

Please note: This publication is an English translation of the Examination Regulations for the M.Sc. Computer Aided Conception and Production in Mechanical Engineering (CAME). Only the German original of these regulations as published in the Official Announcement of RWTH University (“Amtliche Bekanntmachungen”) is legally binding.

There are 6 modifications to the present Examination Regulations dated October 17, 2014. All those Modified Regulations were implemented in this English reading aid. The individual German Modified Regulations were published in the Official Announcements of RWTH Aachen University (“Amtliche Bekanntmachungen”) and only the German originals are legally binding.

Examination Regulations

for the Master’s degree program

Computer Aided Conception and Production

in Mechanical Engineering

of RWTH Aachen University

dated August 31, 2012

in the third revised version of the Examination Regulations

dated October 16, 2014

published as a complete version

On the basis of §§ 2 para. 4, 64 of the law governing the universities of the Federal State of North Rhine-Westphalia (Higher Education Act – HEA) from October 31, 2006 (GV. NRW p. 474), most recently amended by article 1 of the Act Regarding the Future of Higher Education dated September 16, 2014 (GV. NRW p. 547), RWTH Aachen University (RWTH) has issued the following examination regulations:

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¹ Appendices 1 through 3 of the German original include the module catalog. These appendices will not be included in this English reading aid. Please refer to the relevant module catalog provided on the program's website instead.

I. General Information

§ 1

Scope of Application and Academic Degree

- (1) These Examination Regulations apply to the Master's degree program Computer Aided Conception and Production in Mechanical Engineering (CAME).
- (2) After the successful completion of this Master's degree program, the Faculty of Mechanical Engineering awards the academic degree of Master of Science RWTH Aachen University (M. Sc. RWTH).

§ 2

Objective of the Study Program and Language Provisions

- (1) In the Master's degree program Computer Aided Conception and Production in Mechanical Engineering (CAME), the knowledge acquired in the Bachelor's degree program is deepened in such a way, that graduates will be able to resolve complex problems and to independently do research and work scientifically. Students acquire advanced knowledge of methods, processes, and technologies in computer-aided design of components, modules and of computer-aided production in mechanical engineering. In addition, this Master's degree program teaches both theoretical and practical content related to the use of industry-specific software systems for an industrial business environment. Students do not only acquire technological and technical competencies in the field of computer-aided production, modeling, and simulation as well as in the field of software engineering, but – by choosing a specific specialization area (track) – they also gain experience in evaluating and solving problems to manage complex modeling and simulation projects.
Students acquire the ability to develop, read and understand complex technical drawings and based on this, to independently design computer-aided structures. They will be able to purposefully advance existing structures in compliance with its operational use. Students will be able to successfully apply the methods and expertise in engineering they acquired and refined to formulate and solve complex problems in the industry or in research institutions. Additionally, students will be supported in developing interdisciplinary skills. These include presentation and communication techniques as well as the ability to act independently and autonomously, to think abstractly, the ability to think system-analytically and to work in a team. Their education at RWTH Aachen University qualifies students to work in a variety of fields of work and industries around the world. After successfully completing this Master's program, students additionally acquire the scientific qualification to pursue a doctorate.
 - (2) This is a Master's degree program for the purpose of further education.
 - (3) Teaching takes place in the English language.
 - (4) The Master's thesis can be written in the German or in the English language.
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§ 3 Admission Requirements

- (1) Requirement for admission is a recognized first degree from a recognized university, which provides evidence of the candidate's suitability for this master's degree program. University degrees are accepted, if they have been approved by a responsible public office of the state in which the university is located, or which have been accredited through a state-approved process.
- (2) To meet the educational prerequisites according to para. 1 and successfully complete the Master's degree program Computer Aided Conception and Production in Mechanical Engineering, the applicant must have the necessary competence in the following areas:
- A total of 120 Credit Points in the fields of Engineering, Mathematics and Natural Sciences, exclusive of practical work experience.
 - These 120 Credit Points must include the following basic modules of the Bachelor's degree program Mechanical Engineering at RWTH Aachen University to a comparable extent. A detailed description of the required competencies can be found in the appendix to the Examination Regulations.

Module	CP
Mechanics I	75 CP
Mechanics II	
Mechanics III	
Mathematics I	
Mathematics II	
Mathematics III	
Materials Science I	
Materials Science II	
Thermodynamics I	
Thermodynamics II	
Computer Science/Programming	
Physics	
Machine Design I	
Machine Design II	
Machine Design III	
Fluid Mechanics I	45 CP
Control Engineering	
Finite Elements	
Vibration Theory	
Engineering Design	

Manufacturing Technology	
Structural Design	

In addition, all applicants are required to successfully pass the Graduate Record Examination (GRE) General Test. Applications without the GRE will not be considered. The following scores must be achieved in the individual sections:

Verbal Reasoning:	145 points
Quantitative Reasoning:	160 points
Analytical Writing:	3 points

Applicants who are citizens of a member state of the European Union or the European Economic Area (EEA), as well as graduates with a bachelor's degree from a German university are exempt from this rule.

- (3) The Examination Board may combine an admission with the condition to provide proof of certain knowledge before the registration of the master's thesis. The type and extent of such additional requirements is determined individually by the Examination Board based on the student's qualifications and expertise gained through their first degree. The decision is made in agreement with the Study Course Coordinator or the Academic Advisor. If additional requirements corresponding to more than 30 Credit Points are required due to the differences in the academic fundamentals defined in para. 2, admission to the Master's degree program Computer Aided Conception and Production in Mechanical Engineering (CAME) is not possible.
- (4) For this master's degree program, proof of adequate proficiency in the English language must be provided by applicants who have not acquired their first degree at an English university or whose native language is not English. The following certificates will be recognized:
 - a) Test of English as a Foreign Language (TOEFL) "Internet-based" test (IBT) with a result of at least 90 points,
 - b) Test of English as a Foreign Language (TOEFL) "Paper-based" test (PBT) with a result of at least 577 points,
 - c) IELTS test with a result of at least 5.5,
 - d) Cambridge Test – Certificate in Advanced English (CAE),
 - e) First Certificate in English (FCE) with a grade of at least B,
 - f) A certificate of English language skills at level B2 of the "Common European Framework of Reference of Languages". Such evidence is provided, for example, by a German Abitur certificate, showing that English has been consistently taken as a subject and passed with the grade of "sufficient" up to the end of qualification level 1 (grade 11 for the G8 Abitur, otherwise grade 12) or by a
 - g) Placement test at the RWTH Language Center at the B2 level.
- (5) Additionally, applicants are required to have professional experience of typically no less than one year. Should the practical work experience completed by the applicant fall short of the scope of practical work experience required as part of the Bachelor's degree program Mechanical Engineering at RWTH Aachen University, the Examination Board can combine an admission with the condition to provide proof of further practical professional experience before the registration of the Master's thesis.

- (6) To be able to enroll or transfer, applicants who have begun but not already completed a master's degree program at RWTH Aachen University or at another university must apply to the local Examination Board to have their completed positive and negative examination performances credited when enrolling or transferring to this program.
- (7) Upon application, the Examination Board may waive examination performances of up to 30 Credit Points for graduates of bachelor's degree programs with a standard period of study of seven semesters.
- (8) The Examination Board in agreement with the Registrar's Office is reasonable for assessing whether the admission requirements are met. In the case of applications of foreign students, the decision is made in agreement with the International Office.

§ 4

Standard Period of Study, Scope of Study and Credit Points

- (1) The standard period of study is four semesters (two years), including preparation of the master's thesis. This degree program can only be commenced in the winter semester.
 - (2) This study program has a modular structure. Each individual module entails imparting or acquiring knowledge and competencies in a specific subject area. Learning outcomes must be evaluated through examinations or another form of assessment. In the Conception track, this study program comprises 14 compulsory modules with a scope of 100 Credit Points and 10 compulsory elective modules of which 20 CP must be completed. The master's thesis module is included. In the Production track, this study program comprises 14 compulsory modules with a scope of 98 Credit Points and 13 compulsory elective modules of which 22 Credit Points must be completed. The Master's thesis module is included. All modules are defined in the module catalog.
 - (3) Students' performances in the individual modules are evaluated according to § 9, and the results, which are weighted in the form of Credit Points, count towards the overall grade. Credit Points will not only be awarded based on the scope of the course in question, but also reflect the students' workload in terms of preparation, revision, and examinations (self-study). One Credit Point corresponds to an estimated workload of approximately 30 hours. One semester usually comprises 30 Credit Points. This master's degree program thus comprises a total of 120 Credit Points.
 - (4) The scope of studies comprises 62 to 64 weekly class hours (SWS) (contact time in SWS) not including the internship, the German language course including the DSM examination, the Mini Thesis and the master's thesis. One lecture hour per week (SWS) corresponds to one 45-minute course per week during the semester lecture period. The indicated SWS correspond to the duration of the courses only. They do not include any time spent preparing or studying for the course. Time spent on self-study is accounted for by awarding the corresponding Credit Points according to para. 3.
 - (5) In administering this program, RWTH International Academy gGmbH ensures that the standard period of study can be adhered to, and that the modules required for a degree in particular and the corresponding examinations as well as the master's thesis can be completed within the planned scope and within the scheduled time frame and deadlines.
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§ 5 Course Registration

- (1) Courses in this master's degree program are open to students enrolled in this study program. To attend a course, students need to register via a modular registration process. The registration deadline and registration process will be announced in due time via the CAMPUS information system (CMS). Students may cancel their registration to a full-semester course until the last Friday in May, respectively November (*Orientierungsphase, Orientation Phase*). Notwithstanding, deregistration from block courses is possible up to one day before the day of the first course.
- (2) If it becomes necessary to limit the number of participants in a course, e.g., due to the type of instruction, research concerns, or the number of available instructors and advisors, this limitation must be in accordance with the provisions of § 59 Section 2 HG (German Higher Education Act). Students who must participate in a course during their studies will be given priority in this (compulsory or compulsory elective performances fixed to a semester). Further criteria are laid out in the following order: compulsory or compulsory elective performance that are not fixed to a semester, elective performances (§ 6 para. 1), and voluntary additional performances (in accordance with § 8 para. 1) and open admission (para. 1).

§ 5a Obligatory Attendance in Courses

- (1) Attendance in a course can be declared obligatory if the learning objectives of the course cannot be achieved without the active participation of students.
 - (2) In the Master's degree program Computer Aided Conception and Production in Mechanical Engineering (CAME), obligatory attendance can only be stipulated in courses of the following type:
 1. Tutorials
 2. Seminars and introductory seminars
 3. Colloquia
 4. (Laboratory) practicals
 5. Excursions
 6. Projects
 7. Simulation games
 - (3) Courses which require obligatory attendance according to para. 1 are identified as such in the module handbook.
 - (4) The number of courses a participant may be absent from depends on the course. Depending on the content of the course, it may be 10% to 30% of the planned contact time. This also includes absences excused by a medical certificate. In general, in a course of 2 SWS, a student may miss two sessions.
 - (5) If a student exceeds the permissible time of absence, the student and the lecturer may agree on substitute performances allowing the student to still achieve the learning objective.
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- (6) The lecturer determines and communicates the permissible time of absence according to para. 4 as well as the possibility of substitute performances and the type of substitute performances according to para. 5 at the start of the course at latest.

§ 6

Examinations and Examination Deadlines

- (1) The complete master's examination consists of the examinations for the individual modules as well as the master's thesis module. The examinations and the master's thesis will be completed during studies and should be completed within the standard period of study. Only enrolled students may take examinations. The modules in the curriculum are divided into compulsory modules and compulsory elective modules, as well as elective modules, if applicable. Compulsory modules are modules which the student is required to take. Compulsory elective modules may be chosen from a given list of modules. Additionally, there may be a section of elective modules, from which students may choose freely. This elective area is not comparable to the additional modules, referred to in § 8. Additional modules are modules that are not part of the curriculum, but students are allowed to attend them additionally and voluntarily.
- (2) For students to attend a course, they need to register via a modular registration process. The registration for a course from the compulsory area or the compulsory elective area enables the automated follow-up registration to the corresponding examination. This registration will follow automatically by 1 December in the winter semester, or 1 June in the summer semester of each year. § 5 para. 1 remains unaffected by this.
- (3) Students are meant to take courses in the study semester that is indicated for the respective course in the curriculum. The specific registration and deregistration process will be announced in the CAMPUS-Information System.
- (4) The Examination Board ensures that students can take examinations for courses which are part of the master's examination in the respective semester in each examination period. For each subject, at least two examination dates must be offered each year. Written examinations must be announced at the beginning of the lecture period.
- (5) The legal maternity and parental leave periods as well as times of absence due to responsibilities for the care of children as defined in § 25 Sect. 5 of the German Federal Education and Training Assistance Act (*Bundesausbildungsförderungsgesetz*) and for the care of spouses, registered partners, direct relatives, or in-laws must be taken into consideration.
- (6) If a candidate is not able to take an examination partially or in its entirety due to longer lasting or permanent physical disability or chronic illness and provides a medical certificate as evidence for their condition, the chairperson of the Examination Board must permit the candidate to take an equivalent examination in another form. If a program requires mandatory industrial placements or study abroad periods, equivalent qualifications are to be defined for those students who, due to their medical condition, are not capable to complete them, despite the support provided by the University.
- (7) Students on leave of absence are not entitled to take examinations at RWTH Aachen University. This does not apply to repeating failed examinations or to proof of performance (experience reports (*Erfahrungsberichte*)) for the semester abroad or practical semester itself. This does also not apply to times of absence due to responsibilities for the care of children as defined in § 25 para. 5 of the German Federal Education and Training Assistance Act

(*Bundesausbildungsförderungsgesetz*) as well as for the care of spouses, registered partners, direct relatives, or in-laws.

§ 7 Types of Examinations

- (1) An examination usually is a written or an oral examination. Examinations may also be presentations, written papers, term papers, project work or a colloquium. A module may require a participant to present certificates of attendance or proof of performance (*Leistungsnachweis*). A proof of performance or certificate of attendance may be defined as an admission prerequisite for further required examinations of a module. Proof of performance may be acquired in the same ways as examinations. A certificate of attendance certifies that a student actively participated in a course.
 - (2) Alternative types of examinations, the final form of the examination and the permissible resources shall be announced at the beginning of the course and up to four weeks prior to the examination date at the latest. § 13 para. 5 remains unaffected by this. It must also be communicated; in which way the individual assessments of each examination will be counted towards the overall assessment of the course's examination. The examination date and the name of the examiner must be published in the CAMPUS Information System by mid-May and mid-November at the latest. Oral examination dates may be arranged individually; however, the name of the examiner must be established beforehand.
 - (3) In **oral examinations**, the candidate must prove that they understand the underlying interrelated concepts of the subject matter and that they can put into context any specific questions or issues. The oral examination is further intended to determine whether the candidate has broad basic knowledge. Oral examinations are either held by several examiners (panel examination) or by one examiner in the presence of a competent assessor, as a group examination with no more than four candidates or as individual examination. Inherently, each candidate will be examined in an examination subject or subject area by one examiner only. Before determining the candidate's grade in compliance with § 9 para. 1, the examiner shall hear the assessor. The central subjects and results of the oral examination must be recorded in a report. The result of the examination must be announced to the candidate following the oral examination. The duration of an oral examination is 15 minutes at least and 45 minutes at most per candidate. In the case of a supplementary oral examinations pursuant to § 13 para. 2, evaluation by one examiner will be sufficient. In group examinations, it must be ensured that the same time frames are maintained for each candidate as in a single examination.
 - (4) Students who wish to take an examination in a later examination period may be admitted as audience, provided the spatial conditions allow for it and provided the candidate does not object. Authorization does not extend to the discussion and announcement of the result of the examination.
 - (5) In **written examinations**, the candidate must prove that they can recognize a problem using the accepted methods of the subject and develop a solution in a limited period of time and using limited resources. The duration of a written examination should be based on the following specifications:
 - For 1 to 3 Credit Points awarded: 1 to 2 hours
 - For 4 to 9 Credit Points awarded: 2 to 3 hours
 - For 10 to 15 Credit Points awarded: 3 to 4 hours
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- For 16 or more Credit Points awarded: 4 to 5 hours

The exact duration of an examination is specified in the module handbook. Additionally, there may be time granted to familiarize with the tasks of the examination, which will not be counted towards the processing time.

- (6) Multiple choice tasks may also be included in written exams. For details on how the exam is evaluated or graded, please refer to § 9 para. 2 to 3.
 - (7) The examiner shall assess each written examination. If an examination is assessed by two examiners in accordance with § 13 para. 4, the grade will be determined from the arithmetic average of the individual evaluations. The examiner may assign the preliminary assessment of the written examination to suitable specialist staff, who hold a relevant master's degree or a comparable or higher degree. In the case of a supplementary oral examination pursuant to § 13 para. 2, evaluation by one examiner will be sufficient.
 - (8) A **presentation (Referat)** is a short lecture of at least 15 and at most 45 minutes, which is based on a written preparation (*schriftliche Ausarbeitung*). Students demonstrate that they are able to prepare a topic in a scientific manner, have command of the subject and its objects of investigation, and are able to orally present the results.
 - (9) In a **course paper (schriftliche Hausarbeit)**, students are asked to write about a topic discussed in a particular course, to analyze it in an appropriate manner by using relevant literature and other suitable resources and to come to fitting conclusions. Suitable resources are stated in the assignment. § 7 para. 7 clause 2 applies accordingly.
 - (10) **Written homework (schriftliche Hausaufgaben)** is assigned and graded alongside courses during a semester and aims at gradually preparing students for the following examinations. Up to 10 percent of the grades for written homework may count towards the final grade of a course, which is largely determined by the final examination. The lecturer provides information on the criteria specifying how bonus points can be obtained in the CAMPUS Information System, at the beginning of the semester, or at the latest in the first course meeting.
 - (11) With **project work (Projektarbeit)**, a concise scientific presentation of a question or problem is laid out in writing, under guidance of academic staff.
 - (12) In a **term paper (Studienarbeit)**, students work out an exercise or problem in the field of the master's degree program.
 - (13) Examinations according to para. 8 to 11 may also be completed by a group of students, provided the work from each group member can be evaluated individually.
 - (14) In the **colloquium**, students demonstrate that they have a deeper understanding of a subject and can classify and evaluate questions and problems in a discussion of 30 to 60 minutes with the examiner and other participants in the colloquium. The colloquium may begin with a presentation according to para. 8.
 - (15) In the **practical training/lab**, students learn to perform independent experimental work, evaluate measured data, and present the results in a scientific manner. The students' technical knowledge, experimental skills, and the quality of scientific preparation provide the basis of evaluation. If the practical training is carried out in small groups, the performance of each individual student is evaluated.
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§ 8 Additional Modules

- (1) A candidate can complete examinations in other freely selectable modules (additional modules, *zusätzliche Module*). Students must apply to the examination board before they can register for the examination of additional modules.
- (2) Students may only choose these additional modules from the courses offered under private law by RWTH International Academy.
- (3) Upon application, the result of the examination in these modules may be listed on the candidate's transcript of records. However, they will not count towards the overall grade.

§ 9 Assessment and Grading

- (1) The grades for the individual examinations are determined by the respective examiners. The following grades are to be used:

1 = very good	an excellent performance;
2 = good	a performance that is above average;
3 = satisfactory	a performance that meets the average requirements;
4 = sufficient	a performance that meets the requirements, despite its shortcomings;
5 = insufficient	a performance that does not meet the requirements due to substantial shortcomings.

By raising or lowering the individual grades by 0.3, intermediate values can be formed for a differentiated evaluation. The grades 0.7, 4.3, 4.7, and 5.3 are excluded. Performances that are not graded will be evaluated as "passed" or "failed".

- (2) Multiple choice is an examination format which provides a choice of several pre-given answers to a question. The evaluation criteria must be announced on the examination sheet as well as on a notice board and in the CAMPUS Information System 14 days prior to the examination. A written exam which solely consists of multiple choice questions is considered as passed, if
 - a) 60% of the questions are answered correctly or
 - b) the amount of the questions correctly answered is not lower than 22% of the average performance of candidates taking the examination for the first time.

It is not permitted to award negative points.

- (3) If a candidate achieves the minimum number of points required according to para. 2 and thus passes the exam, the grade establishes as follows:
 - very good, if the candidate answered at least 75%
 - good, if the candidate answered at least 50% but less than 75%
 - satisfactory, if the candidate answered at least 25% but less than 50%
 - sufficient, if the candidate answered no or less than 25%
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of the additional questions correctly.

- (4) If a written examination consists of both multiple choice and other types of questions, the multiple-choice questions will be evaluated according to paragraphs 2 and 3. The other questions are evaluated according to the method usually used for the respective type of question. The grade is determined considering the weighted results of both parts of the examination. The weighting is determined by the percentage each type of task is given in the exam.
- (5) An evaluation of the examination only takes place if the candidate is enrolled in the degree program at the time of the examination or submission of the assignment to be evaluated. The grade awarded for the examinations must be announced after six weeks at the latest. It must be ensured that the assessment takes place at least ten days prior to a possible repeat examination. Students will be notified of the grades automatically via the CAMPUS Information System by email to their RWTH email address as well as by notice board. Students may also view their current transcript through the CAMPUS Information System.
- (6) An examination is considered passed if the grade is at least "sufficient" (4.0). If an examination consists of several partial performances, the grade takes all partial performances into consideration. In such a case, each partial examination must be passed, or have a grade of at least "sufficient" (4.0). Para. 8 applies regarding grades.
- (7) A module is passed, if all associated examinations were passed with a grade of at least "sufficient" (4.0), and all other Credit Points were achieved. For each module, the Credit Points will be counted in accordance with appendix 1 (module catalog).
- (8) The overall grade is composed of the grades for the individual modules and the grade of the Master's thesis, whereby the individual grades and the grade from the Master's thesis are weighted using the relevant Credit Points.

The overall grade for the passed Master's examination is:

very good	= for a grade point average of up to 1.5
good	= for a grade point average of 1.6 to 2.5
satisfactory	= for a grade point average of 2.6 to 3.5
sufficient	= for a grade point average of 3.6 to 4.0

Upon application to the Examination Board, the lowest weighted module grade may be removed from a student's grade point average, provided all module examinations have been completed within the student's standard period of study. The master's thesis module may not be removed.

- (9) Only the first decimal place after the decimal point is taken into account when calculating the grades and the overall grade. All other digits are deleted without rounding.
 - (10) If the master's thesis is assessed with a grade of 1.0 and the weighted average of all other grades of the master's examination is 1.3 or better, the overall grade will be "with distinction" instead of "very good" according to para. 8.
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§ 10 Examination Board

- (1) In order to organize examinations and the tasks and responsibilities deriving from the present Examination Regulations, the Faculty of Mechanical Engineering establishes an Examination Board. The Examination Board consists of the chair, the deputy chair, and five other members with voting rights. The chair, deputy chair, and two other members will be selected from among the group of professors, one member from among the academic staff, and two members from among the group of students. A deputy will be nominated for each member of the Examination Board. The term of office of the professorial and academic staff members will amount to two years, whilst the term of office for student members will amount to one year. Re-election to the Board is possible.
- (2) The Examination Board is a public authority in accordance with the Administrative Procedure Law and the Law of Administrative Court Procedure.
- (3) The Examination Board makes sure that the provisions of the Examination Regulations are observed and that the examinations are properly conducted. In particular, the Examination Board decides on objections to decisions made in the examination procedure. Additionally, the Examination Board must report to the faculty on a regular basis and at least once a year on statistics and general data on examinations and periods of study. It provides suggestions on how the examination regulations and curricula can be further improved and determines how grades and overall grades should be awarded. The Examination Board can transfer the execution of its everyday tasks to the chair of the Board. This does not apply to decisions regarding objections and the report to the faculty.
- (4) The Examination Board is quorate if, in addition to the chair and the deputy chair, two additional professors with voting rights (or their deputies) and at least two additional voting members (or their deputies) are present. Board decisions shall be made by simple majority. In the event of a tie, the chair has the casting vote. The Examination Board's student members do not contribute to crediting academic and examination performances.
- (5) The members of the Examination Board have the right to be present during examinations.
- (6) Meetings of the Examination Board are not public. The members of the Examination Board and their representatives are obligated to maintain professional discretion. Insofar as they are not members of the public service, the chair of the Examination Board must commit to confidentiality.
- (7) The Examination Board receives administrative assistance from the Central Examination Office (ZPA) in fulfilling its responsibilities.
- (8) For the purpose of advising students and advising the Examination Board, the Examination Board appoints a master's supervisor as well as their deputy from the group of full-time professors of the Faculty of Mechanical Engineering upon the proposal of the Commission for Teaching. The term of office is three years.

§ 11 Examiners and Assessors

- (1) The chair of the Examination Board appoints the examiners. The examiners may appoint the assessors, if necessary. The appointment must be placed on record. Only those persons may be appointed examiners, who have passed at least the relevant or a comparable final examination and, unless compelling reasons require a deviation, have exercised an independent teaching activity in the relevant module in the study section preceding the examination. Only those persons may be appointed assessors, who hold a corresponding or comparable degree.
- (2) Examiners are independent in their examining role. § 10 para. 6 clause 2 applies accordingly. This also applies to assessors.
- (3) A candidate may suggest examiners for their master's thesis as well as for written or oral examinations. The candidate's suggestions should be considered where practicable. However, suggestions do not establish rights.
- (4) The chairperson of the Examination Board ensures that the names of the examiners are made known to a candidate in due time by mid-May, respectively mid-November. An announcement on a notice board or in the CAMPUS Information System will be sufficient.

§ 12

Recognition of Study Period, Academic Achievements, Examinations and Classification into a higher Semester

- (1) Passed and failed examination performances achieved in a comparable program at a different university within the scope of application of the German constitution, the Basic Law, will be credited ex officio. Passed and failed examination performances achieved in different programs or at different universities as well as at national or nationally recognized vocational academies within the scope of application of the Basic Law shall be credited, provided no significant difference can be proven, established, and justified. Upon application, this also applies to performances achieved at universities outside the scope of application of the Basic Law. Upon application, the university may recognize other knowledge and qualifications based on submitted documents.
 - (2) Significant differences exist, in particular, if the competences acquired do not correspond to the requirements of the Master's degree program Computer Aided Conception and Production in Mechanical Engineering. The assessment process should not involve a merely schematic comparison, but rather consideration and evaluation of the entire situation. For periods of study, courses and examinations performed outside the scope of application of the Basic Law, agreements of equivalence approved by the Standing Conference of the Ministers of Education, as well as university partnership agreements are to be respected. Otherwise, in case of doubt of equivalency, the Central Office for Foreign Educational Systems can be consulted.
 - (3) For the recognition process, the student must provide documents in the German language. For documents that are not written in German, certified translations must be included at the request of the Examination Board. The documents must include statements on the competences acquired and the corresponding performances that have been passed or failed, as well as other knowledge and qualifications, which are to be recognized. As a basis for the recognition of study periods and performances, the relevant module descriptions are to be provided as well as the transcript of records or a comparable document.
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- (4) The examination performances of school students who have been admitted due to special aptitude as young students outside of the enrollment regulations, may be recognized upon application for a course of study commenced at a later stage.
- (5) The Examination Board is responsible for the recognition of performances according to paras. 1 to 4. Before determining whether significant differences exist, a specialist for the course in question is to be consulted.
- (6) If academic performances and examinations are recognized, the grades can be accepted and included in the calculation of the subject grade, insofar as the grade systems are comparable. Should the grading systems not be comparable, grades will be endorsed with the comment "recognized". Recognition of external qualifications will be marked on the certificate.
- (7) Recognition is possible, if the candidate has to complete a sufficient number of examinations and assessments at RWTH Aachen for the Master's degree program Computer Aided Conception and Production in Mechanical Engineering, which justify the master's degree to be awarded by RWTH Aachen University. Typically, this is at least the master's thesis as a final examination performance of the program.

§ 13

Repeating Examinations or the Master's Thesis and Loss of the Right to Examination

- (1) In case of "insufficient" (i.e. failed) performances, the examinations may be repeated twice; the master's thesis may be repeated once. Returning the topic of the master's thesis is only possible, if the candidate has not made use of this option while working on their first master's thesis.
 - (2) If a candidate receives a grade of "insufficient" (5.0) when repeating a written examination for the second time and should this grade of the second repeat examination not be the result of an attempt to cheat, of non-attendance, or of a withdrawal without valid reasons according to § 14 para. 2, the candidate has the option to apply for a supplementary oral examination before the examination is finally graded as "insufficient" (5.0). The date of the supplementary oral examination is set during the examination viewing session. The oral examination must take place within four weeks after the viewing session at the latest. For the supplementary oral examination, § 7 para. 3 applies. Based on the supplementary oral examination, the grade "sufficient" (4.0) or the grade "insufficient" (5.0) will be determined.
 - (3) The repeat master's thesis must be registered within three semesters after the failed attempt at the first thesis. If the candidate takes maternity or parental leave according to §§ 3, 4, 6 und 8 of the Maternity Protection Act (*Mutterschutzgesetz*) or according to the provisions of the Act on Benefits and Leave for Childcare (*Bundeserziehungsgeldgesetz*) as well as leave of absence due to care of people in terms of § 48 para. 5 p. 2 No 5 HG, this deadline will be modified accordingly. Once the deadline passes, the right to take an examination expires unless the candidate is not to be held responsible for the default.
 - (4) Performances in written and oral examinations which complete a program according to the curriculum, and repeat examinations, for which no compensation option is provided in case of ultimate failure, are to be assessed by at least two examiners. The provisions of § 7 para. 7 remain unaffected by this.
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- (5) Based to the examiner's decision, repeat examinations may take the form of written and oral examinations. Students will be informed via notice board whether the repeat examination will be in written or oral form at least two weeks prior to the examination.
- (6) If an examination consists of several examination parts, only the failed parts must be repeated.
- (7) A module is considered ultimately failed if the examinations required for passing can no longer be repeated.
- (8) The Master's examination is ultimately failed, if performances required to pass a module can no longer be repeated, or if the second master's thesis has been assessed as "insufficient" or is deemed to be "insufficient" for other reasons.

§ 14

Deregistration, Non-Attendance, Withdrawal, Deception, Non-Compliance

- (1) The candidate may deregister from an examination up to one week before the date of the examination without stating reasons.
 - (2) An examination is deemed to be "insufficient" (5.0), if the candidate does not attend on the date of the examination without valid reasons, or if they withdraw from the examination without valid reasons after the examination has started. The same applies if a written examination is not completed within the specified completion time. In these cases, there is no right to a supplementary oral examination.
 - (3) Credible reasons for the withdrawal or non-attendance must be given immediately and in writing to the relevant Examination Board. If a candidate is ill, a medical certificate must be presented. In individual cases, the chairperson of the Examination Board may request submission of a medical certificate to an independent medical examiner, who has been selected by the Examination Board. If the Examination Board does not accept the reasons, this is announced to the candidate in writing. The existing examination results must be credited.
 - (4) For written examinations – except those taken under supervision – the candidate must declare in lieu of an oath that the examination has been completed by themselves and without impermissible external assistance.
 - (5) If the candidate tries to influence the result of an examination by deception or the use of non-permissible resources, the examination in question will be assessed as "insufficient" (5.0). The assessment will be made by the relevant examiners or proctor and will be put on record. A candidate who interrupts the proper procedure of the examination may be excluded from continuing the examination by the examiner or proctor, usually following a warning. In this case, the examination in question is assessed as "insufficient" (5.0). The reasons for the exclusion are to be put on record. In the event of several or other serious attempts at deception, the candidate may additionally be exmatriculated.
 - (6) The Examination board must announce incriminating decisions to the candidate without delay in writing and state reasons and information about the right to appeal.
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II. Master's Examination and Master's Thesis

§ 15

Type and Scope of the Master's Examination

- (1) The master's examination consists of
 1. the examinations and other performances relevant to the modules listed in annex 1 and
 2. the written master's thesis and the master's colloquium
- (2) The order of courses as well as the examinations should be laid out in the course schedule or curriculum. Examinations and proof of performance are completed during studies. The topic of the master's thesis can only be assigned if 92 credit points have been attained.
- (3) The subjects of the examinations and proof of performance are taken from the content of the associated courses according to the module catalog.

§ 16

Master's Thesis

- (1) The master's thesis consists of written work by the candidate. It is meant to demonstrate that the candidate is able to independently address a problem using scientific methods under supervision within a given period and.
 - (2) The topic of the master's thesis must be related to the field of computer-aided methods in mechanical Engineering. The master's thesis can be issued and supervised by any professor from the Faculty of Mechanical Engineering active in research or teaching at RWTH Aachen University. The topic of the master's thesis may additionally be issued and supervised by any professor active in research or teaching in the Master's program Computer Aided Conception and Production in Mechanical Engineering (CAME) at RWTH, and also by staff qualified as university professors, adjunct professors, junior professors, honorary professors, or visiting professors, based on the regulations of the responsible Examination Board. Furthermore, the responsible Examination Board may also commission persons with independent teaching authorization to propose the topic and provide supervision. Lecturers and academic staff may also assist with supervision. External supervisors can be nominated as second examiners according to § 65 para. 1 Higher Education Act (HEA) by the responsible Examination Board.
 - (3) Upon special application by the candidate, the chairperson of the Examination Board must ensure that candidates receive the topic for a master's thesis at the planned point in time. The candidate must be given the opportunity to make suggestions for the topic.
 - (4) In agreement with the examiner, the master's thesis may be written in either German or English.
 - (5) The chairperson of the Examination Board notifies the candidate of the submission deadline. The start date of the thesis as well as the details of the assignment must be put on record.
 - (6) The time frame for students to complete their master's thesis is usually 17 weeks alongside studies. In justified exceptional cases, the time frame can be extended by a maximum of up to
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six weeks upon application to the Examination Board in accordance with § 17 para. 7 GER. The scope of the written work should not exceed 80 pages without annexes.

- (7) The candidate presents the results of their Master's thesis as part of a Master's colloquium. § 7 para. 14 applies accordingly.

§ 17

Acceptance and Assessment of the Master's Thesis

- (1) The Master's thesis is to be submitted within the deadline in duplicate copies to the Central Examination Office (*Zentrales Prüfungsamt, ZPA*). The submission date is to be put on record. If the master's thesis is not submitted within the deadline, it is assessed as "insufficient" (5.0). An assessment is only carried out, if the candidate is enrolled in the study program at the time of submission.
- (2) The examiner is the person who assigned the topic. The master's thesis usually is the final examination and always must be assessed by two examiners in accordance with § 9 para. 1 with a written statement. The grade for the thesis will be formed from the arithmetical averages of the individual assessments in compliance with § 9 para. 8, provided the difference is no more than 2.0. If the difference is greater than 2.0 or if one assessment is "insufficient", but the other is "sufficient" or better, the chairperson of the Examination Board must appoint a third examiner to assess the master's thesis, or to determine a final grade based on the prior examination performance within a duration of four weeks.
- (3) The grade must be announced eight weeks after the submission deadline. Para. 2, clause 4 is an exception. If the grade is not announced in a due time, the Examination Board is entitled to appoint other examiners.
- (4) 20 Credit Points will be awarded for the master's thesis including the colloquium.
- (5) The candidate presents the results of their master's thesis as part of a master's colloquium. § 7 para. 14 applies accordingly.

§ 18

Passing of the Master's Examination

The master's examination is considered "passed", if all required modules have been passed and the grade for the master's thesis including the colloquium is at least "sufficient" (4.0). Passing the master's examination completes the master's degree program.

III. Final Provisions

§ 19

Final Academic Transcript, Degree Certificate and Certifications

- (1) If a candidate has passed the master's examination, they receive a certificate of the results at least three months after the last examination performance. The certificate includes the modules and the master's thesis and the corresponding grades and Credit Points, as well as the final
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grade. The title of the master's thesis as well as the additional modules are also included in the certificate. The final grade is stated in writing as well as a figure to one decimal place. The certificate is to be signed by the chairperson of the Examination Board.

- (2) The certificate is dated to the day on which the final examination was passed, or the last proof of performance was completed.
- (3) The certificate is issued in German and English.
- (4) Additionally, the candidate is issued a certificate in German and English with the date of the certificate. This certificate certifies the awarding of the master's degree. The master's degree certificate is signed by the dean of the faculty and the chairperson of the relevant Examination Board.
- (5) Together with the final academic transcript, the graduate is also given a diploma supplement issued in German and English. The diploma supplement provides information on the academic profile of the study program. The diploma supplement additionally includes an ECTS grading scale.
- (6) If the master's examination has ultimately been failed, the chairperson of the Examination Board issues a written notification to the candidate, providing details on applicable legal remedies.
- (7) Upon request to the Central Examination Office (ZPA), students who have left the University without graduating, may receive a transcript of grades for all examinations completed.

§ 20

Invalidity of the Master's Examination, Revocation of the Academic Degree

- (1) If the candidate has cheated in an examination and this fact is not discovered until after the final academic transcript has been handed out, the Examination Board may subsequently correct the grades of the examinations in which the candidate cheated and declare the examination to be entirely or partially failed.
 - (2) If the prerequisites for the admission to an examination were not fulfilled without the candidate intending to cheat and this fact does not become known until after the final transcript has been handed out, this problem can be remedied by the candidate's passing the examination. If the candidate has deliberately effected admission without meeting the admission requirements, the Examination Board will decide on the legal consequences under observance of the Administrative Procedure Act (*Verwaltungsverfahrensgesetz*) of the Federal State of North Rhine-Westphalia.
 - (3) Prior to a decision, the person involved is given the opportunity to make a statement.
 - (4) The incorrect final academic transcript must be returned and, if applicable, a new one will be issued. A decision according to para. 1 and para. 2, sentence 2 is excluded after a period of five years after the final academic transcript was issued.
 - (5) If the examination is declared to be failed as a whole, the academic degree will be withdrawn by the faculty. In addition, the degree certificate will be withdrawn.
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§ 21
Viewing of Examination Files

- (1) The candidate must be able to view the corrected written examination or paper after the grades have been finalized. The time and place of the review session are to be announced during the examination or at the latest when the results are published. Students will have at least 30 minutes to view the examination documents.
- (2) Insofar as para. 1 does not apply, the candidate will be permitted to view the written examination, the comments by the examiner, and the examination reports at the end of the examination procedure upon request.
- (3) The application must be submitted to the chairperson of the Examination Board within one month after the examination certificate has been issued. The chairperson of the Examination Board specifies the time and place of the inspection.

§ 22
Coming into Effect, Publication and Transitional Provisions

- (1) These Examination Regulations in the third revised version of the Examination Regulations will be published as an Official Announcement of RWTH Aachen University (“Amtliche Bekanntmachungen”) and will come into effect on the day after publication. They apply to all students currently enrolled in the master’s degree program Computer Aided Conception and Production in Mechanical Engineering.
- (2) Students who have begun modules that are changed by these Modified Regulations before the Winter Semester (WS) 2014/2015 will be able to finish them according to the previous regulations until the end of the Summer Semester 2015. The new modules may be taken upon application to the Examination Board.
- (3) Students who are currently in a pending examination process (*schwebendes Prüfungsverfahren*) for modules which will no longer be offered as of the WS 2014/2015 according to these Modified Regulations, may be able to complete these modules until the end of the WS 2016/2017.
- (4) As of the WS 2014/2015, the module “Finite Element Methods in Lightweight Design” will be moved from the compulsory area to the compulsory elective area in both tracks. For students, who registered this module before the WS 2014/15, this module will remain part of their compulsory area.

Issued based on the resolutions of the Faculty Council of the Faculty of Mechanical Engineering dated July 8, 2014.

The Rector
of RWTH Aachen University

Aachen, 10/16/2014

sgd. Schmachtenberg

Univ.-Prof. Dr.-Ing. E. Schmachtenberg
