Inofficial Translation. Not legally binding!

For the purpose of understanding only

Study regulations for the English-language consecutive degree programme Advanced Manufacturing with the degree Master of Science (M.Sc.) at the Chemnitz University of Technology From 2 September 2024

The Faculty Council of the Faculty of Mechanical Engineering at Chemnitz University of Technology has issued the following study regulations on the basis of Section 14 (4) in conjunction with Section 37 (1) of the Act on Universities in the Free State of Saxony (Sächsisches Hochschulgesetz - SächsHSG) of 31 May 2023 (SächsGVBl. p. 329), which was last amended by Article 2 of the Act of 31 January 2024 (SächsGVBl. p. 83, 87):

Table of contents

For reasons of better readability, the generic masculine is generally used in the following. All references to persons naturally apply to all genders.

Part 1
General provisions

§ 1

Scope of application

Based on the currently valid examination regulations (§ 9), these study regulations govern the objectives, content, structure, procedure and implementation of the Advanced Manufacturing degree programme leading to a Master of Science degree at the Faculty of Mechanical Engineering at Chemnitz University of Technology.

§ 2
Start of the programme and standard period of study

(1) The programme can be started in the winter semester.

(2) The degree programme has a standard period of study of four semesters (two years). The degree programme comprises modules totalling 120 credit points (CP). This corresponds to an average workload of 3600 hours.

§ 3
Admission requirements

(1) The admission requirements for the Master's degree programme in Advanced Manufacturing are fulfilled by anyone who has obtained a first professionally qualifying university degree in an engineering or natural science degree programme and also has in-depth scientific knowledge in the following areas:

1. special mathematical methods in the engineering sciences totalling at least 18 CP, including the subject areas of Fourier transformations, regression analysis, probability and mathematical statistics,
2. scientific-engineering data processing totalling at least 12 CP, including the subject areas CAD, CAS, numerical simulation and data acquisition as well as multiphysical simulation including practical experience,
3. metrology and control technology totalling at least 8 CP, including the subject areas of sensor technology, actuator technology and digital methods of production,
4. new materials and materials for engineering sciences totalling at least 8 CP, including the subject areas of polymers, metals, composite materials, matrix systems and functional properties,
5. in-depth theoretical foundations of engineering sciences totalling at least 12 CP, including the subject areas of technical mechanics, design, manufacturing theory and fluid dynamics,
6. resource-efficient manufacturing concepts totalling at least 8 CP, including the subject areas of technical and natural cycles and networks, system optimisation and energy concepts,

as well as a completed language level B2 English according to the Common European Framework of Reference for Languages (CEFR).

(2) The examination board decides on the admission of other applicants.

§ 4
Teaching and learning methods

(1) Forms of teaching and learning can be: the lecture (V), the seminar (S), the exercise (Ü), the project (PR), the colloquium (K), the tutorial (T), the practical (P), the business game (PS) or the excursion (E). Students should prepare for the courses to be attended and deepen their knowledge by working independently. The knowledge and skills required for the successful completion of the degree programme are not acquired exclusively by attending courses; rather, additional independent study is required.

(2) E-learning methods may be used in all forms of teaching and learning in accordance with paragraph 1, provided that the character of the respective form of teaching and learning is preserved.

(3) Courses shall be held in English. The module descriptions shall specify which courses are held in German.

§ 5
Aims of the degree programme

(1) Graduates are familiar with the specifics of the main types of materials and material systems and can make a suitable selection in relation to a specific task. With regard to machining and processing, they are aware of the possibilities and limitations of current and future-oriented manufacturing processes and the corresponding production systems. Knowledge of a wide range of processes and practical experience with special processes enables graduates to determine the appropriate processes for solving a specific task. They are able to use digital methods and simulation tools for the safe and efficient design and construction of products and systems. This includes methods such as the finite element method (FEM) for mechanical design, computer-aided processes for life-cycle assessment or the modelling of material flows and intralogistics systems. The use of artificial reality (AR) and virtual reality (VR) technologies is also taken into account when designing the human-technology interface. Humans will also be required on site in future, increasingly complex production processes. Graduates will be able to assess the requirements for technical systems that interact with people and design and create appropriate interfaces.

(2) Graduates of the degree programme have in-depth knowledge in the following specialist areas, depending on their chosen field of study:

1. Hybrid Technologies,
2. Smart Production,
3. Work Design And Sustainability Management or
4. Printed Functionalities.

After completing the English-language consecutive Master's degree programme in Advanced Manufacturing, graduates have the ability to plan work independently, monitor their work progress and complete the task on time, as well as to act independently in project work. They are able to identify and acquire new knowledge required to solve a task (literature and patent research, training courses, trade fairs, etc.). Furthermore, they have the ability to present their own work results in writing and orally in order to document their own work in a way that is comprehensible to third parties. They are able to absorb the results of others and to communicate, reflect on and evaluate their own results. In addition, they have deepened self-competences such as self-management and project management.

(3) Graduates of the Advanced Manufacturing degree programme see themselves as mechanical engineers with a strong focus on modern and sustainable production processes. They have the ability to successfully meet the specific challenges that arise in the

application and combination of production systems for processing high-performance materials. They are able to analyse the tasks assigned to them, translate them into a concept for action and take on the defined tasks in heterogeneous teams with a division of labour and work on them independently.
(4) Furthermore, they have acquired an understanding of the overarching interrelationships of complex systems and can ensure a balanced consideration of technical, economic, ecological, legal and social boundary conditions for their activities. They are able to assess the non-technical effects of their engineering activities and act ethically and responsibly. In doing so, they endeavour to implement the principles of good scientific work in accordance with the guidelines of the German Research Foundation (DFG) when planning and carrying out study, research and development work and publishing the corresponding results. Graduates are familiar with the concept of Open Science and know the essential tools for making their own scientific findings publicly accessible. Successful completion of the Master's degree programme in Advanced Manufacturing qualifies students to continue their scientific work as part of a doctorate.

Part 2
Structure and content of the degree programme

§ 6
Structure of the degree programme

(1) The degree programme comprises 120 CP, which are made up as follows:

1. Basic modules Advanced Manufacturing (Σ 25 CP)

220000-614	Mathematics for Engineering Science	5 CP (compulsory module)
231533-019	Digital Manufacturing	5 CP (compulsory module)
231631-001	Additive Manufacturing	5 CP (compulsory module)
261033-310	Resource Efficiency from an Economic Perspective	5 CP (compulsory module)
231035-004	Research Methods	5 CP (compulsory module)
261033-310	Resource Efficiency from an Economic Perspective	5 CP (compulsory module)
231035-004	Research Methods	5 CP (compulsory module)

2. Specialisation modules in fields of study (Σ 35 CP)
Students must select one of the following four specialisations with the corresponding compulsory and compulsory elective modules totalling 35 CP:

2.1 Hybrid Technologies

231036-004	Textile Process Chains	5 CP (compulsory module)
231133-013	Recycling of Plastics	5 CP (compulsory module)
231431-012	Applied Modelling and Simulation in Solid Mechanics I	5 CP (compulsory module)
231833-007	Surface and Interface Engineering	5 CP (compulsory module)
231032-018	Calculation of Anisotropic Composite Materials	5 CP (compulsory module)
231032-020	Polymer-based Hybrid Structures	5 CP (compulsory module)

One module must be selected from the following modules 231831-012 and 231032-019:

231831-012	Complex Materials for Manufacturing	5 CP (elective module)
231032-019	Composite-based Hybrid Technologies	5 CP (elective module)

2.2 Smart Production

231732-011	Joining Technologies and Strategies	5 CP (compulsory module)
231537-003	Forming Process Chains	5 CP (compulsory module)
231533-020	Machining Technologies	5 CP (compulsory module)
231534-007	Efficient Process Chains	5 CP (compulsory module)
231539-006	Geometrical Product Specification and Verification	5 CP (compulsory module)
231533-021	Design and Control of Smart Production Systems	5 CP (compulsory module)

One module must be selected from the following modules 231032-019 and 231831-012:

231032-019	Composite-based Hybrid Technologies	5 CP (elective module)
231831-012	Complex Materials for Manufacturing	5 CP (elective module)

2.3 Work Design and Sustainability Management

231232-015	Sustainable Smart Manufacturing	5 CP (compulsory module)
261033-311	Life Cycle Engineering	5 CP (compulsory module)
261033-312	Life Cycle-oriented Management	5 CP (compulsory module)
261042-301	Sustainability Management	5 CP (compulsory module)
261033-313	IT-supported Evaluation of Material Flows and Process Chains	5 CP (compulsory module)
231035-005	Instrumentation	5 CP (compulsory module)

One module must be selected from the following modules 231231-008 and 231231-009:

231231-008	Innovation and Value Creation	5 CP (elective module)
231231-009	Digital Ergonomics	5 CP (elective module)

2.4 Printed Functionalities

231631-002	Printing Processes	5 CP (compulsory module)
231631-003	Printed Electronics & Special Topics of Functional Printing	5 CP (compulsory module)
244038-055	Automotive Sensor Systems	5 CP (compulsory module)
231631-005	Media Physics	5 CP (compulsory module)
231631-004	Printing Presses	5 CP (compulsory module)
231631-006	Research Lab	5 CP (compulsory module)
212001-335	Surfaces, Thin Films and Interfaces	5 CP (compulsory module)

3. Vertiefungsmodule Electives/Soft skills (Σ 20 LP)

Module 136004-016 is compulsory. Students whose native language is German may alternatively select a module from modules 136001-004 to 136009-002.

136004-016	Deutsch für Ingenieure (Niveau B1+)	5 CP (compulsory module)

Modules totalling 15 credit points must be selected from modules 136004-007 to 231231-011 and modules not taken in the fields of study (with the exception of module 261033-313). Modules totalling a maximum of 10 credit points may be selected from the language modules 136004-007 to 136009-002. Language modules in the student's native language may not be selected. Students whose native language is not German and who do not have German language level B1 of the Common European Framework of Reference for Languages must take module 136004-007.

136004-007	Deutsch als Fremdsprache III (Niveau B1)	5 CP (elective module)
136001-004	Englisch in Studien- und Fachkommunikation III (Niveau C1)	5 CP (elective module)
136001-006	Englisch in Studien- und Fachkommunikation V (Niveau C1)	5 CP (elective module)
136001-007	Englisch in Studien- und Fachkommunikation VI (Niveau C1)	5 CP (elective module)
136005-001	Französisch I (Niveau A1)	5 CP (elective module)
136005-002	Französisch II (Niveau A2)	5 CP (elective module)
136009-001	Spanisch I (Niveau A1)	5 CP (elective module)
136009-002	Spanisch II (Niveau A2)	5 CP (elective module)
231833-010	Electroplating and Thermal Coating	5 CP (elective module)
231431-013	Applied Modelling and Simulation in Solid Mechanics II	5 CP (elective module)
231231-011	Angewandte Arbeitswissenschaft | Applied Human Factors	5 CP (elective module)

4. Module Applied Engineering Project

230100-860	Applied Engineering Project	10 CP (compulsory module)

5. Module Master-Arbeit

230100-960	Master Thesis	30 CP (compulsory module)

(2) The recommended course of study for the Master's degree programme in Advanced Manufacturing at Chemnitz University of Technology within the standard period of study is set out in the timetable (see Appendix 1) and the modular structure of the degree programme.

§ 7
Contents of the degree programme

(1) In the basic modules Advanced Manufacturing, the essential mathematical foundations for the rest of the degree programme are taught in a block course at the beginning of the degree programme. Students are also given an initial overview of various future-oriented manufacturing methods and relate these to current issues relating to the availability of resources. In addition, students are methodically prepared for independent scientific work. In the specialisation modules, students can choose from four fields of study to specialise in. In addition, depending on their interests, students can choose further modules from the specialisations that have not been completed as part of the electives/soft skills specialisation modules. An integral part of the degree programme is the expansion of foreign language skills or, in the case of foreign students, the expansion of German language skills with the aim of preparing them for the German labour market. Building on the specialist and methodological knowledge already acquired, students work on an independent practical project in the second year and complete their studies with the Master's thesis.

(2) The content, objectives, teaching methods, credit points, examinations, frequency and duration of the individual modules are set out in the module descriptions (see Appendix 2).

Part 3
Implementation of the degree programme

§ 8
Student counselling

(1) In addition to the central study counselling at Chemnitz University of Technology, subject-specific study counselling takes place. The Faculty Council of the Faculty of Mechanical Engineering appoints a member of the faculty to carry out this counselling task.

(2) It is recommended to make use of a study counselling service in the following cases in particular:

1. before starting the degree programme,

2. before a period of study abroad,

3. before an internship,

4. in the event of a change of degree programme or university,

5. after failing examinations.

§ 9
Examinations

The regulations for examinations are contained in the examination regulations for the English-language consecutive degree programme Advanced Manufacturing with the degree Master of Science (M.Sc.) at Chemnitz University of Technology.

§ 10
Distance and part-time study

There is no provision for distance or part-time study.

Teil 4
Final provisions

§ 11
Entry into force and publication, transitional provisions

These study regulations apply to students enrolled from winter semester 2024/2025 onwards.

For students who began their studies before the winter semester 2024/2025, the study regulations for the English-language consecutive degree programme Advanced Manufacturing with the degree Master of Science (M.Sc.) at Chemnitz University of Technology dated 13 June 2018 (Official Notices No. 25/2018, p. 1798), amended by Article 1 of the Statutes dated 24 February 2022 (Official Notices No. 8/2022, p. 286), shall continue to apply.

These study regulations come into force on the day after their publication in the Official Notices of Chemnitz University of Technology.

Issued on the basis of the resolution of the Faculty Council of the Faculty of Mechanical Engineering dated 22 July 2024 and the approval by the Rectorate of Chemnitz University of Technology dated 21 August 2024.

Chemnitz, 2 September 2024

The Rector

of Chemnitz University of Technology

Prof Dr Gerd Strohmeier

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For the purpose of understanding only

Examination regulations for the English-language consecutive degree programme Advanced Manufacturing with the degree Master of Science (M.Sc.) at the Chemnitz University of Technology From 2 September 2024

On the basis of Section 14 (4) in conjunction with Section 35 (1) of the Law on Universities in the Free State of Saxony (Saxon Higher Education Act - SächsHSG) of 31 May 2023 (SächsGVBl. p. 329), which was last amended by Article 2 of the Act of 31 January 2024 (SächsGVBl. p. 83, 87), the Faculty Council of the Faculty of Mechanical Engineering at Chemnitz University of Technology has issued the following examination regulations issued:

Table of contents

For reasons of better readability, the generic masculine is generally used in the following. All personal designations naturally apply to all genders.

Part 1
General provisions

§ 1
Standard period of study

The degree programme has a standard period of study of four semesters (two years). The standard period of study comprises the degree programme and all module examinations including the Master's thesis module.

§ 2
Examination structure

(1) The Master's examination consists of module examinations. Module examinations generally consist of one examination performance. Module examinations are taken during the course of study.
(2) For admission to an examination, proof of performance (preliminary examination work) may be required and other requirements may be stipulated.
(3) The examinations and admission requirements are specified in the module descriptions.

§ 3
Deadlines

(1) The Master's examination should be taken within the standard period of study.
(2) The course programme shall ensure that preliminary examinations and module examinations are completed within the periods stipulated in the
periods stipulated in the study regulations (examinations generally following the lecture period).
lecture period) can be taken.

§ 4
Admission procedure, announcement of examination dates and examination results

(1) The Master's examination can only be taken by those who :
1. is enrolled in the Master's degree programme in Advanced Manufacturing at Chemnitz University of Technology and
2. have not definitively failed the Master's examination in the same degree programme and
3. have fulfilled the admission requirements specified in the module descriptions for the respective examination.

(2) Admission to the Master's examination shall be granted for each examination within the period specified by the examination office for the respective examination, which ends no later than three weeks before the examination date.
three weeks before the examination date at the latest, in writing or electronically using the self-service at the Central Examination Office using the self-service. If the Central Examination Office has not specified a registration registration period, the application must be submitted no later than three weeks before the examination date at the latest. The application must be accompanied by
1. an indication of the module to which the examination is to relate,
2. a declaration by the candidate that the admission requirements specified in paragraph 1 have been met,
3. a declaration by the candidate that he/she is familiar with the examination regulations and whether he/she has already failed or definitively failed a Master's examination in the same degree programme or whether he or she is
is in an ongoing examination procedure.
(3) The Examination Board decides on admission in accordance with paragraph 2, in urgent cases its
chairman in urgent cases.
(4) Persons who have acquired the knowledge and skills required in the study and examination regulations in deviation from paragraph 1 no. 1 may acquire the professionally qualifying degree as an external student in a university examination. The application for admission to the Master's examination and the examination examination procedure and the examinations to be taken, which must fulfil the requirements of the examination requirements of the examination regulations.
(5) Admission to an examination of the Master's examination may only be refused if
1. the requirements set out in paragraph 1 or the procedural requirements set out in paragraph 2 are not are not fulfilled,
2. the documents to be submitted in accordance with paragraph 2 sentence 3 are incomplete or
3. the candidate has definitively failed the Master's examination in the same degree programme.
(6) Admission to an examination shall be announced at least two weeks before the start of the examination by the
Central Examination Office via the self-service. The student is obliged to to check proper registration in the SBservice. If there are modules or within a module module, the examinations chosen by the student are deemed to be compulsory examinations from the time of admission, unless the registration for examinations is withdrawn in good time or the cancellation of examinations has not been effectively declared.
(7) The candidate will be informed in good time about the dates on which the module examinations are to be taken and about the completion and submission dates of assignments and the Master's thesis. The announcement of
examination dates, admissions and examination results will be announced at the Central Examination Office and at the SBservice. Failure and final failure of module examinations will also be notified in writing.

§ 5
Types of examinations

(1) Examinations are
1. orally (§ 6) and/or
2. by means of written examinations and other written assignments as well as tasks using the answer-choice method (§ 7) and/or
3. through alternative examinations (§ 8) and/or
4. through project work (§ 9)
must be completed.
(2) If a candidate can provide a medical certificate stating that he/she is unable to take the examination due to chronic illness or disability is not in a position to take examinations in full or in part in the form specified in the respective module description, the examination board shall, upon request, allow the candidate to take equivalent examinations in another form.
(3) The examination language is English. The module descriptions specify which preliminary examinations are to be taken or can be taken in German. At the candidate's request, examinations may be taken in German.
The application does not constitute a legal claim.
(4) The examiner shall decide which aids may be used in an examination. The authorised aids must be announced in good time.

§ 6
Oral examinations

(1) Oral examinations are intended to demonstrate that the candidate recognises the interrelationships of the examination area and can categorise specific questions in this context. Furthermore determine whether the candidate has the knowledge and skills appropriate to the level of study.
(2) Oral examinations are to be conducted by several examiners or by one examiner in the presence of an expert observer.
(3) Oral examinations may be taken as group or individual examinations. The duration of the examination for each individual candidate is a minimum of 15 minutes and a maximum of 45 minutes. The specific duration of the individual oral examinations is specified in the module descriptions.
(4) In the context of oral examinations, tasks with an appropriate scope may also be set for written treatment if this preserves the oral character of the examination performance is preserved.
(5) The main subjects, duration, course and grade of the oral examination are to be recorded in a minutes, which must be signed by the examiners or, if an assessor is present, by the examiner and the assessor the examiner and the assessor. The result and grade are to be announced to the candidate following the oral examination performance; the provisions of data protection law must be observed. The minutes must be attached to the examination file.
(6) Students who wish to take the same examination at a later examination period may be admitted as listeners by the examiner(s) subject to the spatial conditions, unless the candidate objects. Admission does not extend to the consultation and announcement of the examination result.
(7) In justified exceptional cases, the Examination Board may decide that in the following examination period examination period instead of the oral examination provided for in the module description. The duration of the examination shall be determined. The decision of the Examination Board's decision must be announced at the beginning of the respective semester.

§ 7
Written examinations and other written assignments, answer choice procedure

(1) The written examinations comprise written examinations and other written assignments in which the candidate demonstrates that, on the basis of the necessary fundamental knowledge and within a limited period of time can solve tasks or work on topics using the usual methods of their subject. In the case of written examinations, the candidate may be given a choice of topics or tasks.
(2) Written examinations, the passing of which is a prerequisite for continuing the degree programme, are generally assessed by two examiners. The assessment procedure should not exceed four weeks.
(3) The duration of written examinations may not be less than 60 minutes and may not exceed the maximum duration of 300 minutes. The specific duration of the individual written examinations is specified in the module descriptions.
(4) In justified exceptional cases, the Examination Board may decide that in the following examination period instead of the written examination provided for in the module description. The duration of the examination shall be determined. The decision of the Examination Board's must be announced at the beginning of the respective semester.
(5) Examinations can also be taken using the multiple choice method. The tasks for the multiple choice procedure are generally to be designed by two examiners. The multiple-choice questions are set as single-choice questions (only one correct answer possible) and/or multiple-choice items (one or more correct answers possible). The tasks must be geared towards the knowledge required for the respective module and enable reliable examination results. When setting the tasks, in addition to the assessment standard (number of points, weighting factor), it must also be determined which answers are recognised as correct. The The tasks must be checked by the examiners before the examination result is determined as to whether they are are incorrect in relation to the requirements in sentence 4. If the review reveals that individual tasks are incorrect, these are not to be taken into account when determining the examination result and the number of tasks to be taken into account in determining the examination result is reduced accordingly. The reduction in the number of tasks must not be to the detriment of the examinee. The evaluation of the tasks in the answer-choice procedure can be automated.

§ 8
Alternative examinations

(1) Alternative examinations are performed in particular in the context of seminars, practicals, simulation games or exercises. or exercises. The work is performed in particular in the form of written assignments, papers, presentations or recorded practical work as part of one or more courses. course(s). The work must be individually attributable and will be assessed separately for each candidate. assessed separately for each candidate. In the case of term papers and, as a rule, other written assignments, the candidate must ensure that they have prepared these independently and have not used any sources or aids other than those specified.
(2) Section 6 (2) and (5) and section 7 (2) shall apply accordingly to the assessment of alternative examinations shall apply accordingly. The duration and scope of alternative examinations are specified in the module descriptions.

§ 9
Project work

(1) Project work is carried out as individual or group work. As a rule, this will ability to work in a team and in particular to develop, implement and present concepts is demonstrated. The work must be individually attributable and will be assessed separately for each candidate. In the case of project work, the candidate should demonstrate that he or she is able to work on a larger task and develop interdisciplinary solutions and concepts. A project generally consists of an oral presentation and a written evaluation or documentation of the results.
(2) For project work, the passing of which is a prerequisite for the continuation of the degree programme, § 6 (2) and (5) and § 7 (2) apply accordingly.
(3) The duration of the oral presentation and the scope of the written project are specified in the module description.

§ 10
Assessment of examination results, formation and weighting of grades

(1) The grades for the individual examinations are determined by the respective examiners. For the following grades are to be used for the assessment of examinations; this does not apply to Examination performances in the multiple choice procedure (multiple choice) paragraph 6:

1 - very good (an outstanding performance),
2 - good (a performance that is significantly above the average requirements),
3 - satisfactory (a performance that meets the average requirements),
4 - sufficient (a performance that still fulfils the requirements despite its shortcomings),
5 - insufficient (a performance that no longer meets the requirements due to significant deficiencies).

For the differentiated assessment of examination performance, individual grades can be increased or decreased by 0.3 to intermediate values; grades 0.7, 4.3, 4.7 and 5.3 are excluded. If an examination performance is assessed by two or more examiners, the grade for the examination performance is the arithmetic mean of the individual assessments. Only the first decimal place after the comma is taken into account without rounding; all other places are deleted. The examiners can round the grade for the examination performance calculated by forming the arithmetic mean up or down to a grade permitted in accordance with sentences 2 and 3. If the grade is greater than 4.0, the assessment of the examination performance is “insufficient”.
(2) If a module examination consists of several examinations, the module grade is calculated from the arithmetic mean of the grades of the individual examinations, weighted according to the module description;otherwise, the grade of the examination results in the module grade. Paragraph 1, sentence 5 applies accordingly to the calculation of the arithmetic mean. The module grades correspond to the following grades:

with an average of up to and including 1.5 - very good,
with an average of 1.6 up to and including 2.5 - good,
with an average of 2.6 up to and including 3.5 - satisfactory,
with an average of 3.6 up to and including 4.0 - sufficient,
with an average of 4.1 or more - insufficient.

(3) In order to pass the Master's thesis module, it is necessary that the Master's thesis is rated at least "sufficient" (4.0) by both examiners. The grade for the Master's thesis is calculated from the arithmetic mean of the grades of the two examiners.
(4) An overall grade is calculated for the master’s examination. The overall grade is calculated from the weighted arithmetic mean of the module grades including the grade for the master’s thesis module (see § 25). Paragraph 1, sentence 5 and paragraph 2, sentence 3 apply accordingly to the calculation of the overall grade.
(5) If study achievements are credited as examination achievements (creditable study achievements), they must correspond to examination achievements in type and scope. The master’s examination may not be predominantly completed by crediting study achievements. The examination board decides on the crediting.
(6) An examination achievement completed using the multiple-choice procedure is passed if the candidate has achieved the minimum number of points. The minimum score is the lower of the following two limits: 1. 50 percent of the achievable points (absolute passing limit) or 2. 10 percent less the average number of points achieved by the candidates, but at least 40 percent of the achievable points (relative passing limit). If the candidate has achieved the required minimum number of points, the following grades are to be used:

1.0 - very good if he or she has achieved at least 90 percent,
1.3 - very good if he or she has achieved at least 80 but less than 90 percent,
1.7 - good if he or she has achieved at least 70 but less than 80 percent,
2.0 - good if he or she has achieved at least 60 but less than 70 percent,
2.3 - good if he or she has achieved at least 50 but less than 60 percent,
2.7 - satisfactory if he or she has achieved at least 40 but less than 50 percent,

3.0 - satisfactory if he or she has achieved at least 30 but less than 40 percent,
3.3 - satisfactory if he or she has achieved at least 20 but less than 30 percent,
3.7 - sufficient if he or she has achieved at least 10 but less than 20 percent,
4.0 - sufficient if he or she has received no or less than 10 percent of the additional points.

If the candidate has not achieved the minimum number of points required to pass the examination, the examination performance will be graded as "unsatisfactory" (5.0).

§ 11
Withdrawal of registration, absence, withdrawal

(1) The candidate may withdraw his registration for an examination without giving reasons.
This notification must be received by the Central Examination Office one week before the respective examination date.
(2) An examination performance is deemed to be graded as "unsatisfactory" (5.0) if the candidate misses an examination date that is binding for him without good reason or if he withdraws from an examination that he has withdrawn without good reason. The same applies if an examination is not completed within the specified processing time.
(3) The reasons given for withdrawal or absence must be reported immediately in writing to the Central Examination Office and made credible. If the candidate is ill, a medical certificate must generally be presented. In cases of doubt, the presentation of an official medical certificate can be requested. As far as compliance with deadlines for initial registration for the examination, retaking examinations, the reasons for missing examinations and compliance with processing times for examination papers are concerned, the illness of the candidate is equivalent to the illness of a child who is primarily the sole care of the candidate.

§ 12
Deception, breach of order, defects in the examination procedure

(1) If the candidate attempts to influence the result of his examination performance through deception, e.g. by using unauthorized aids, the examination performance in question will be graded as "unsatisfactory" (5.0).
(2) A candidate who disrupts the orderly conduct of the examination can be excluded from continuing the examination by the respective examiner or supervisor; in this case, the examination performance will be graded as "unsatisfactory" (5.0).
(3) If it turns out that an examination procedure was flawed which influenced the examination performance, it can be ordered, at the request of a candidate or ex officio, that the examination or individual parts of it be rescheduled for a specific candidate or all candidates. In this case, the examination results already achieved are invalid.
(4) Deficiencies in the examination procedure must be reported orally or in writing to the examiner or supervisor during the examination or in writing to the chair of the examination board immediately after the examination.

§ 13
Passing and failing examinations

(1) Module examinations are passed if they are graded at least “sufficient” (4.0). If examinations marked “pass required” in the module descriptions are graded “insufficient”, the module examination is not passed. Failed module examinations which are not repeated within one year (§ 14 para. 1) or which are graded “insufficient” when repeated lead to the module examination being failed again. If an application for a second retake of the module examination (§ 14 para. 2) was not submitted in time, a second retake examination was not taken at the next possible examination date or this examination was again graded “insufficient”, the module examination is deemed to have been “finally failed”. (2) If a module examination is ultimately failed, the master's examination is deemed to have been "finally failed".
(3) The master's examination is passed if all module examinations are passed. A master's examination that has not been taken within four semesters of completing the standard period of study is deemed to have been "failed".

§ 14
Repetition of module examinations

(1) If a module examination is failed (graded "unsatisfactory"), a repeat examination is possible. If the module examination consists of several examinations, examinations graded "unsatisfactory" can only be repeated to the extent that this is necessary to pass the module examination. Irrespective of this, examinations that are marked "pass required" in the module descriptions and were graded "unsatisfactory" must be repeated.
A repeat examination is only permitted within one year; this period begins with the announcement of the result of the module examination. After this period has expired, the module examination is deemed to have been "failed". (2) Admission to a second repeat examination is only possible upon application for the next possible examination date. A further repeat examination is not permitted.
(3) Repeating an examination that has been passed is not permitted.

§ 15

Crediting of study periods, academic achievements and examination results

(1) Study periods, academic achievements and examination results from other courses of study are credited upon application by the student, unless there are significant differences in terms of the skills acquired. In this case, no schematic comparison is to be made, but an overall view and overall assessment is to be made. The examination board decides on crediting. The non-crediting must be justified in writing. When crediting and crediting study periods, For academic achievements and examination results obtained outside the Federal Republic of Germany,
the equivalence agreements approved by the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany (KMK) and the German Rectors' Conference (HRK) as well as agreements within the framework of university cooperation agreements must be observed.
(2) Qualifications acquired outside the university system will be credited upon application by the student,
provided that these are equivalent to parts of the course in terms of content and requirements and can therefore replace them. Equivalence is to be determined if the proven learning outcomes
or skills essentially correspond to those to be replaced. Paragraph 1, sentence 2 applies accordingly.
The student must prove that he has acquired the knowledge and skills for which he is requesting recognition and that these meet the requirements of sentence 1. Knowledge and skills acquired outside the university system can replace a maximum of half of the course.
(4) Applicants with university entrance qualifications will be placed in a higher semester if they have demonstrated the necessary knowledge and skills through a special university examination (placement test). (4) If study and examination achievements are credited, the grades must be adopted - provided the grading systems are comparable. If the grading systems are incomparable, the note "passed" is recorded. (5) Students must submit the documents required for the crediting of study periods, study achievements and examination achievements as well as knowledge and skills acquired outside of the university system.

§ 16 Examination board

(1) The Faculty Council of the Faculty of Mechanical Engineering appoints an examination board to organize the examinations and to carry out the tasks assigned by these examination regulations. (2) The examination board consists of the chairman, his deputy and two other members from the circle of university lecturers working at the Faculty of Mechanical Engineering, one member from the circle of academic staff working at the Faculty of Mechanical Engineering and one member from the circle of students. (3) The term of office is usually three years, one year for student members. Reappointment is permitted. (4) The examination board is responsible for all matters relating to the examination regulations,
unless these regulations stipulate otherwise, in particular for:
1. the organization of examinations,
2. decisions on the consequences of violations of examination regulations,
3. the recognition of periods of study, study and examination achievements as well as knowledge and skills acquired outside the university system,
4. the appointment of examiners,
5. the decision on appropriate examination conditions for students during
maternity leave and parental leave,
6. the decision on appropriate examination conditions for disabled and chronically ill students,
7. the decision on the invalidity of the master's examination,
8. the decision on objections in matters relating to these examination regulations.
The statutory protective provisions on maternity protection and parental leave must be taken into account.
(5) The examination board can delegate tasks to the chairperson for completion. This does not apply
to decisions according to Section 12 Paragraph 3, to decisions on objections and to reports to the
Faculty Council.
(6) The Examination Board reports to the Faculty Council upon request on the development of examination and study times, the actual processing times for the Master's thesis, on the distribution of module and overall grades and can make suggestions for reforming the study and examination regulations.
(7) The Examination Board has a quorum if the chair or his deputy and the
majority of all members are present and the university lecturers make up the majority of the voting members present. The meetings of the Examination Board are not public.
(8) The members of the Examination Board have the right to attend examinations.
This does not apply to student members who wish to take the same examination in the same examination period. The members of the Examination Board cannot exercise the responsibilities of the
Examination Board if they themselves are involved in the examination matter.
(9) The members of the Audit Committee are obliged to maintain confidentiality regarding the subjects of the meetings of the Audit Committee.

§ 17
Examiners and assessors

(1) The examination board appoints the examiners. Only members and affiliates of the
Technical University of Chemnitz or other universities who are authorized to teach independently in the relevant examination subject should be appointed as examiners. If this is appropriate for the subject of the examination, anyone who is authorized to teach independently in only a sub-area of the examination subject can also be appointed as examiner. In special exceptional cases,

teachers for special tasks and people experienced in professional practice and training can also be appointed as examiners, provided this is appropriate for the nature of the examination. Examination performance may only be assessed by people who themselves have at least the qualification determined by the examination or an equivalent qualification.
(2) The candidate can propose an examiner or a group of examiners to the examination board for the assessment of the master's thesis (§ 19) and oral examination performances (§ 6). The proposal does not constitute a legal claim to the appointment of this person/persons.
(3) The examination board ensures that the names of the examiners are announced to the candidate at least two weeks before the examination date.
(5) The examiners and the assessors are obliged to maintain confidentiality regarding examination procedures towards third parties.

§ 18
Purpose of the master's examination

The master's examination represents the professional qualification for the master's degree. The master's examination determines: - whether the candidate demonstrates knowledge and understanding that is normally based on the bachelor's level and significantly deepens and expands it, - whether the candidate is able to define and interpret the special features, limits, terminology and doctrines of the subject area, - whether the candidate is able to apply his knowledge and understanding to problem solving, even in new and unfamiliar situations, and - whether the candidate can make scientifically sound decisions on the basis of incomplete and limited information and knows how to take social, scientific and ethical findings into account.

§ 19
Issuance of the topic, submission, assessment and repetition of the master's thesis

(1) The master's thesis should show that the candidate is able and capable of independently working on an appropriate subject-specific or interdisciplinary problem based on the current state of research or application using scientific methods within a given period of time and of formulating and communicating his or her results in a clear and unambiguous manner.
(2) The topic of the master's thesis must be related to the course of study in terms of content.
The master's thesis can be supervised by any person authorized to conduct examinations. The candidate is entitled to suggest a supervisor and a topic, but has no legal right to have his or her suggestion accepted. The topic of the master's thesis is assigned by the examination board.
(3) When submitting the master's thesis, the candidate must confirm in writing that the work was completed independently and that no sources or resources other than those specified were used. In the case of group work, the individual contribution of each candidate must be clearly stated. (4) The master's thesis must be submitted to the Central Examination Office on time in two typewritten and bound copies and additionally as an electronic file in a manner suitable for the permanent reproduction of characters.
(5) The topic assignment and the submission date must be recorded.
(6) The topic of the master's thesis can be returned once, but only within four weeks after the topic has been assigned. The topic cannot be returned again.
(7) The master's thesis is usually assessed by two examiners. One of them should be the supervisor of the master's thesis. The assessment is carried out in accordance with Section 10 paragraphs 1 and 3 of these examination regulations. The assessment process should not exceed four weeks.
(8) Master's theses that are not submitted on time will be assessed as "unsatisfactory" (5.0). If the master's thesis is not assessed as at least "satisfactory" (4.0), it can be repeated once within one year. A second repetition is only possible upon request within six months of the repeated failure of the master's thesis. A further repetition is not permitted. When repeating the master's thesis, the topic can only be returned within the period specified in paragraph 6 if the candidate has not previously made use of this option.

§ 20
Certificate and Master’s degree

(1) After the successful completion of the Master’s examination, a certificate is issued immediately, if possible within four weeks. The Master’s examination certificate must include the chosen field of study, the names of the modules, the module grades, the topic of the Master’s thesis, the overall grade and the overall mark, as well as the total credit points.
(2) The certificate bears the date of the last examination and the date of issue and is signed by the chair of the examination board.
(3) At the same time as the Master’s examination certificate, the candidate receives the Master’s degree certificate with the date of issue of the certificate. This certifies the award of the Master’s degree. The Master’s degree certificate is signed by the Dean and the chair of the examination board and bears the seal of Chemnitz University of Technology. An English translation must be enclosed with the Master’s degree certificate.
(4) A Diploma Supplement is issued. The text agreed between the KMK and the HRK in the current version is to be used to describe the national education system.
(5) Sorbs can also hold the degree in the Sorbian language and, upon request, receive a Sorbian-language version of the master's certificate and the diploma.
(6) Students who do not complete their studies receive, upon request, a certificate of study for the achievements they have made.
(7) The Central Examination Office is responsible for issuing certificates and diplomas in accordance with paragraphs 1 to 6.

§ 21
Invalidity of the master's examination

(1) If the candidate has cheated in an examination and this fact only becomes known after the certificate has been issued, the assessment of the examination performance can be corrected in accordance with § 12 paragraph 1. If necessary, the module examination can be declared "unsatisfactory" and the master's examination can be declared "failed".
(2) If the requirements for admission to an examination were not met without it being possible to prove that the candidate had intent to deceive, and this fact only becomes known after the certificate has been issued, this deficiency is remedied by passing the examination. If the candidate has intentionally and wrongfully obtained admission to an examination, the module examination can be declared "unsatisfactory" and the master's examination can be declared "failed".
(3) The incorrect certificate and the incorrect master's certificate must be withdrawn and reissued if necessary. If the master's examination was declared "failed" due to deception, the master's certificate, its English translation and the diploma supplement must be withdrawn along with the incorrect certificate. A decision in accordance with paragraph 1 and paragraph 2 sentence 2 is excluded after five years have passed since the certificate was issued.
(4) The candidate must be given the opportunity to comment before a decision is made in accordance with paragraph 1 or paragraph 2 sentence 2.

§ 22
Inspection of the examination file

Within one year of the certificate being issued, the graduate will be granted, upon request and within a reasonable period of time, access to his or her written examination papers, the reports relating to them and the examination records.

§ 23
Appeal procedure

Objections against decisions made in accordance with these regulations must be submitted in writing or recorded at the Chemnitz University of Technology, Central Examination Office, within one month of the decision being communicated to the person concerned. The examination board decides on the appeal. The appeal decision must state the reasons, include information on legal remedies and be sent to the person making the appeal. The appeal decision also determines who will bear the costs of the procedure.

Part 2
Subject-specific provisions

§ 24
Study structure and scope of study

(1) The study program has a modular structure. It consists of basic modules, advanced modules
Electives/Soft skills, focus modules for study areas and the Applied Engineering
Project module, which are offered as compulsory or elective modules, and the Master's thesis module.
Compulsory modules are modules of the study program that are compulsory for all students. Elective modules are modules offered as alternatives in the study program. The modules selected by the student as part of elective modules are treated as compulsory modules.
(2) 120 credit points are required to successfully complete the Master's degree.
(3) The amount of time the student is required to work is an average of 900 working hours per semester. Upon successful completion of module examinations, the credit points provided for them are awarded.
(4) Before registering for the Master's thesis, students can take more than the prescribed examinations in the elective area (except for the examinations in modules 261033-311, 261033-312, 261042-301 and 261033-313). These additional examinations must be registered by the students as additional examinations. Additional examinations can only be taken once. The results of the additional examinations will be included in the certificate upon request by the students, but will not be taken into account when calculating the overall grade for the Master's examination. The application must be submitted to the Central Examination Office no later than by the time the Master's thesis is submitted.

§ 25
Subject, type and scope of the master's examination

(1) The following modules are part of the Master's examination:

1. Basic modules Advanced Manufacturing (Σ 25 CP)

220000-614	Mathematics for Engineering Science	5 CP (compulsory module)
231533-019	Digital Manufacturing	5 CP (compulsory module)
231631-001	Additive Manufacturing	5 CP (compulsory module)
261033-310	Resource Efficiency from an Economic Perspective	5 CP (compulsory module)
231035-004	Research Methods	5 CP (compulsory module)

261033-310	Resource Efficiency from an Economic Perspective	5 CP (compulsory module)
231035-004	Research Methods	5 CP (compulsory module)

2. Specialisation modules in fields of study (Σ 35 CP)
Students must select one of the following four specialisations with the corresponding compulsory and compulsory elective modules totalling 35 CP:

2.1 Hybrid Technologies

231036-004	Textile Process Chains	5 CP (compulsory module)
231133-013	Recycling of Plastics	5 CP (compulsory module)
231431-012	Applied Modelling and Simulation in Solid Mechanics I	5 CP (compulsory module)
231833-007	Surface and Interface Engineering	5 CP (compulsory module)
231032-018	Calculation of Anisotropic Composite Materials	5 CP (compulsory module)
231032-020	Polymer-based Hybrid Structures	5 CP (compulsory module)

One module must be selected from the following modules 231831-012 and 231032-019:

231831-012	Complex Materials for Manufacturing	5 CP (elective module)
231032-019	Composite-based Hybrid Technologies	5 CP (elective module)

2.2 Smart Production

231732-011	Joining Technologies and Strategies	5 CP (compulsory module)
231537-003	Forming Process Chains	5 CP (compulsory module)
231533-020	Machining Technologies	5 CP (compulsory module)
231534-007	Efficient Process Chains	5 CP (compulsory module)
231539-006	Geometrical Product Specification and Verification	5 CP (compulsory module)
231533-021	Design and Control of Smart Production Systems	5 CP (compulsory module)

One module must be selected from the following modules 231032-019 and 231831-012:

231032-019	Composite-based Hybrid Technologies	5 CP (elective module)
231831-012	Complex Materials for Manufacturing	5 CP (elective module)

2.3 Work Design and Sustainability Management

231232-015	Sustainable Smart Manufacturing	5 CP (compulsory module)
261033-311	Life Cycle Engineering	5 CP (compulsory module)
261033-312	Life Cycle-oriented Management	5 CP (compulsory module)
261042-301	Sustainability Management	5 CP (compulsory module)
261033-313	IT-supported Evaluation of Material Flows and Process Chains	5 CP (compulsory module)
231035-005	Instrumentation	5 CP (compulsory module)

One module must be selected from the following modules 231231-008 and 231231-009:

231231-008	Innovation and Value Creation	5 CP (elective module)
231231-009	Digital Ergonomics	5 CP (elective module)

2.4 Printed Functionalities

231631-002	Printing Processes	5 CP (compulsory module)
231631-003	Printed Electronics & Special Topics of Functional Printing	5 CP (compulsory module)
244038-055	Automotive Sensor Systems	5 CP (compulsory module)
231631-005	Media Physics	5 CP (compulsory module)
231631-004	Printing Presses	5 CP (compulsory module)
231631-006	Research Lab	5 CP (compulsory module)
212001-335	Surfaces, Thin Films and Interfaces	5 CP (compulsory module)

3. Vertiefungsmodule Electives/Soft skills (Σ 20 LP)

Module 136004-016 is compulsory. Students whose native language is German may alternatively select a module from modules 136001-004 to 136009-002.

136004-016	Deutsch für Ingenieure (Niveau B1+)	5 CP (compulsory module)

Modules totalling 15 credit points must be selected from modules 136004-007 to 231231-011 and modules not taken in the fields of study (with the exception of module 261033-313). Modules totalling a maximum of 10 credit points may be selected from the language modules 136004-007 to 136009-002. Language modules in the student's native language may not be selected. Students whose native language is not German and who do not have German language level B1 of the Common European Framework of Reference for Languages must take module 136004-007.

136004-007	Deutsch als Fremdsprache III (Niveau B1)	5 CP (elective module)
136001-004	Englisch in Studien- und Fachkommunikation III (Niveau C1)	5 CP (elective module)
136001-006	Englisch in Studien- und Fachkommunikation V (Niveau C1)	5 CP (elective module)
136001-007	Englisch in Studien- und Fachkommunikation VI (Niveau C1)	5 CP (elective module)

136005-001	Französisch I (Niveau A1)	5 CP (elective module)
136005-002	Französisch II (Niveau A2)	5 CP (elective module)
136009-001	Spanisch I (Niveau A1)	5 CP (elective module)
136009-002	Spanisch II (Niveau A2)	5 CP (elective module)
231833-010	Electroplating and Thermal Coating	5 CP (elective module)
231431-013	Applied Modelling and Simulation in Solid Mechanics II	5 CP (elective module)
231231-011	Angewandte Arbeitswissenschaft | Applied Human Factors	5 CP (elective module)

4. Module Applied Engineering Project

230100-860	Applied Engineering Project	10 CP (compulsory module)

5. Module Master-Arbeit

230100-960	Master Thesis	30 CP (compulsory module)

(2) The module descriptions, which are part of the study regulations, specify the number, type, subject and structure of the examinations as well as the admission requirements.

§ 26

Time to complete the master's thesis, colloquium

(1) The time to complete the master's thesis is a maximum of 23 weeks.
(2) In individual cases, the examination board can extend the time to complete the thesis by a maximum of six weeks upon justified request.
(3) The topic, task and scope of the master's thesis must be limited by the supervisor so that the deadline for completing the master's thesis can be met.
(4) The candidate explains his master's thesis in a colloquium.

§ 27

University degree

On the basis of the master's examination being passed, the Chemnitz University of Technology awards the degree "Master of Science (M.Sc.)".

Part 3
Final provisions

§ 28
Entry into force and publication, transitional provisions

These examination regulations apply to those enrolled from the winter semester 2024/2025. For students who began their studies before the winter semester 2024/2025, the Examination regulations for the English-language consecutive degree program in Advanced Manufacturing with the degree of Master of Science (M.Sc.) at Chemnitz University of Technology dated June 13, 2018 (Official Announcements No. 25/2018, p. 1865), amended by Article 2 of the Statute of February 24, 2022 (Official Announcements No. 8/2022, p. 286), continue to apply. These examination regulations come into force on the day after their publication in the Official Announcements of the Chemnitz University of Technology. Issued based on the resolution of the Faculty Council of the Faculty of Mechanical Engineering dated July 22, 2024 and the approval by the Rectorate of Chemnitz University of Technology dated August 21, 2024.

Chemnitz, September 2, 2024

The Rector
of Chemnitz University of Technology

Prof. Dr. Gerd Strohmeier