Faculty of Mathematics on 31st January 2018 as well as the resolution of the Scientific Council of the Center for Molecular and Cellular Bioengineering (CMCB) on 14th February 2018 and the approval of the University Executive Board on 27th February 2018.

Dresden, April 20, 2018

The Rector
of Technische Universität Dresden

Prof. Dr.- Ing. habil. DEng / Auckland Hans Müller-Steinhagen

Attachment 1: Compulsory Modules in the Selectable Tracks

Computational Life Science	
CMS-CLS-ELG	Computational Life Science Basics
CMS-CLS-IBC	Introduction to Biochemistry
CMS-CLS-ABI	Applied Bioinformatics
CMS-CLS-ELV	Computational Life Science Advanced
CMS-CLS-TEA	Computational Life Science Team project
CMS-CLS-MOS	Modelling and Simulation in Biology
CMS-COR-SED*	Statistical Principles and Experimental Design
Computational Mathematics	
CMS-CMA-ELG	Computational Mathematics Basics
CMS-CMA-FEM	Finite Element Method
CMS-CMA-MODSEM	Modelling Case Studies
CMS-CMA-PROJ	Computational Mathematics Project
CMS-CMA-ELV1	Advanced Computational Mathematics
CMS-CMA-ELV2	Computational Mathematics Applications
Visual Computing	
CMS-VC-ELG	Visual Computing Basics
CMS-VC-ELV1	Advanced Visual Computing
CMS-VC-ELV2	Visual Computing Applications
CMS-VC-TEA	Visual Computing Team project
Computational Modelling in Energy Economics	
CMS-EE-EPM	Electric Power Markets
CMS-EE-EL1	Computational Modelling in Energy Economics Basics
CMS-EE-SCEE	Case Studies in Energy Economics
CMS-EE-LSEE	Literature Studies in Energy Economics
CMS-EE-REEP	Resource Economics and Environmental Policy
CMS-EE-EL2	Computational Modelling in Energy Economics Advanced
Computational Engineering	
CMS-CMA-FEM	Finite Element Method
CMS-CE-EL1	Computational Engineering Basics
CMS-CE-AT	Advanced Topics in Finite Element Analysis Multifield Methods
CMS-CE-MBD	Multibody Dynamics
CMS-CE-MP	Multifield Problems
CMS-CE-CFD	Computational Fluid Dynamics
CMS-CE-EL2	Computational Engineering Advanced

*Accordingly not selectable in the basic education