

Care was taken to ensure the text of these regulations is accurate and up-to-date; the present version may nevertheless contain errors. The official, legally binding version can be viewed in the Examinations Office, the Student Advising Office, or online at

<http://www.uni-bayreuth.de/de/universitaet/organisation/abt1/amtliche-bekanntmachungen/index.html>.

Please note the effective dates of the amendments.

**Examination & Study Regulations
for the international master's programme
Biofabrication at the
University of Bayreuth dated
5 July 2016**

**as amended on 1 August 2019 (fourth set of
amendments)**

Article 13 para 1 sentence 2 in conjunction with Article 58 para 1 sentence 1, Article 61 para 2 sentence 1 of the Bavarian Higher Education Act (*BayHSchG*) forms the framework for the following regulations issued by the University of Bayreuth.

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§ 1

Purpose of the master's examination

- (1) 1The international master's programme *Biofabrication* is carried out by the University of Bayreuth's Faculty of Engineering Science. 2The master's programme *Biofabrication*, including all examinations, is conducted in English.
- (2) 1The master's examination, as the conclusion of university studies in the master's programme *Biofabrication*, determines whether the candidate has acquired the expertise stipulated in the present Examination & Study Regulations. 2In addition, it is determined whether the candidate has the ability to work independently according to known methods used in materials science and whether he or she has an understanding of subject-specific and interdisciplinary connections in the field of biofabrication to such an extent that he or she is capable of further independent scientific work. 3The University of Bayreuth, by way of the Faculty of Engineering Science, awards the degree Master of Science (abbreviated M.Sc.) for successful completion of the examination with the following addition in the certificate: "in the Master's Programme *Biofabrication*".

§ 2

Admission to the programme of study, qualification, and registering for examinations

- (1) Admission requirements for the master's programme *Biofabrication* are as follows.
 1. a university degree (or completed studies) in a bachelor's programme (earning 180 ECTS points) in materials science and materials engineering or engineering science at the University of Bayreuth or an equivalent degree (according to Annex 1), and
 2. a strong command of English. Applicants who did not earn their higher education entrance qualification or initial degree in the English language can demonstrate their English language skills by way of a thesis in an English-taught programme of study taught at a higher education institution, or by way of a B2-level language certificate according to the Common European Framework of Reference for Languages, and
 3. basic knowledge of the German language. Applicants who did not earn their higher education entrance qualification or their initial degree that enabled them to enrol in studies in the German language can demonstrate their German language skills by achieving level A1 of the Common European Framework of Reference for Languages or with a final thesis in a German-taught programme of study at a higher education institution. Candidates who do not meet this requirement will be enrolled under the condition

- that they submit proof of their German language skills by the end of their second semester of study.
4. evidence of having passed the aptitude assessment process described in Annex 3, and
 5. proof of having completed an internship in the industry lasting at least thirteen weeks. If such proof cannot be provided at the beginning of the programme of study, the proof must be provided within half a year. Details on the content and proof of the internship in the industry are governed by the internship regulations of the Faculty of Engineering Science.
- (2) ¹The board of examiners for the *Biofabrication* master's programme decides whether the requirements according to para 1 No. 1 are fulfilled and whether the required language skills according to para 1 No. 2 are present.
- (3) ¹If, in the case of a degree, the coursework and examinations are not equivalent in terms of content and scope in accordance with para 1 number 1, then it is made a condition that these components must also be completed in addition to the coursework and examinations to be completed in the master's programme (see Annex 1). ²If a candidate does not duly register for the relevant examinations in a timely manner so that he or she can take the examinations for the first time by the end of the examination period of the first semester, the requirements for admission to the programme of study are deemed not to have been met, unless the student is not responsible for the reasons for not registering in time. ³Failure to do so in accordance with § 22 shall be considered an attempt for the purposes of these provisions. ⁴Stipulated tests that are failed can only be repeated once. ⁵A second repetition is excluded. ⁶The supplementary examinations must be successfully passed by the end of the examination period of the second semester of study; otherwise, the admission requirements to the programme of study are not considered to be fulfilled.
- (4) For admission to the master's programme *Biofabrication*, the sum of the such credits from additional courses, less the credits awarded for all courses according to § 7, may not exceed 30 credit points.
- (5) Such decisions as described in paragraphs 3 and 4 are to be made by the board of examiners in compliance with Article 63 BayHSchG.
- (6) ¹If the bachelor's certificate or equivalent diploma has not yet been issued, a confirmation of all individual grades and examinations for courses completed up to the date of registration must be submitted. ²Such assessment components must amount to a total of at least 150 credit points. ³Applicants who fulfil the requirements of sentence 2 are to be enrolled on the condition that they submit the relevant degree certificate by the end of their second semester of study.

- (7) Students who are enrolled in the master's programme *Biofabrication* are considered *ipso facto* to be admitted to the examinations.

§ 3

Structure of the programme and the master's examination; standard period of study

- (1) ¹Studying in the master's programme *Biofabrication* is divided into modules according to Appendix 2. ²The course of studies consists of the following sub-areas:

1. General Section
 - a) *Material and Natural Science*
 - b) *Engineering Science*

The areas a) and b) consist of compulsory and elective areas, whereby in the elective areas further modules can be taken voluntarily in addition to the required 5 credit points.

- c) Transferable skills
 2. Advanced Level
 3. Master's Thesis
- (2) The period of study is four semesters including all examinations and the master's thesis (standard period of study).
- (3) With the exception of the master's thesis and the Advanced Module/International Advanced Module, all examinations are taken during the course of the programme.
- (4) A total of 120 credit points must be earned in accordance with the European Credit Transfer System (ECTS).
- (5) New students may begin the programme in the winter semester or the summer semester.

§ 4

Board of examiners

- (1) ¹A board of examiners shall be formed to make the necessary decisions with regard to admission to the master's programme and the organizational execution of the master's examination. ²The board of examiners shall carry out the examination procedure in accordance with the present regulations and make all decisions with the exception of the actual examinations and the assessment thereof. ³The board is made up of a chair and three additional members;

the chair and additional members shall each have one substitute. The members of the board of examiners and their substitutes shall be elected by the faculty council from among the professors involved (Article 2 para 1 sentence 1 number 1 of the Bayerisches Hochschulpersonalgesetz) in the Faculty of Engineering Science for a term of five years.
5The board of examiners shall elect a chair and deputy chair from among its members.

- (2) 1The board of examiners constitutes a quorum if the majority of members are present and entitled to vote after an invitation had been sent to all members at least three days prior to the meeting. 2The decisions taken by the board of examiners in its meetings are to be made on the basis of majority vote. 3Vote abstention, secret voting, and proxy voting are prohibited. 4If votes are equally divided among its members, the chair shall have the casting vote.
- (3) 1The chair of examiners shall ensure that the provisions of these regulations are followed. 2He or she shall convene the meetings of the board of examiners and shall act as chair of its proceedings and decisions. 3With regard to matters that cannot be postponed, he or she is authorized to make decisions on behalf of the board of examiners. 4He or she must promptly inform the other members of any such decision - at the next meeting at latest. 5In addition, unless otherwise provided by the present regulations, the board of examiners can transfer (until revoked) the right to perform other duties of the board to the chair. 6The chair can delegate tasks to members of the board of examiners.
- (4) The board of examiners shall regularly report to the faculty council concerning updates to examination schedules and study periods and may make suggestions for reforming the present regulations.
- (5) 1Any notices the board of examiners issues under the terms of the present regulations are to be published together with a rationale and information concerning the right to appeal the decision. 2Notices of appeal shall be issued by the president in consultation with the board of examiners.
- (6) At the request of the examinee or examiner, the chair of examiners or a member of the board of examiners appointed by the chair may be present for the examinations.

§ 5

Examiners and co-examiners

- (1) 1Any person who is authorized to administer examinations at institutions of higher education according to the Bavarian Higher Education Act (*BayHSchG*) and the *HSchPrüferV*, as amended, may serve as examiner. 2Any member of the University of Bayreuth who is a graduate of the programme or an academic programme of study in a related subject area may serve as co-examiner.
- (2) 1If a member of the University of Bayreuth who is an authorized examiner leaves the University, he or she may - if his or her request is approved by the board of examiners - remain an examiner for a reasonable period. 2Authorization to administer examinations shall generally remain valid for up to three years.
- (3) 1Unless otherwise decided by the chair of examiners, the relevant instructor shall also serve as examiner. 2If that instructor is not authorized to administer examinations as laid out in the present regulations, the chair of examiners shall appoint an examiner at the beginning of the semester in which the examination is to be held.

§ 6

Disqualification due to personal involvement; confidentiality

- (1) Disqualification from consultation and voting on the board of examiners as well as other activities relating to examinations on the basis of personal involvement is governed by Article 41 para 2 of the *BayHSchG*.
- (2) The non-disclosure obligation that holds for members of the board of examiners, as well as examiners, co-examiners, and anyone else involved in the examination process is governed by Article 18 para 2 of the *BayHSchG*.

§ 7

Credit transfer

- (1) Awarding credit for competencies (learning outcomes) is governed by Article 63 para 1 and 2 of the Bavarian Higher Education Act (*BayHSchG*).
- (2) 1If credits are awarded for competencies, the grades are to be carried over and included when calculating the final grade, as long as the grading systems are analogous. 2If the grading system for the competencies to be transferred does not correspond to the grading system given in § 15

the grades from the other higher education institution are calculated using the Modified Bavarian Formula

$$x = 1 + 3 \cdot (N_{\max} - N_d) / (N_{\max} - N_{\min})$$

where x is the grade to be calculated, N_{\max} is the highest possible grade, N_{\min} is the highest passing grade, and N_d is the actual grade; in this calculation, the grade to be calculated is only given to one decimal place and is not adjusted to fit the grading scale given in § 15. ³If the grading systems are not analogous, the remark "*bestanden*" ["passed"] shall appear in place of a grade; in this case, the course shall not be taken into account when calculating the final grade. ⁴The chair of examiners in consultation with the relevant representative from the subject area shall decide whether the requirements have been met for credit transfer. ⁵If credit transfer is denied, the person concerned can appeal the decision by submitting a request for the University Governing Board to review the decision within four weeks of notification of denial. ⁶The University Governing Board shall provide the board of examiners with a recommendation on how to proceed with the request.

- (3) Credit transfer requests are to be submitted to the board of examiners as soon as possible following enrolment and in any event prior to completing the examination proceedings in the relevant module.

§ 8

Times for holding examinations; announcing examination times and examiners

- (1) Written and oral examinations are held once a semester. ²As a rule, the examination periods last from the beginning of the semester break until the beginning of the lecture period; they are announced by the chair of examiners.
- (2) ¹If not listed in the annex, the examination times and the relevant form and duration of examinations shall be determined by the relevant examiner and published university-wide, generally at the start of the semester. ²A change of examiner on short notice shall only take place if there are urgent grounds for doing so.
- (3) Students are to register for examinations by the published deadline, according to the process determined by the board of examiners.

§ 9

Elements of the examination

- (1) The master's examination comprises the module examinations listed in Annex 2 and the master's thesis.
- (2) The examinations serve to demonstrate that the examinee has satisfied the desired learning outcomes of the individual modules.

§ 10

Forms of examination

- (1) ¹The examinations are taken in the form of written or oral module examinations or portfolio assessments. ²In addition to written and oral examinations, portfolio assessments may include oral presentations and papers, written minutes and written compositions. ³The possible forms of examination in the modules are given in Annex 2.
- (2) ¹Assessment of examinations is to be carried out according to the process determined by the board of examiners. ²Notifications are not sent individually. ³Students are required to familiarize themselves independently with the terms of the present regulations pertaining to repeating examinations; they are responsible for informing themselves of examination results.
- (3) If an examination is assessed by more than one examiner, the grade shall be determined by taking the average of the grades assigned and truncating (not rounding) the number to one decimal digit.
- (4) ¹Written examinations are to last at least 60 minutes and no longer than two hours; the duration of each examination should be appropriate to the requirements of the relevant course and is listed in Annex 2. ²The relevant examiner shall decide which resources may be used. ³A written record of the examination is to be made. ⁴The invigilator shall confirm the accuracy of the record by providing his or her signature. ⁵The examination record sheet is to include all aspects of the examination that could be relevant to determining the grade. ⁶The student may voluntarily complete written examinations in several parts if this is possible for the relevant module; this is indicated in the appendix for the respective module. ⁷When registering for the module examination for the first time, it must be stated whether the examination will be taken in several parts. ⁸If a divided module examination is not passed in all parts, it is to be marked as "*nicht ausreichend*" ["unsatisfactory"].

- (5) 1If a candidate arrives to the examination late, he or she shall not be given additional time to finish the examination. 2Candidates may leave the room during an examination if permission is granted by the invigilator. 3The time and duration of absence are to be noted on the question paper.
- (6) 1Written examinations are generally graded by the examiner who was appointed by the chair of examiners. 2The relevant examiners determine the grades for the individual examinations under the terms of § 15. 3An assessment of each written examination shall be provided no later than six weeks after the examination. 4If an examinee receives the grade "*nicht ausreichend*" ["unsatisfactory"] on a written examination, a second examiner shall also provide an assessment. 5The graded written examination shall remain in the examination records.
- (7) 1Oral examinations are to be held over a period of 15 to 45 minutes, depending on the requirements of the particular course. 2The oral examination will be conducted in English by one examiner with the assistance of a co-examiner or by two examiners. 3The examination can be conducted in groups of no more than four candidates. 4If an examination is conducted in groups, it shall be held over a period of no longer than 60 minutes for the whole group. 5At the request of by the candidate and in consultation with the relevant examiners, the oral examination may also be held in the German. 6One co-examiner or one examiner completes an examination record sheet for the oral examination that includes the following: location, start time, and duration of the examination; examination subject-matter and results (grade); names of the two examiners or of the examiner and co-examiner; and any noteworthy incidents. 7The record sheet must be signed by the examiner and the assessor or by both examiners. 8The examiners are to determine the grades for performance in the oral examinations under the terms of § 15.
- (8) 1If the audience for an oral examination must be limited due to room capacity, those students who wish to take the same examination within the next two semesters are to be given preference. 2The examination can be conducted without an audience if so requested by the candidate. 3Discussion and announcement of the oral examination results (grade) shall not be conducted in public.
- (9) 1Presentations, lectures, minutes, and written elaborations (e.g. internship reports, project reports) are limited to seminars, internships, study projects, the Summer Academy, the Advanced Modules, and International Advanced Modules.

²These involve either an oral presentation, a written assignment, or an oral presentation with written documentation containing subject-related content in accordance with the criteria given. ³The examiner shall communicate the form and scope of the assignment to the students at the beginning of the session. ⁴Assessment components are to be graded on a pass/fail basis (option 1) or according to the terms of § 15 (option 2). ⁴If sentence 4 option 1 applies, the examination results shall not factor into the final grade. ⁵In case of a failing grade, the regulations for repeating examinations in § 18 shall apply.

- (10) ¹In a portfolio assessment for a module, interdependent assignments are completed according to the requirements given by the examiner or examiners in order to achieve a greater unified assignment. ²Such contributions may include written, oral, or practical assessment components whose individual scopes are below the limits in paras 4, 7, and 9 and do not jointly exceed these limits. ³In portfolio assessments, all component assignments must be completed successfully; the module grades shall be determined according to the weighting indicated for each module in the annex.

§ 11

Master's Thesis

- (1) ¹The candidate's master's thesis should demonstrate that he or she is able to utilize relevant resources and adequately address and write about current issues in the field using scientific methods. ²The master's thesis is understood as a written exposition on a current topic in the field of biofabrication.
- (2) ¹The master's thesis can be assigned and supervised by any university instructor of the corresponding subject who is a member of the Faculty of Engineering Science and entitled to administer examinations according to § 5 para 1, in agreement with the chair of examiners. ²With the consent of the board of examiners, it may also be held outside the Faculty of Engineering Science at other institutes/institutions within and outside the University of Bayreuth if it is supervised there by a person entitled to administer examinations in accordance with sentence 1. ³A topic for a master's thesis can only be assigned to a candidate once he or she has earned at least 55 credit points in the programme. ⁴Record is to be made of the date on which the topic was assigned. ⁵The topic of a master's thesis must be approved by the chair of examiners prior to assignment of the topic. ⁶The candidate must ensure that he or she receives a topic for the master's thesis in a timely manner. ⁷ If he or she is unable to do so, the

chair of examiners, at the request of the candidate, will ensure that he or she is assigned a topic for the master's thesis. 8 The candidate may make suggestions for the topic.

9 There is no legal entitlement to the assignment of a specific topic.

- (3) 1The master's thesis is normally to be completed within a period of six months from the date of assignment to the date of submission. 2The topic and scope of the master's thesis as well as the issues to be addressed are to be determined by the supervisor such that the deadline for submitting the master's thesis can be met and the workload corresponds to 30 credit points, i.e. 900 hours of work.
3In cases in which the candidate was not at fault for missing a deadline, at the request of the candidate the chair of examiners, after having heard the supervisor, can extend the deadline by up to three months. 4If the candidate demonstrates via a medical certificate that he or she was unable to work on the thesis due to illness, the deadline is to be extended accordingly. 5Theses that are not submitted by the stated deadline are to be graded as "*nicht ausreichend*" ["unsatisfactory"].
- (4) 1The master's thesis is to be submitted in the English language. 2The thesis must contain a table of contents and bibliography. 3The master's thesis shall contain a statement at the end in which the author confirms that he or she wrote the thesis himself or herself and did not make use of any sources or materials that are not cited in the thesis; It shall also be confirmed that the thesis had never before been submitted toward fulfilment of an academic degree.
- (5) 1The thesis is to be submitted to the Examinations Office by the deadline given. 2Record is to be made of the date on which the thesis was submitted.
- (6) 1Three typewritten, paginated, and bound copies of the master's thesis are to be submitted. 2An additional copy is to be submitted to the Examinations Office electronically.
- (7) 1The candidate may return the topic to the board of examiners once within the first two months. 2Paragraphs 1 to 6 also apply when assigning and working on a new topic. 3If the master's thesis is repeated, the topic may not be returned.
- (8) 1The master's thesis is assessed by the examiner who assigned and supervised the topic of the master's thesis and independently by a second examiner. 2The second examiner is appointed by the assignment supervisor. 3The assessment of the master's thesis should be completed within two months. 4Each examiner shall provide the board of examiners with a recommendation as to whether the thesis is to be accepted or rejected and shall assign a grade in accordance with § 15. 5For the grade of the master's thesis, the

- grades provided by the two examiners are averaged. ¶In this calculation, the grade shall only be given to one decimal place; the remaining digits are to be truncated (not rounded). 7If the two grades awarded by the examiners differ by more than one grade, the board of examiners may consult a further examiner; sentences 5 and 6 apply *mutatis mutandis*.
- (9) 1The master's thesis is accompanied by a viva voce examination, which is obligatory. 2The viva voce will only take place if the thesis has been graded "ausreichend" ["sufficient"] (4.0) or better by all examiners in accordance with para 8. 3The date for the viva voce is agreed between the candidate and the examiners. 4The viva voce is held publicly at the university; the public shall be excluded at the candidate's request. 5The viva voce comprises a 20-minute oral presentation and a 30-minute examination discussion, both of which are in English. 6Each examiner assigns an individual grade in accordance with §15, and a single grade is then determined by taking the average of these grades. 7If one or more examiners assigns the grade of "nicht ausreichend" [unsatisfactory] for the viva voce, it is failed. 8It can be repeated once.
- (10) 1The overall grade of the master's thesis is calculated from the average individual grade of the written master's thesis according to para 8 and the average individual grade of the viva voce examination. 2The averaged individual grade for the written master's thesis is weighted three times, the individual grade for the viva voce examination is weighted once when evaluating the overall grade for the master's thesis. 3In this calculation, the grade shall only be given to one decimal place; the remaining digits are to be truncated (not rounded). 4In this form, the grade of the master's thesis is included in the calculation of the overall grade.
- (11) 1If the master's thesis is deemed "*nicht ausreichend*" ["unsatisfactory"], the chair of examiners or his or her deputy shall inform the candidate of the decision. 2A master's thesis on a given topic may not be submitted a second time.
- (12) One copy of the master's thesis is to remain on record.

§ 12

Credit point system

- (1) 1A record of credit points for completed modules is to be kept by the Examinations Office for each student who is enrolled in the master's programme *Biofabrication*. 2The credit points that appear on the transcript are identical with credit points as stipulated in the European Credit Transfer System. 3One credit point corresponds to a student workload of 30 hours.

- (2) The credit points for the modules and the weighting of the examinations are given in Annex 2.

§ 13

Consideration of extenuating life circumstances

- (1) ¹The utilization of protection periods of the Maternity Protection Act (MuSchG) must be guaranteed. ²Upon request, it must be ensured that parental leave can be taken in accordance with the Federal Parental Benefits and Parental Leave Act (BEEG) as well as the times for care of a close relative within the meaning of § 7 para 3 of the Care Time Act (PflegeZG) who is in need of care within the meaning of §§ 14, 15 of Book XI of the Eleventh Book of the Social Code (SGB XI). ³The appropriate evidence must be furnished; any changes in status are to be reported immediately.
- (2) ¹If duly requested, periods during which study was impossible or only possible to a limited extent for reasons beyond the student's control shall not be taken into account with regard to the examination schedule. ²Corresponding evidence must be furnished; medical certificates must be presented in the case of illness. ³Any changes in status are to be reported immediately.

§ 14

Consideration of the special needs of disabled persons

¹For the sake of ensuring equal opportunities, the particular needs of disabled examinees are to be appropriately accommodated. ²Upon written request, the board of examiners shall determine on the basis of the degree of disability in what form a disabled examinee is to take the examination; alternatively, an extension may be granted. ³Evidence of disability is to be provided by way of a medical certificate, which confirms that the candidate is unable (entirely or in part) to take the examination in its usual form due to a lasting or permanent disability. ⁴The request is to be submitted together with the examination registration. ⁵If the request is submitted later, it shall only be valid for subsequent examinations.

§ 15

Examination grades

- (1) The following grading scale will be used in the assessment of the individual assignments and examinations; the digit to the right of the comma enables a more differentiated assessment between the whole-number values.

"sehr gut" (excellent)	= 1,0 or 1,3
"gut" (considerably better than average)	= 1,7 or 2,0 or 2,3
"befriedigend" (average performance)	= 2,7 or 3,0 or 3,3
"ausreichend" (performance that meets the minimum requirements despite deficiencies)	= 3,7 or 4,0
"nicht ausreichend" (performance that does not meet the minimum requirements due to considerable deficiencies)	= 5,0

- (2) 1If a greater module examination is made up of multiple examinations, the grade for the module shall be established by calculating the average grade after weighting the components based on credit points. 2In this calculation, the grade shall only be given to one decimal place; the remaining digits are to be truncated (not rounded). 3Module grades are as follows:

average grade of 1,5 or better	= "sehr gut"
for an average grade of 1,6 up to and including 2,5	= "gut"
for an average grade of 2,6 up to and including 3,5	= "befriedigend" for
an average grade of 3,6 up to and including 4,0	= "ausreichend"
for an average grade of 4,1 and up	= "nicht ausreichend".

§ 16

Final grade

- (1) 1The overall grade for the master's examination is calculated by taking the arithmetic mean of the module grades and the grade for the master's thesis, weighted according to the credit points awarded for each module. 2In this calculation, the grade shall only be given to one decimal place; the remaining digits are to be truncated (not rounded). 3Additional examination elements taken under the terms of § 24 para 3 are not taken into account when calculating the final grade.
- (2) Candidates with a grade average of up to 1,2 receive the grade "excellent" as the overall grade for the master's examination, up to 1,5 the grade

"very good", up to 2,5 "good", up to 3,5 "satisfactory", up to 4,0 "sufficient".

- (3) Calculation of the final grade is to be carried out by the chair of examiners; the certificate or an attached document shall indicate how the final grade was calculated.
- (4) ¹In addition to the degree certificate, an ECTS grading table will be issued as stipulated in the ECTS guidelines in the version dated 6 February 2009. ²This table displays what percentage of programme graduates in a given time frame received the same final grade as described in para 2. ³Those programme graduates who were awarded their diplomas in the previous four semesters shall serve as the reference group as long as it includes at least 30 persons. ⁴The date of the last assessment component shall be decisive in assigning graduates to a particular semester. ⁵If the minimum number of graduates is not reached, the number of previous semesters is to be extended until the minimum number is reached. ⁶If the programme of study does not yet have as many graduates as the minimum number required of the reference group, an ECTS grading table will be issued as soon as the minimum number is reached. ⁷For degrees awarded before the minimum number is reached, an ECTS grading table will be issued at a later date upon request once the minimum number has been reached. ⁸The graduate's own graduating class is also to be included in the reference group. ⁹The size of the reference group and the time frame is to be included.

§ 17

Passing the master's examination

- (1) Passing the master's examination requires a grade of "*ausreichend*" ["sufficient"] or better or "*bestanden*" ["passed"] for the master's thesis and each module; in addition, all 120 credit points must be earned and any requirements mentioned in § 2 para 3 must be fulfilled.
- (2) ¹If the candidate has not fulfilled the requirements given in para 1 by the end of his or her sixth semester of study due to reasons under his or her control, then the candidate shall be considered as having failed the master's examination on the first attempt. ²Examinations that were taken on time and for which the candidate received a passing grade need not be repeated.
- (3) ¹If the missing examinations are not passed by the student within a year of the deadline given in para 2 sentence 1 for reasons under his or her control, or if all possibilities to repeat the examinations have been exhausted, then the candidate shall be considered as having failed the master's examination on the final attempt. ²The deadline shall not take into account periods of leave and periods during which the candidate withdrew from study. ³A notice of having failed on the final attempt will be sent under the terms of § 4 para 5 in conjunction with Article 41 BayVwVfG (as amended). ⁴The board of examiners may grant the student an extension for special circumstances or reasons beyond his or her control if so requested by the student prior to the deadline given in sentence 1.

§ 18

Repeating examinations in individual areas

- (1) Each failed examination element can be repeated several times within the time limits of § 17.
- (2) ²The second repetition or following repetitions can be conducted as a written or oral examination; this is to be decided by the board of examiners as in § 8 para 2. ²Such examination may be held outside the examination period.
- (3) Voluntarily repeating examinations that were already passed or the master's thesis is not permitted.
- (4) ¹The master's thesis can be repeated with a new topic if the student receives a failing grade for the thesis. ²Repeating the master's thesis for a second time is not permitted.
- (5) Administrative measures shall be taken to ensure that it is possible to repeat the failed examinations or a failed master's thesis within six months.

§ 19

Notice of failing the master's examination

If a candidate has failed the master's examination on the final attempt, then a written notice shall be sent to him or her within two weeks upon request; the notice shall include a list of the grades in the individual subject areas.

§ 20

Access to examination documents

- (1) Following the conclusion of the examinations process, the candidate may upon request be granted access to his or her graded examination documents including the assessor's report as well as the record sheets for the examination.
- (2) ¹Such requests are to be made no later than one month after the degree certificate is awarded. ²If the candidate was prevented from meeting the deadline in sentence 1 due to reasons beyond his or her control, Article 32 of the Bavarian Administrative Process Act (*Bayerisches Verwaltungsverfahrensgesetz*) shall apply.

§ 21

Defects in the examination proceedings

- (1) If it is shown that there were defects in the examination proceedings which influenced the examination results, the candidate or the board on its own initiative shall request that the relevant examinations be repeated.
- (2) Any defects in the examination proceedings or condition preventing the candidate from completing the examination are to be reported to the examiner or the chair of examiners without delay, and in any case, prior to notice being given of the examination results.
- (3) Claims under the terms of paragraph 1 must be made within six months of the examination's conclusion.

§ 22

Non-appearance, withdrawal from examinations, cheating, and policy violations

- (1) ¹Candidates who have registered for an examination may withdraw without providing a rationale by withdrawing by the deadline announced by the board of examiners. ²If the candidate fails to appear for an examination for which he or she was registered for reasons under his or her control or withdraws subsequent to the deadline stated in sentence 1, he or she will be considered to have failed the examination.
- (2) ¹The grounds for failing to appear - or as long as paragraph 1 sentence 1 do not apply - for withdrawal must be submitted to the board of examiners without delay and substantiated by *prima facie* evidence. ²The same applies to inability to take the examination due to circumstances arising during the examination. ³Inability to take the examination due to illness must be documented with a medical certificate. ⁴If the board of examiners accepts the reasons given, a new examination time is to be offered under the terms of § 8 within six months.
- (3) If withdrawal or failure to appear is caused by reasons beyond the candidate's control, examinations elements completed up to that point are to be recognized.
- (4) ¹If the candidate attempts to influence the result on an examination by cheating or making use of materials that are not permitted, he or she shall be given the grade "*nicht ausreichend*" ["unsatisfactory"]. ²A candidate who causes considerable disruption to the course of an examination may be removed by the invigilator and barred from continuing the examination. In this case, he or she shall be given the grade "*nicht ausreichend*" ["unsatisfactory"].

- (5) ¹If a candidate plagiarizes, the relevant examination is to be graded as "*nicht ausreichend*" ["unsatisfactory"]. ²The accusation of plagiarism is justified if the candidate has attempted to influence the result of the examination in a way that is favourable to him or her by failing to specify passages that were borrowed verbatim from other authors, and also by failing to make special mention of explanations of his or her work that are closely based on the thought processes of other authors. ³The determination is made and recorded by the relevant examiner or invigilator. ⁴In serious cases or in the case of repetition, the entire examination can be declared failed and in particularly serious cases, the right to repeat the examination can be revoked and the entire examination can be declared failed on the final attempt. ⁵Such decisions are made by the board of examiners. ⁶When making decisions with regard to imposing sanctions, both the quantity of the plagiarism and its significance for the work must be assessed in each individual case.

§ 23

Invalidating the master's examination

- (1) If a candidate cheats during an examination and this fact does not come to light until after the degree certificate is issued, the board of examiners may retroactively change the relevant grades accordingly and declare the master's examination to be failed either in part or entirely.
- (2) ¹If the registration requirements for the examinations were not met by the candidate without this having involved any cheating on the part of the candidate, and if this fact does not come to light until after the degree is issued, then this fault shall be considered rectified via the candidate's passing of the master's examination. ²If the candidate registered by intentionally providing false information, the board of examiners shall decide whether to revoke any unlawful administrative acts on the basis of the general principles of administrative law.
- (3) The candidate shall be permitted to make a statement prior to the decision.
- (4) The inaccurate degree certificate is to be taken away and, if applicable, replaced with a new one.

§ 24

Awarding the degree Master of Science; certificate

- (1) ¹A diploma and a degree certificate for successful completion of the master's examination are to be issued within 4 weeks of demonstrating completion of the required module credits. ²The diploma is to include the title of the programme of study. ³It is to be signed by the Dean of the Faculty of Engineering Science and stamped with the seal of the University. ⁴Upon issuance of the diploma, the graduate is given the right to bear the title "Master of Science". ⁵This title is to be abbreviated "M.Sc." and placed behind the surname.
- (2) ¹The certificate is to include the title of the programme of study, the final grade, all module examinations and module examination elements undertaken (including credit points and grades achieved), as well as the topic of the master's thesis and the grade received for the master's thesis and additional credits as described in paragraph 3. ²The certificate is to be signed by the chair of examiners. ³The date to be used is the day of the last examination or the date on which the last assessment component was completed. ⁴An English translation of the diploma and a Diploma Supplement shall be issued in addition; the Diploma Supplement shall be signed by the chair of examiners. ⁵In addition to the certificate, an ECTS grading table is to be issued under the terms of § 16 para 4.
- (3) ¹It is possible to take additional examinations in the modules that are not selected from the core elective area as given in Annex 2. ²If a student wishes to earn additional credits, he or she must specify when registering for the examination that it is for the purpose of earning additional credits. ³Taking such examinations is subject to the same provisions to be observed for the compulsory examinations. ⁴There is no obligation to repeat failed examinations taken for the purpose of earning additional credits. ⁵The additional credits shall be included on the certificate as long as the student does not submit a request to the contrary.
- (4) Revoking the degree "Master of Science" is governed by Article 69 *BayHSchG*.

§ 25

Academic advising

- (1) General student advising is offered by the University of Bayreuth's Student Advising Office.
- (2) ¹The programme advisor for the master's programme *Biofabrication* is responsible for questions relating to the master's programme *Biofabrication* (i.e. about the programme, organization of studies, course selection, and questions concerning examinations).

- (3) Programme-specific advising is recommended especially for the following persons:
1. new students
 2. students who recently failed an examination,
 3. students who have considerably less than 30 credit points per semester,
 4. students choosing or changing their concentration,
 5. students transferring from a different degree programme or university,

§ 26

Effective date

1These regulations go into effect on 05 July 2016. 2They shall be valid for all students enrolling in this programme for the first time in Winter Semester 2016/17 or later.*)

*) The fourth set of amendments contains the following provisions with regard to the effective date:

These regulations go into effect on 2 August 2019.

Annex 1: Admission to the programme; qualification

A university degree within the meaning of § 2 para 1 no. 1 is deemed to be present if it includes the passing of examinations which are equivalent to the following examinations of a scientifically oriented relevant bachelor's programme:

- Engineering Mathematics I - II (16 ECTS)
- Experimental Physics for Engineers I (4 ECTS)
- Structure and Properties of Polymers (3 ECTS)
- Engineering Design (and CAD) (5 ECTS)
- Biochemistry for Engineers (4 ECTS)
- Biology for Engineers (4 ECTS)
- Chemistry for Engineers (4 ECTS) Total: 40 ECTS points

Annex 2: Modules and examinations

The following table displays the modules in the master's programme *Biofabrication*. The modules include the following forms of instruction: lecture, tutorial, internship, and seminar.

Modules in the **General Section**:

Abbreviation	Module	Semester hours	Credit points	Examination
	<i>Material and Natural Science</i>			
BF	Biofabrication	4	5	written module exam (60 min)
CB	Cell Biology	4	5	written module exam (60 min)
FTE	Fundamentals of Tissue Engineering and Quality Management	4	5	written module exam (90 min)
SAB	Self-Assembling Biopolymers	4	5	written module exam (60 min)
KMNS	Core Elective Area Subject-Related Skills Training: Material and Natural Science		5	
WAP	Core Elective Module: Advanced Polymers	4	5	written module exam (120 min)
WCM	Core Elective Module: Carrier Materials and Devices	4	5	written module exam (60 min)
WPM	Core Elective Module: Polymer Materials	4	5	written module exam (60 min)
WPC	Core Elective Module: Physical Chemistry of Polymers	4	5	written module exam (120 min) or oral module exam (45 min)
	<i>Engineering Science</i>			
BMA	Biomaterials	4	5	written module exam (60 min)
CAE	Computer Aided Engineering	4	5	portfolio assessment: written exam (90 min; weighting: 0.6); written work (weighting: 0.4)
CPC	Chemistry and Polymer Chemistry	4	5	written module exam (60 min)
PPM	Processing of Polymeric Materials	4	5	written module exam (60 min)
KES	Core Elective Area Subject-Related Skills Training: Engineering Science		5	

Abbreviation	Module	Semester hours	Credit points	Examination
WBE	Core Elective Module: Bioprocess Engineering	4	5	written module exam (60 min)
WBI	Core Elective Module: Biotechnology	4	5	written module exam (60 min); the internship is compulsory
WBT	Core Elective Module: Bioengineering for Tissue Regeneration	4	5	written module exam (60 min)
WCT	Core Elective Module: Coating Technology and Interface Engineering	3	5	written module exam (60 min); the internship is compulsory
WLA	Core Elective Module: Lab Course Automation	X	5	written report
WSM	Core Elective Module: Simulation of Materials	4	5	written module exam (60 min)
	<i>Transferable skills</i>			
MMT	Electives: Management Training and Entrepreneurship	X	6	Examination elements and grading depending on the relevant course (weighting of the grades according to the number of credit points*; if only one examination element is graded, this is considered to be the module grade); mandatory in MMT3
SF	Scientific Working	5	5	oral exam (30 min); must be completed in SF2 and SF3
	<i>Master's Thesis</i>			
MT	Master's Thesis		30	Graded written elaboration and graded viva voce (for duration and weighting see § 11 para 10).

* If more credit points than required are earned, only the courses with the best grades are taken into consideration in the calculation; the surplus credit points are dropped.

Modules in the area **Concentration:**

Abbreviation	Module	Semester hours	Credit points	Examination
SA	Summer Academy	X	5	written module exam (60 min)
	Core Elective Area: (24 credit points)			
AM	Advanced Module	X	3 x 8	Portfolio exam per module element: An oral presentation (30 min, weighting: 0.3) and a written report (weighting: 0.7).
IAM	International Advanced Module	X	24	Portfolio assessment: an oral presentation (30 min, weighting: 0.3) and a written report (weighting: 0.7).

Annex 3: Aptitude assessment process

¹The applicant's aptitude for studying in the master's programme *Biofabrication* at the University of Bayreuth is determined on the basis of the process under the terms of Article 43 para 5 sentence 2 BayHSchG. ²One requirement for admission to the programme of study is passing the aptitude assessment process. ³It is to be conducted in the English language and carried out as follows:

1. Purpose of the Assessment

¹The aptitude assessment process evaluates who is qualified for master's studies based on the following:

1. 1. educational background, especially work on which the initial degree was based, and
2. 2. subject-related and methodological skills in the areas of biofabrication listed in Annex 1.

²The aim is to assess whether the applicant fulfils the necessary prerequisites to succeed in the highly demanding master's programme *Biofabrication*, and whether he or she is able to achieve an advanced understanding of the field of biofabrication in medicine and technology and to carry out independent academic work. ³Qualifying for the master's programme *Biofabrication* requires evidence of aptitude in accordance with the following provisions.

2. Process for determining aptitude

2.1 ¹The aptitude assessment process is administered twice annually, for those starting their studies in the summer semester and those starting in the winter semester. ²The application for admission to the aptitude assessment process must be submitted online to the University of Bayreuth. ³The online application for admission must be received electronically by the University of Bayreuth by June 15 for the following winter semester and by November 30 for the summer semester (deadline). ⁴Document given in item a) can be submitted by 15 September (for the following winter semester) or 15 March (for the following summer semester) due to some reason beyond the applicant's control, in order to obtain final admission to the master's programme *Biofabrication*.

2.2 The written application must include:

2.2.1. evidence of work from the initial programme of study given in § 2 para 1 number 1,

- a) evidence of a degree from a higher education institution or an equivalent degree (if final admission to the master's programme is requested) or
- b) evidence of having earned 150 ECTS points or – in case of programmes not modularized according to the ECTS system – work that is equivalent in scope (in case conditional admission to the master's programme is requested),

2.2.2 ¹In addition, a *transcript of records* must be enclosed, stating the modules passed in relation to the master's programme *Biofabrication* (according to Annex 1) and the examinations assigned to them, including the ECTS points and examination grades awarded for them, as well as any credited assessment components, or, in the case of an application for admission to the master's programme subject to a condition precedent, a preliminary overview of examinations and coursework with the above information. ²In particular, the overview must make it clear that the applicant for the master's programme *Biofabrication* possesses the necessary competencies under the terms of § 2 para 1 number 1 (in case final admission to the master's programme is requested) or under the terms of § 2 para 6 (in case conditional admission to the master's programme is requested).

2.2.3 The application is to include evidence of a thorough knowledge of English as described in § 2 para 1 number 2.

2.2.4 If applicable, a request for compensation for disadvantages as described in § 14 is to be included.

3. Selection Committee

¹The aptitude assessment process is to be conducted by a committee made up of the programme advisor of the master's programme *Biofabrication* and two additional persons who hold courses in the programme of study and are authorized to administer examinations. ²Members are to be appointed by the faculty council of the Faculty of Engineering Science to serve a three-year term; repeated appointments are permissible. ³The chair and his or her deputy shall be elected on the basis of a simple majority vote.

4The committee constitutes a quorum if the majority of members are present and entitled to vote after an invitation had been sent to all members at least three days prior to the meeting. 5Elections and other decisions (in particular in the procedure for approval) are decided by simple majority. 6If votes are equally divided among its members, the chair's vote shall be decisive. 7The board may consult additional persons principally employed as academic staff members who are authorized to administer examinations.

4. Admission to the aptitude assessment process, scope and content of the aptitude assessment process, determining the results, record sheet

4.1 1Submission of the documents listed in number 2.2 on time and in full is a requirement for admission to the aptitude assessment process. 2Applicants who are not admitted are to be sent a notice of denial with a rationale and information concerning appealing the decision; number 5 applies *mutatis mutandis*.

4.2 1The selection process consists of two steps. 2The first step is a preselection of the written applications for admission to the master's programme *Biofabrication* that were submitted on time; on the basis of the documents submitted, the following is to be verified:

1. whether admission of the applicant to the master's programme without any further examination is justified on the basis of a special qualification or
2. whether on the basis of the suitability which cannot be conclusively assessed using the documents, a decision must be made on the basis of an additional examination, or whether
3. admission is to be rejected because of insufficient suitability already apparent from the documents.

4.3 An applicant is considered to be particularly qualified if he or she can present a relevant initial degree among the best 10 % of the relevant cohort at the respective university.

4.4 In these cases, aptitude is insufficient:

1. if in the initial degree (in the case of an applicant for final admission), which must be proved according to no. 2.2.1 letter a), not at least the grade sufficient (3.5) was achieved, or
2. if at least 150 ECTS points (in the case of an applicant for conditional admission) of the assessment components to be proven according to no. 2.2.1 letter b) have not been achieved in the scope of at least 150 ECTS points (in the case of an applicant for conditional admission) at least a provisional grade average of 3.5 as evidenced by the examinations office of the respective university.

4.5 ¹Applicants whose suitability could not yet be conclusively assessed in accordance with no. 4.2 sentence 2 will be invited to a selection interview (second stage of the aptitude process). ²The date and time of the interview are to be announced in writing at least one week in advance. ³The duration of the interview is about 20 minutes. ⁴The interview should provide further information on the applicant's suitability and show whether he or she meets the requirements of the master's programme *Biofabrication* in terms of the criteria mentioned in no. 1. ⁵For this purpose, the current status of the applicant's skills in the areas of biofabrication as provided for in Annex 1 shall be reviewed. ⁶This is intended to give the applicant the opportunity to demonstrate his or her current level of knowledge in these areas. ⁷The selection interview is conducted by two experts appointed by the aptitude committee with each individual applicant. ⁸The assessors' decisions are either "suitable" or "unsuitable." ⁹ The aptitude assessment process is only passed if the decision of both assessors is "suitable". ¹⁰Minutes must be taken of the course of the respective selection interview, which must show the date and place of the determination, the names of the experts, the names of the applicant, the main contents of the interview, the assessment of the assessors, and the overall result. ¹¹The record sheet is to be signed by the assessors.

5. Determining the Results

¹ The outcome of the aptitude process will be communicated to the applicant and, in the case of aptitude, this letter must be submitted by the applicant at the time of enrolment. ²Successful completion of the aptitude assessment process entitles the student to take up the master's programme *Biofabrication* within one year. ³Notices of denial are to include a rationale and information concerning the right to appeal the decision. ⁴As part of its supervisory duties in accordance with Article 20 para 3 sentence 1 *BayHSchG*, the University Governing Board, shall check a random sample of 10 % of denials of admission. The appropriate number of procedures will be reported to the University Governing Board by the chair of examiners.

6. Repeating the Aptitude Assessment Process and Conditional Enrolment

- 6.1 Applicants who did not provide evidence of aptitude for the master's programme *Biofabrication* can register for the aptitude assessment process one more time.
- 6.2 Applicants who are not yet able to submit a bachelor's certificate or a degree certificate that has been recognized as equivalent and who do not pass the aptitude assessment process may enrol for two semesters if it is possible for them to submit the degree certificate by the end of the second semester and to fulfil the requirements given in number 4.3.