

## **Examination regulations for the Diploma degree programme in Process Engineering and Natural Materials Technology**

From 29 April 2019

On the basis of § 34 paragraph 1 sentence 1 of the Saxon Higher Education Freedom Act (Sächsisches Hochschulfreiheitsgesetz) in the version of the announcement of 15 January 2013 (SächsGVBl. p. 3), Technische Universität Dresden enacts the following examination regulations as statutes.

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## **Section 1: General provisions**

### **§ 1**

#### **Standard period of study**

The standard period of study for the Diploma degree programme in Process Engineering and Natural Materials Technology comprises attendance, self-study, supervised practical periods and the Diploma examination.

### **§ 2**

#### **Examination structure**

The Diploma examination consists of module examinations as well as the Diploma thesis and the colloquium. A module examination concludes a module and consists of at least one examination. The examinations are taken during the course of study.

### **§ 3**

#### **Deadlines and dates**

(1) The Diploma examination shall be taken within the standard period of study. A Diploma examination which has not been taken within four semesters after completion of the standard period of study shall be deemed to have been failed. A failed Diploma examination may be repeated once within one year. After expiry of this period, it shall be deemed to have been failed again. A second repeat examination is only possible at the next possible examination date, after which the Diploma examination is deemed to have been definitively failed.

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

(3) The Technische Universität Dresden shall ensure through the study regulations and the courses offered that study and examination achievements as well as the Diploma thesis and the colloquium can be taken within the set periods of time. The students shall be informed in good time, as is customary in the faculty, both about the type and number of study and examination achievements to be taken and about the dates on which they are to be taken, as well as about the submission and submission date of the Diploma thesis and the date of the colloquium. The students shall also be informed of the possibility of repeating each module examination.

(4) During maternity leave, no time limit begins to run and it is not counted towards current time limits. With regard to taking parental leave, reference is made to § 12 Paragraph 2 of the Matriculation Regulations.

## **§ 4**

### **General admission requirements and admission procedure**

(1) Only those persons may be admitted to examinations for the Diploma examination pursuant to § 2 sentence 1 who

1. is enrolled in the Diploma degree programme in Process Engineering and Natural Materials Technology at the Technische Universität Dresden and
2. has demonstrated the professional requirements (§ 25) and
3. has made a data-processing recorded declaration in respect of paragraph 4 number 3.

(2) The student must register for the performance of examinations. The student has the right to withdraw from examinations from the first to fourth semesters of the study plan up to a period of five working days, and from examinations from the fifth and ninth semesters of the study plan up to a period of three working days before an examination date without giving reasons. The form and deadline for registration as well as the form of deregistration are determined by the Examination Board and announced at the beginning of each semester in the usual manner of the faculty. The same applies to bonus performances.

(3) The admission shall take place

1. to a module examination due to the first registration for an examination performance of this module examination,
2. for the Diploma thesis on the basis of the student's application for the issue of the topic or, in the case of § 20 paragraph 3 sentence 5, with the issue of the topic and
3. to the colloquium based on the assessment of the Diploma thesis with a grade of at least "sufficient" (4.0).

(4) Admission shall be refused if

1. the requirements referred to in paragraph 1 or the procedural requirements referred to in paragraph 2 are not fulfilled, or
2. the documents are incomplete or
3. the student has already definitively failed an examination required for the completion of the Diploma degree programme in Process Engineering and Natural Materials Technology.

(5) The Examination Board decides on admission. The announcement may be made publicly. Section 17 (4) remains unaffected.

## **§ 5**

### **Types of examination performance**

(1) Examination performances shall be

1. written examinations (§ 6),
2. project work (§ 7),
3. oral examination performances (§ 8),
4. papers (§ 9) and/or
5. Other examination performances (§ 10)

to be performed. Written examinations using the multiple-choice (MC) method are possible. The conduct and assessment of the examinations are regulated in the MC regulations. In modules that are recognisably subject to several examination regulations, synonyms are permitted for examination performances with the same content.

(2) Studies and examinations must be completed in German or, according to the module de-

scriptions, in English. If, according to the module description, a module primarily serves the acquisition of foreign language qualifications, study and examination achievements may also have to be completed in the respective foreign language according to the assignment.

(3) If the student can credibly demonstrate that he or she is unable to take examinations in whole or in part in the prescribed form due to a long-term or permanent physical disability or chronic illness, the chairperson of the Examination Board shall, upon request, allow the student to take the examinations within an extended processing time or in an equivalent manner (compensation for disadvantages). For this purpose, the submission of a medical certificate and, in cases of doubt, an official medical certificate may be required. The same applies to bonus performances.

(4) If the student can credibly demonstrate that he/she is unable to complete the examination as prescribed due to the care of his/her own children up to the age of 14 or the care of close relatives, the chairperson of the Examination Board shall allow the student to complete the examination in an equivalent manner upon request. Close relatives are children, parents, grandparents, spouses and life partners. The chairperson of the Examination Board decides in consultation with the responsible examiner how the examination performance is to be carried out. The chairperson of the Examination Board decides on an appropriate measure to compensate for a disadvantage. Suitable measures to compensate for disadvantages include, for example, extended processing times, processing breaks, use of other media, use of other examination rooms within the university or another examination date. The same applies to bonus performances.

## **§ 6**

### **Written examinations**

(1) In written examinations, the student shall prove that he/she can solve tasks and work on topics on the basis of the necessary basic knowledge in a limited time and with limited aids using the common methods of the subject of study. If written examinations or individual tasks are set according to § 5 Paragraph 1 Sentence 2, the student shall demonstrate the knowledge required to achieve the module objective. To this end, he or she must indicate which of the answers presented with the assignments he or she considers to be correct.

(2) Written examinations, the passing of which is a prerequisite for the continuation of studies, shall as a rule, but at least in the case of the last resit examination, be assessed by two examiners. The grade results from the average of the individual evaluations according to § 11, Paragraph 1; only the first decimal place behind the comma is taken into account, all other places are deleted without rounding. The assessment procedure shall not exceed four weeks.

(3) The duration of the written examinations is specified in each case in the module descriptions and may not be less than 90 minutes and not exceed 240 minutes.

## **§ 7**

### **Project work**

(1) Project work usually demonstrates the ability to work in a team and in particular to develop, implement and present concepts. In this context, the student shall demonstrate the competence to define goals on a larger task and to develop interdisciplinary approaches to solutions and concepts.

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

(3) The temporal scope of the project work is determined in each case in the module descriptions and amounts to a maximum of 550 hours. Derived from this, the deadline for submission is to be set within the framework of the assignment. In individual cases, the Examination Board may exceptionally extend this deadline for submission by a maximum of 8 weeks upon justified application by the student.

(4) In the case of project work carried out in the form of teamwork, the individual contributions must be clearly recognisable and assessable and must fulfil the requirements according to Paragraph 1. If parts of the project work are performed orally, § 8 Paragraph 4 Sentence 1 shall apply accordingly.

## **§ 8**

### **Oral examination performances**

(1) By means of oral examinations, the student shall demonstrate the competence to recognise the interrelationships of the examination area and to be able to classify special questions in these interrelationships. Furthermore, it is to be determined whether the student has a basic knowledge corresponding to the state of the studies.

(2) Oral examinations are generally taken in front of at least two examiners (peer examination) or in front of one examiner in the presence of an expert assessor (§ 18) in accordance with the module descriptions as a group examination with up to four persons or as an individual examination.

(3) Oral examinations have a duration of 15 to 45 minutes. The concrete duration is specified in the respective module descriptions.

(4) The essential items and results of the oral examination performance shall be recorded in a protocol. The result shall be made known to the student following the oral examination performance.

(5) Students who wish to take the same examination at a later date shall be admitted as listeners within the framework of the spatial conditions, unless the student to be examined objects. Admission does not extend to the discussion and announcement of the examination results.

## **§ 9**

### **Papers**

(1) By means of presentations, the student shall demonstrate the competence to prepare special questions and also to be able to present them according to the assignment.

(2) § 6 Paragraph 2 shall apply accordingly. The lecturer responsible for the course in which the paper is handed out and, if applicable, presented, shall be one of the examiners. If the paper is presented, § 8 Paragraph 4 Sentence 1 shall apply accordingly.

(3) The time required to complete the papers is specified in the respective module descriptions and amounts to a maximum of 30 hours. Derived from this, the deadline for submission or presentation is to be determined within the scope of the assignment.

## **§ 10**

### **Other examination performances**

(1) The student shall achieve the specified performance by means of other controlled examination performances (other examination performances) which can be assessed according to the same standards and which are specifically specified in the module descriptions, including the requirements as well as the duration or the temporal scope. If a time scope is specified, the deadline for submission is to be determined from this within the framework of the assignment. Other examination performances are protocol collections, laboratory practicals, papers, presentations, written tests, oral tests and language tests.

(2) The other examination performances according to paragraph 1 are defined as follows:

1. In protocol collections, the student should be able to demonstrate the competence to document and critically reflect on the course of practical tasks from technical or analytical issues and the results achieved in an appropriate manner.
2. In the laboratory practical course, the student demonstrates his or her competence in the proper and effective use of equipment and apparatus for the investigation of a specific scientific-technical subject area.
3. In assignments, the student should prove by solving written exercises, by working on electronic learning modules or by limited experimental work that the student has mastered sub-tasks or can solve analytical tasks and is capable of interpreting the results accordingly.
4. The presentation is an oral or media-supported lecture by one student or, according to the assignment, in the case of definable individual contributions by several students, in which results achieved through independent work are presented in a structured form, usually using visual aids.
5. In written tests, students are to demonstrate the basic knowledge of the subject by solving smaller tasks in a limited amount of time.
6. In oral tests, students are to prove their basic knowledge of the subject by answering definable questions.
7. Language tests are shorter oral and/or written performances in which the level of knowledge on a specific topic and the ability to express this in the foreign language are tested.

(3) For other written examinations, § 6 paragraph 2 shall apply accordingly. For other non-written examinations, § 8 paragraph 2 and 4 shall apply accordingly.

## § 11

### **Assessment of the examination performances, formation and weighting of the grades, Announcement of the examination results**

(1) The marks for the individual examination performances shall be determined by the respective examiners, taking into account any bonus points acquired in accordance with Paragraph 2. The following grades shall be used for this purpose:

1 = very good=	an excellent performance;
2 = good=	a performance that is significantly above the average requirements;
3 = satisfactory=	a performance that meets average requirements;
4 = sufficient=	a performance that still meets the requirements despite its shortcomings;
5 = not sufficient=	a performance that no longer meets the requirements due to significant deficiencies.

For differentiated assessment, individual grades can be raised or lowered by 0.3 to intermediate values; the grades 0.7, 4.3, 4.7 and 5.3 are excluded. An individual examination performance is only assessed as "passed" or "failed" (ungraded examination performance) if the corresponding module description provides for this by way of exception. Ungraded examination performances graded with "passed" are not included in the further grade calculation; ungraded examination performances graded with "failed" are included in the further grade calculation with the grade 5 (not sufficient).

(2) Bonus points can be acquired voluntarily for assigned examination achievements through certain study achievements (bonus achievements). Bonus points can replace a maximum of 6 % of the total number of points of the assigned examination performance in addition to the assessment points acquired by the student, if the examination performance was assessed with at least "sufficient" (4.0). The type and structure of the bonus performances as well as their assignment to an examination performance are to be regulated in the module descriptions. The number of bonus points to be acquired through a bonus performance as well as the total number of points to be achieved in the associated examination performance shall be announced at the beginning of each semester as is customary in the faculty. Bonus points earned are only taken into account in the examination date that is binding for the student following the bonus performance.

(3) The module grade results from the weighted average of the grades of the examination performances of the module according to the module description, if applicable. Only the first decimal place after the comma is taken into account, all other places are deleted without rounding. The module grade with an average is

up to and including 1.5	= very good,
from 1.6 to 2.5 inclusive	= good,
from 2.6 to 3.5 inclusive	= satisfactory,
from 3.6 up to and including 4.0	= sufficient,
from 4.1	= not sufficient.

If a module examination is not passed due to a pass-relevant examination performance according to § 13 Paragraph 1 Sentence 2, the module grade is "not sufficient" (5.0).

(4) An overall grade is calculated for the Diploma examination. The final grade of the Diploma examination shall include the final grade of the Diploma thesis with a 45-fold weighting, the module grade of the module Subject-Related Internship with a 10-fold weighting and the module grades weighted according to the credit points according to annex 1. The final grade of the Diploma thesis is composed of the grade of the Diploma thesis with quadruple weight and the grade of the colloquium with single weight. For the modules according to annex 2, an overall



grade weighted according to the credit points is also formed. Paragraph 3, sentences 2 and 3 shall apply accordingly to the overall and final grades. The overall grade of the Diploma examination shall be "passed with distinction" in the case of outstanding performance (with an average up to and including 1.2 as well as the final grade of the Diploma thesis up to and including 1.5).

(5) The overall grade of the Diploma examination is additionally shown as a relative grade according to the ECTS grading scale.

(6) The modalities for the announcement of the examination results shall be communicated to the students through the usual faculty publication.

## **§ 12**

### **Default, withdrawal, deception, breach of order, waiver**

(1) An examination performance shall be deemed to have been assessed as "insufficient" (5.0) or "failed" if the student misses an examination date that is binding for him/her without good reason or withdraws without good reason. The same applies if an examination performance is not completed within the specified processing time.

(2) The reason asserted for the withdrawal or the failure to attend must be notified to the examination office in writing without delay and must be made credible. In the case of illness of a student, a medical certificate or, in cases of doubt, an official medical certificate must be submitted. Insofar as compliance with deadlines for the initial registration for examinations, the repetition of examinations, the reasons for missing examinations and compliance with processing times for examination papers are affected, the illness of the student shall be deemed equivalent to the illness of a child for whom he/she is predominantly solely responsible. If the reason is recognised, a new date shall be set. In this case, the examination results already available shall be taken into account. The Examination Board decides on the approval of the withdrawal or the recognition of the reason for missing the examination.

(3) If the student attempts to influence the result of his/her examination performance by cheating, for example by bringing or using unauthorised aids, the examination performance in question shall be deemed to have been assessed as "insufficient" (5.0) on the basis of a corresponding determination by the Examination Board. Accordingly, ungraded examinations are deemed to have been assessed as "failed". A student who disturbs the orderly course of the examination can be excluded from the continuation of the examination by the respective examiner or the respective invigilator; in this case, the examination performance is deemed to be graded as "insufficient" (5.0) or "failed". In serious cases, the Examination Board may exclude the student from taking further examinations.

(4) If the student has deceived in an examination and this fact only becomes apparent after the assessment has been announced, the assessment of the examination may be changed by the Examination Board to "not sufficient" (5.0) or "not passed" and thereupon the grade of the module examination may also be changed in accordance with § 11, paragraph 3. If the requirements for taking a module examination were not fulfilled without the student intending to deceive, this defect shall be remedied by passing the module examination. If the student has intentionally obtained the taking of a module examination wrongly, the Examination Board may declare the module examination "insufficient" (5.0) or "failed". In serious cases, the Examination Board may exclude the student from taking further examinations.

(5) Paragraphs 1 to 4 shall apply accordingly to bonus performances, the Diploma thesis and the colloquium.

(6) If the student declares in writing to the examination office that he/she waives the completion of an examination, this examination shall be deemed to have been assessed as "insufficient" (5.0) or "failed" in the respective examination attempt. The waiver is irrevocable and requires admission according to § 4.

### **§ 13** **Pass and fail**

(1) A module examination is passed if the module grade is at least "sufficient" (4.0). In the cases specified by the module descriptions, passing the module examination is furthermore dependent on the assessment of individual examination performances with at least "sufficient" (4.0) and on two further passing requirements, namely the completion of excursions and the completion of a professional internship. If the module examination is passed, the credit points assigned to the module in the module description are acquired.

(2) The Diploma examination is passed if the module examinations and the Diploma thesis as well as the colloquium have been passed. The Diploma thesis and the colloquium are passed if they have been assessed with at least "sufficient" (4.0).

(3) A module examination is not passed if the module grade is not at least "sufficient" (4.0). Diploma thesis and colloquium are not passed if they have not been assessed with at least "sufficient" (4.0).

(4) A module examination is finally failed if the module grade is not at least "sufficient" (4.0) and its repetition is no longer possible. Diploma thesis and colloquium are finally failed if they have not been assessed with at least "sufficient" (4.0) and a repetition is no longer possible.

(5) The Diploma examination is failed or definitively failed if either a module examination, the Diploma thesis or the colloquium is failed or definitively failed. § 3 paragraph 1 remains unaffected. In the case of a final failure of a module examination of the compulsory elective area, the final failure of the Diploma examination shall only be decided in accordance with § 17, paragraph 4, if the student does not change his/her choice within one month after the announcement of the result of the module examination or if a change of choice pursuant to Section 6, Paragraph 2, Sentence 4 of the Study Regulations is no longer possible. If the student has definitively failed the Diploma examination, he or she loses the examination entitlement for all components of the Diploma examination according to § 2, sentence 1.

(6) If the student has failed a module examination, the Diploma thesis or the colloquium, the student shall be informed whether and, if so, to what extent and within what period of time the examination in question may be repeated.

(7) If the student has not passed the Diploma examination, a certificate shall be issued to him/her on application and on presentation of the relevant evidence as well as the exmatriculation certificate, which contains the examination components performed and their evaluation as well as, if applicable, the examination components still missing and which shows that the Diploma examination has not been passed.

## **§ 14**

### **Free trial**

(1) Module examinations can also be taken before the semesters specified in the study schedule if the admission requirements are met. Taking the module examination for the first time is then considered a free attempt.

(2) At the request of the student, module examinations or examinations graded at least "sufficient" (4.0) can be repeated once at the next regular examination date in order to improve the grade. In these cases, the better grade counts. The form and deadline of the application are determined by the Examination Board and announced in the usual manner of the faculty. After the expiry of the next regular examination date or the application deadline, an improvement of the grade is no longer possible. When repeating a module examination to improve the grade, examination performances that were assessed with at least "sufficient" (4.0) in the free attempt are credited upon application by the student; examination performances that were assessed with "passed" in the free attempt are credited ex officio.

(3) A module examination that has not been passed in the free attempt shall be deemed not to have been taken. Examination performances which were assessed with at least "sufficient" (4.0) or with "passed" are credited in the following examination procedure. If the possibility of grade improvement according to Paragraph 2 is used for examination performances, the better grade shall be credited.

(4) In addition to § 3, paragraph 4, periods of interruption of studies due to a prolonged illness of the student or a child to be cared for by the student as well as periods of study abroad shall not be taken into account for the application of the free attempt regulation.

## **§ 15**

### **Repetition of module examinations**

(1) Failed module examinations can be repeated once within one year after completion of the first examination attempt. The period begins with the announcement of the first failure of the module examination. After expiry of this period, they are deemed to have been failed again.

(2) A second resit examination can only be taken at the next possible examination date. After that, the module examination is deemed to have been definitively failed. A further repeat examination is not permitted.

(3) The repetition of a failed module examination consisting of several examinations shall only include the examinations not graded with at least "sufficient" (4.0) or with "passed". When repeating a failed module examination that comprises one or more optional examination performances, students are not bound to the previous choice of an examination performance that was not assessed with at least "sufficient" (4.0) or with "passed".

(4) The repetition of a passed module examination is only permitted in the case regulated in § 14 Paragraph 2 and includes all examination performances.

(5) Failed attempts of the module examination from the same or other degree programmes are carried over.

## **§ 16**

### **Crediting of study and examination achievements, periods of study and qualifications acquired outside a higher education institution**

(1) Study and examination achievements which have been completed at a higher education institution shall be credited upon application by the student, unless there are significant differences with regard to the competences acquired. Further agreements of the Technische Universität Dresden, the German Rectors' Conference, the Standing Conference of the Ministers of Education and Cultural Affairs as well as those ratified by the Federal Republic of Germany shall be observed, if applicable.

(2) Qualifications acquired outside a higher education institution shall be credited upon application by the student if they are equivalent. Equivalence is given if the content, scope and requirements essentially correspond to parts of the studies in the Diploma degree programme in Process Engineering and Natural Materials Technology at Technische Universität Dresden. No schematic comparison is to be made, but rather an overall consideration and evaluation.

(3) Study and examination credits obtained in the Federal Republic of Germany in the same degree programme shall be transferred ex officio.

(4) Study and examination achievements completed at a higher education institution may be credited despite substantial differences if, due to their contents and qualification objectives, they correspond overall to the sense and purpose of an elective option available in this degree programme and therefore form a structural equivalent. The actual achievements are shown in the transcript.

(5) If study and examination achievements are credited or transferred in accordance with paragraph 1, 3 or 4 or qualifications acquired outside a higher education institution are credited in accordance with paragraph 2, the corresponding periods of study shall also be credited ex officio. Grades shall - insofar as the grading systems are comparable - be taken over and included in the further formation of grades. In the case of incomparable grading systems, the remark "passed" shall be included; they shall not be included in the further formation of grades. The credit will be marked on the certificate.

(6) Credit shall be awarded by the Examination Board. The student must submit the required documents. From this point on, the crediting procedure may not exceed a period of two months. In the case of non-credit, § 17 Paragraph 4 Sentence 1 shall apply.

## **§ 17**

### **Audit Committee**

(1) An Examination Board shall be formed for the Diploma degree programme in Process Engineering and Natural Materials Technology for the conduct and organisation of examinations as well as for the tasks assigned by the examination regulations. The Examination Board shall consist of five professors, two research assistants and two students. With the exception of the student members, the term of office is three years. The term of office of the student members is one year.

(2) The chairperson, the deputy chairperson as well as the other members and their deputies shall be appointed by the Faculty Council of the Faculty of Mechanical Science and Engineering, the student members upon proposal of the student council. As a rule, the chairperson conducts

the business of the Examination Board.

(3) The Examination Board shall ensure that the provisions of the examination regulations are observed. It regularly reports to the faculty on the development of examination and study times, including the actual processing times for the Diploma thesis, as well as on the distribution of module and overall grades. The Examination Board gives suggestions for reforming the examination regulations, the study regulations, the module descriptions and the study schedule.

(4) The student concerned shall be informed in writing of any adverse decisions, the reasons for them and instructions on how to appeal. As the examination authority, the Examination Board shall decide on appeals within a reasonable period of time and issue the appeal notices.

(5) The Examination Board may admit guests to its meetings without voting rights. The members of the Examination Board shall have the right to attend the taking of the examinations and the colloquium.

(6) The members of the Examination Board and their deputies shall be bound by official secrecy. If they are not public servants, they shall be bound to secrecy by the chairperson.

(7) Based on the decisions of the Examination Board, the examination office organises the examinations and administers the examination files.

## **§ 18**

### **Examiners and assessors**

(1) The Examination Board shall appoint university lecturers and other persons who are entitled to take examinations according to Land law as examiners. Only persons who have successfully passed the corresponding Diploma examination or an at least comparable examination shall be appointed as assessors.

(2) The student may propose the supervisor for his/her thesis and the examiners for oral examinations and the colloquium. The suggestion does not constitute a claim.

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

(4) Section 17 (6) shall apply accordingly to the examiners and assessors.

## **§ 19**

### **Purpose of the Diploma examination**

Passing the Diploma examination constitutes the professionally qualifying degree of the degree programme. This establishes that the student has an overview of the subject-related contexts, has the ability to apply scientific methods and findings, and has acquired the thorough specialist knowledge necessary for the transition to professional practice.

## **§ 20**

### **Purpose, Issue, Submission, Assessment and Retake of the Diploma Thesis and colloquium**

(1) The Diploma thesis shall show that the student is able to independently work on problems of the field of study according to scientific methods within a given period of time.

(2) The Diploma thesis may be supervised by a university lecturer or another person authorised to conduct examinations according to the Saxon Higher Education Freedom Act (Sächsisches Hochschulfreiheitsgesetz), provided that this person works at the Faculty of Mechanical Science and Engineering at the Technische Universität Dresden. If the Diploma thesis is to be supervised by a person who works outside the Faculty of Mechanical Science and Engineering and is authorised to do so, the approval of the chairperson of the Examination Board is required.

(3) The topic of the Diploma thesis shall be issued by the Examination Board. The topic and the date of issue shall be recorded in the records. The student may express wishes regarding the topic. At the request of the student, the Examination Board shall arrange for the timely issue of the topic of the Diploma thesis. The topic shall be issued by the Examination Board ex officio at the latest at the beginning of the semester following the completion of the last module examination.

(4) The topic may only be returned once and only within two months of issue. However, the topic may only be returned in the case of a repetition of the Diploma thesis if the student has not made use of this possibility so far. If the student has returned the topic, a new one shall be issued to him/her immediately in accordance with Paragraph 3, Sentences 1 to 3.

(5) The Diploma thesis may also be produced in the form of a group thesis if the individual contribution to be assessed as the student's Diploma thesis is clearly distinguishable and assessable on the basis of the specification of sections, page numbers or other objective criteria that enable a clear demarcation and fulfils the requirements according to paragraph 1.

(6) The Diploma thesis shall be submitted in German in two typed and bound copies as well as in digital text form on a suitable data carrier to the examinations office in due time; the date of submission shall be recorded. In suitable cases, the thesis may be submitted in English upon application by the student to the Examination Board. When handing in the thesis, the student must declare in writing whether he/she has written his/her thesis - in the case of a group thesis, his/her correspondingly marked part of the thesis - independently and has not used any sources and aids other than those indicated.

(7) The Diploma thesis shall be marked individually by two examiners in accordance with Section 11, Paragraph 1, Sentences 1 to 3. The supervisor of the thesis shall be one of the examiners. The assessment procedure shall not exceed four weeks.

(8) The grade of the Diploma thesis shall be the average of the two individual grades of the examiners. If the individual grades of the examiners differ by more than two grade levels, the average of the two individual grades shall only be decisive if both examiners agree. If this is not the case, the Examination Board shall obtain an assessment from a further examiner. The grade of the thesis shall then be calculated from the average of the three individual grades. Section 11, Paragraph 3, Sentences 2 and 3 shall apply accordingly.

(9) If one examiner has assessed the thesis with at least "sufficient" (4.0) and the other examiner with "insufficient" (5.0), the Examination Board shall obtain an assessment from another examiner. This examiner decides whether the thesis has been passed or not. If it is thus deemed to have been passed, the grade of the thesis shall be formed from the average of the individual grades of the evaluations voting for passing, otherwise from the evaluations voting for failing. Section 11, Paragraph 3, Sentences 2 and 3 shall apply accordingly.

(10) A failed Diploma thesis may be repeated once within one year. After expiry of this period, it shall be deemed to have been failed again. A second repetition is only possible on the next possible examination date, after which it is deemed to have been definitively failed. A further repetition or the repetition of a passed Diploma thesis is not permitted.

(11) The student must explain his/her thesis in a public colloquium before the thesis supervisor as examiner and an assessor. Through the colloquium, the student should prove that he or she can present the result of the thesis conclusively and discuss it professionally. Further examiners may be consulted. Paragraph 10 and § 8 Paragraph 4 and § 11 Paragraph 1 Sentences 1 to 3 shall apply accordingly.

## **§ 21 Certificate and Diploma**

(1) The student shall receive a certificate of the passed Diploma examination immediately, if possible within four weeks. The certificate of the Diploma examination shall include the module evaluations according to annex 1 as well as the corresponding credit points and, if applicable, credit marks, the topic of the Diploma thesis, its final grade and supervisor as well as the overall grade of the Diploma examination according to § 11 Paragraph 4 and 5. The grades of the individual examinations and the topics of the project work shall be shown on an enclosure to the certificate. At the request of the student, the assessments of additional modules and the subject study duration required until completion of the Diploma examination shall be included in the certificate and the assessments of examination performances in additional modules shall be indicated on the supplement.

(2) The student shall immediately, if possible within four weeks, receive a report (interim report) on the passed module examinations according to annex 2, which contains the module evaluations and the overall grade according to § 11 Paragraph 4 Sentence 4.

(3) At the same time as the Diploma certificate, the student shall receive the Diploma certificate with the date of the certificate. This certifies the award of the Diploma degree. The Diploma certificate is signed by the chairperson of the Examination Board, bears the handwritten or typewritten signature of the rector and bears the seal of the Technische Universität Dresden. In addition, translations of the certificate and the transcript in English are handed out to the student.

(4) The certificates according to Paragraph 1 and 2 shall bear the date of the day on which the last examination component according to § 13 Paragraph 2 or § 13 Paragraph 1 Sentence 1 has been completed. The certificate according to paragraph 1 shall be signed by the chairperson of the Examination Board and the dean of the Faculty of Mechanical Science and Engineering and shall bear the seal of the Technische Universität Dresden used by the faculty. The certificate according to paragraph 2 is signed by the chairperson of the Examination Board and bears the seal of the Technische Universität Dresden used by the faculty.

(5) The Technische Universität Dresden issues a Diploma Supplement (DS) according to the "Diploma Supplement Model" of the European Union/Council of Europe/UNESCO. The text agreed between the Standing Conference of the Ministers of Education and Cultural Affairs of the State in the Federal Republic of Germany and the German Rectors' Conference shall be used as the representation of the national education system (DS section 8).

## **§ 22**

### **Invalidity of the Diploma examination**

(1) If the student has cheated in an examination and this fact only becomes known after the certificate has been issued, the assessment of the examination may be changed in accordance with § 12, paragraph 4, sentence 1. If necessary, the Examination Board may declare the module examination "insufficient" (5.0) and the Diploma examination "failed". The same applies to the Diploma thesis and the colloquium.

(2) If the requirements for taking a module examination were not fulfilled without the student intending to deceive, and if this fact only becomes known after the certificate has been issued, this defect shall be remedied by passing the module examination. If the student has intentionally obtained the passing of a module examination wrongfully, the Examination Board may declare the module examination "insufficient" (5.0) and the Diploma examination "failed". The same applies to the Diploma thesis and the colloquium.

(3) An incorrect certificate and its translation shall be confiscated by the chairperson of the Examination Board and, if necessary, reissued. The Diploma certificate, all translations and the Diploma Supplement shall be withdrawn together with the incorrect Diploma certificate if the Diploma examination was declared "failed" due to deception. A decision in accordance with paragraph 1 and paragraph 2 sentence 2 or 3 shall be excluded after a period of five years from the date of the certificate.

## **§ 23**

### **Inspection of the examination documents**

Within one year after completion of the examination procedure, the student shall be granted access to his/her written examination papers, the related reports and the examination records within a reasonable period of time upon request.



## **Section 2: Subject-specific provisions**

### **§ 24**

#### **Duration, structure and scope of studies**

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

(2) The degree programme is modular and concludes with the Diploma thesis and the colloquium. The degree programme includes 15 weeks of practical work experience. Five fields of study, one of which must be chosen, with compulsory and compulsory elective modules, are available for the acquisition of special competences.

(3) By passing the Diploma examination, a total of 300 credit points are acquired in the modules as well as the Diploma thesis and the colloquium.

### **§ 25**

#### **Subject-specific requirements for the Diploma examination**

(1) Prior to the colloquium, the Diploma thesis must have been assessed with a grade of at least "sufficient" (4.0).

(2) Subject requirements that would be fulfilled by a waiver according to § 12 Paragraph 6 shall be deemed to have been fulfilled if the Examination Board agrees to this at the request of the student.

(3) At least 255 credit points must have been acquired before the topic of the Diploma thesis is issued.

### **§ 26**

#### **Subject, type and scope of the Diploma examination**

(1) The Diploma examination comprises all module examinations of the compulsory area and those of the selected modules of the compulsory elective area as well as the Diploma thesis and the colloquium.

(2) Modules of the compulsory area are

1. Fundamentals of Mathematics
2. Engineering Mechanics
3. Fundamentals of Chemistry
4. Business Administration and Language Skills
5. Physics
6. Computer Science
7. Design Theory
8. Fundamentals of Material Science
9. Engineering Mathematics
10. Fundamentals of Kinematics and Kinetics
11. Fundamentals of Electrical Engineering
12. Engineering Thermodynamics/Heat Transfer
13. Special Topics of Mathematics

14. Physical Chemistry and Biochemistry
15. Processing Machines and Apparatus Technology
16. Introduction to Process Engineering and Natural Materials Technology
17. Fundamentals of Fluid Mechanics
18. General and Engineering-Specific Qualifications in Process Engineering and Natural Materials Technology
19. Measurement and Automation Engineering
20. Subject-Related Internship
21. Research Internship
22. Interdisciplinary Technical Qualification of Process Engineering and Natural Materials Technology

(3) Modules of the compulsory elective area are in the field of study

1. Process Engineering

a) Compulsory modules

- aa) Fundamental Processes of Mechanical and Thermal Process Engineering
- bb) Fundamentals of Chemical Process Engineering
- cc) Plant Engineering and Safety Engineering
- dd) Heat Transfer and Mass Transfer
- ee) Fluid Mechanics for Mechanical Process Engineering
- ff) Consolidation and Application of Thermal Process Engineering
- gg) System Process Engineering
- hh) Multiphase Reactions
- ii) Chemical Thermodynamics and Multiphase Thermodynamics

b) Elective modules

aa) in the area of fundamentals-oriented specialisation

- (1) Particle Technology
- (2) Process Automatization
- (3) Reactor Technology

bb) Energy Process Engineering

cc) in the area of specialisation

- (1) Recycling
- (2) Interfacial Technology
- (3) Process Analysis
- (4) Food and Bioprocess Engineering
- (5) European Course of Cryogenics
- (6) Clean Room and Clean Media Technology
- (7) Process Plants
- (8) Cryogenics
- (9) Environmental Process Engineering
- (10) Process Control Systems

of which modules totalling 30 credit points must be selected, of which modules totalling at least 10 credit points must be selected from the area of fundamentals-oriented specialisation;

2. Bioprocess Engineering

a) Compulsory modules

- aa) General Microbiology
- bb) Fundamental Processes of Thermal Process Engineering
- cc) Biophysics and Bioprocess Engineering Working Methods
- dd) Fundamentals of Bioprocess Engineering
- ee) Biochemistry for Bioprocess Engineers
- ff) Microbiology for Bioprocess Engineers

- gg) Bioanalytics
- hh) Mechanical Process Engineering and Process Analysis

b) Elective modules

- aa) in the area of fundamentals-oriented specialisation
  - (1) Bioprocess Engineering and Bioreaction Engineering
  - (2) Enzyme and Biosensor Technology
  - (3) White Biotechnology
  - (4) Applied Biotechnology and
- bb) in the area of specialisation
  - (1) Process Analysis
  - (2) Process plants
  - (3) Environmental Process Engineering
  - (4) Biotechnical Plants and Processes
  - (5) Downstream Processing in Biotechnology
  - (6) Food Technology and Bioprocess Engineering
  - (7) Chemometrics
  - (8) Systems Biotechnology and Synthetic Biology

of which modules totalling 30 credit points must be selected, of which modules totalling at least 10 credit points must be selected from the area of fundamentals-oriented specialisation;

3. Chemical Engineering

a) Compulsory modules

- aa) Bioprocess Engineering and Bioreaction Engineering
- bb) Fundamentals of Chemical Process Engineering
- cc) Fluid Mechanics for Mechanical Process Engineering
- dd) Consolidation and Application of Thermal Process Engineering
- ee) Multiphase Reactions
- ff) Analytical Chemistry
- gg) Industrial Chemistry
- hh) Fundamental Chemical Analysis
- ii) Chemical Processes and Material Separation Operations

b) Elective modules

- aa) in the area of fundamentals-oriented specialisation
  - (1) Plant Engineering and Safety Engineering
  - (2) High-performance Materials
  - (3) Macromolecular Chemistry
- bb) Chemical-technical Fundamentals of Renewable Energy and
- cc) in the area of specialisation
  - (1) Heat Transfer and Mass Transfer
  - (2) System Process Engineering
  - (3) Chemical Thermodynamics and Multiphase Thermodynamics
  - (4) Energy Process Engineering
  - (5) Food and Bioprocess Engineering
  - (6) Chemometrics
  - (7) Particles and Interfaces
  - (8) Water Technology
  - (9) Chemistry of Food: Reactions and Functionalities of Ingredients, Residues and Packaging
  - (10) Biomimetic Material Synthesis

of which modules totalling 30 credit points must be selected, of which modules totalling at least 10 credit points must be selected from the area of fundamentals-oriented specialisation;

4. Wood and Fibre Materials Technology
  - a) Compulsory modules
    - aa) Fundamental Processes of Thermal Process Engineering
    - bb) Mechanical Process Engineering and Process Analysis
    - cc) Chemical Fundamentals of Wood and Fibre Materials Technology
    - dd) Fundamentals of Wood Anatomy
    - ee) Basic Processes of Manufacturing and Converting of Wood-based Materials and Paper
    - ff) Physical Fundamentals of Wood Technology and Paper Technology
    - gg) Technology of Wood-based Materials Processing and Paper Manufacturing
    - hh) Technology of Wood-based Materials Processing and Paper Converting
  - b) Elective modules
    - aa) in the area of fundamentals-oriented specialisation
      - (1) Development of Furniture and Construction Components
      - (2) Wood Preservation
      - (3) Machines and Processes in Paper Production
      - (4) Machines and Processes in Paper Treatment
      - (5) Wood Drying and Modification
      - (6) Scientific Work in Wood Technology
      - (7) Fiber and Paper Physics and
    - bb) in the area of specialisation
      - (1) Process Analysis
      - (2) Food and Bioprocess Engineering
      - (3) Coating and Glue Technologies
      - (4) Timber Construction
      - (5) Introduction to Industrial Design Methodology
      - (6) Design Fundamentals
      - (7) Paper and Cellulose Chemistry
      - (8) Innovative Fiber-Based Bioproducts
      - (9) Manufacturing of Fibre Composites
      - (10) Designing with Polymers
      - (11) Product Manufacturing
      - (12) Separation Technology
      - (13) Special Process and Control Strategies in Paper Production
      - (14) Paper Loops and Treatment of Paper for Recycling

of which modules totalling 30 credit points must be selected, of which modules totalling at least 10 credit points must be selected from the area of fundamentals-oriented specialisation;
5. Food Engineering
  - a) Compulsory modules
    - aa) Fundamental Processes of Thermal Process Engineering
    - bb) Mechanical Process Engineering and Process Analysis
    - cc) Fundamentals of Food Engineering
    - dd) Food Science
    - ee) Fundamentals of Food Chemistry
    - ff) Generic Food Technology
    - gg) Unit Operations in Food Engineering
    - hh) Food Microbiology and Hygiene
  - b) Elective modules
    - aa) In the area of fundamentals-oriented specialisation
      - (1) Food Rheology
      - (2) Quality Assurance in the Food Industry

- (3) Bioprocess Engineering for Food Engineers
- (4) Special Topics in Food Technology and
- bb) in the area of specialisation
  - (1) Plant Engineering and Safety Engineering
  - (2) Process Analysis
  - (3) Process Plants
  - (4) Environmental Process Engineering
  - (5) Chemometrics
  - (6) Food Packaging
  - (7) Refrigeration Technology
  - (8) Applied Biochemistry and Nutritional Physiology
  - (9) Membrane Technology and Particle Technology
  - (10) Machine Technology in the Food Industry
  - (11) Principles of Refrigeration

of which modules totalling 30 credit points must be selected, of which modules totalling at least 10 credit points must be selected from the area of fundamentals-oriented specialisation.

One of five fields of study must be chosen.

(4) The required examinations assigned to the modules, their type and design are specified in the module descriptions. Unless otherwise specified in the module descriptions, the subject of the examinations is the content and the competences to be acquired in the module.

(5) The student may take an examination in modules other than those provided for in paragraph 1 (additional modules). These module examinations can be optionally taken from the entire range of modules offered by the Technische Universität Dresden or a cooperating university after consultation with the respective provider or the examiner. They are not included in the calculation of the student workload and are not taken into account in the formation of the overall grade.

## **§ 27**

### **Processing time of the Diploma thesis and duration of the colloquium**

(1) The processing time of the Diploma thesis is 20 weeks, 27 credit points are acquired. The topic, task and scope of the Diploma thesis shall be limited by the supervisor in such a way that the deadline for submission of the Diploma thesis can be met. In individual cases, the Examination Board may exceptionally extend the processing time by a maximum of two months upon justified application by the student; the number of credit points remains unaffected by this.

(2) The colloquium has a duration of 60 minutes. Three credit points are earned.

## **§ 28**

### **Diploma degree**

If the Diploma examination is passed, the university degree "Diplom-Ingenieurin" or "Diplom-Ingenieur" (abbreviated: "Dipl.-Ing.") is awarded.

### **Section 3: Final provisions**

#### **§ 29**

#### **Entry into force, publication and transitional provisions**

(1) These examination regulations shall enter into force on 1 June 2019 and shall be published in the Official Announcements of the Technische Universität Dresden.

(2) It shall apply to all students newly enrolled in the Diploma degree programme in Process Engineering and Natural Materials Technology in the winter semester 2019/2020 or later.

(3) For students enrolled earlier than the winter semester 2019/2020, the examination regulations for the Diploma degree programme in Process Engineering and Natural Materials Technology previously valid for them before the entry into force of these regulations shall continue to apply.

(4) These examination regulations shall apply from the winter semester 2020/2021 for all students enrolled in the Diploma degree programme in Process Engineering and Natural Materials Technology.

(5) In the case of transfer according to Paragraph 3 or Paragraph 4, the module examinations already completed, including the grades, shall be transferred ex officio, and individual examination performances shall also be transferred ex officio on the basis of equivalence tables which are determined by the Examination Board and announced in the customary manner of the faculty. With the exception of § 15 Paragraph 5, module examinations and examinations not graded with at least "sufficient" (4.0) or "passed" shall not be transferred. As a rule, the module grade is not recalculated on the basis of the grades of exclusively transferred examinations; exceptions can be found in the equivalence tables.

Issued on the basis of the resolution of the Faculty Council of the Faculty of Mechanical Science and Engineering of 16 November 2018 and the approval of the Rectorate of 12 February 2019.

Dresden, 29 April 2019

The Rector  
of the Technische Universität Dresden

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

## **Annex 1**

### **Modules whose module grade is included in the overall grade of the Diploma examination according to § 11 Paragraph 4 Sentence 2**

1. Measurement and Automation Engineering
2. General and Engineering-Specific Qualifications in Process Engineering and Natural Materials Technology
3. Subject-Related Internship
4. Research Internship
5. Interdisciplinary Technical Qualification of Process Engineering and Natural Materials Technology
6. Modules of the chosen field of study according to § 26 paragraph 3, which are included in the Diploma examination according to § 26 paragraph 1

## **Annex 2**

**Modules whose module grade is used to form an overall grade for the interim certificate according to § 21 (2) pursuant to § 11 (4) sentence 4**

1. Fundamentals of Mathematics
2. Engineering Mechanics
3. Fundamentals of Chemistry
4. Business Administration and Language Skills
5. Physics
6. Computer Science
7. Design Theory
8. Fundamentals of Material Science
9. Engineering Mathematics
10. Fundamentals of Kinematics and Kinetics
11. Fundamentals of Electrical Engineering
12. Engineering Thermodynamics/Heat Transfer
13. Special Topics of Mathematics
14. Physical Chemistry and Biochemistry
15. Processing Machines and Apparatus Technology
16. Introduction to Process Engineering and Natural Materials Technology
17. Fundamentals of Fluid Mechanics