



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 <https://www.amtliche-bekanntmachungen.uni-bayreuth.de/de/>. Please note the effective dates of the amendments.

**Examination and Study Regulations
for the International Master's Programme
Biofabrication
at the University of Bayreuth
dated 5 July 2016
as amended on 5 April 2023**

Article 13 para 1 sentence 2 in conjunction with Article 58 para 1 sentence 1 and 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 administered by the Faculty of Engineering Science at the University of Bayreuth. ²The master's programme Biofabrication, including all examinations, is conducted in English.
- (2) ¹The master's examination as the conclusion of the university studies in the master's programme in Biofabrication determines whether the candidate has acquired the specialized knowledge and competencies provided for in the present examination and study regulations. ²In addition, it is determined whether the candidate has the ability to work independently according to known material science methods and whether he or she has an overview of technical and interdisciplinary contexts 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 academic degree Master of Science (abbreviated M.Sc.) for successful completion of the examination.

§ 2

Admission to the programme; qualification

- (1) Admission requirements for the master's programme Biofabrication are as follows:
 1. a university degree in the bachelor's programme (acquisition of 180 ECTS credits) Materials Science and Engineering or Engineering Science at the University of Bayreuth or a degree equivalent thereto (according to Annex 1), and
 2. proof of English skills at level B2 or better of the Common European Framework of Reference for Languages for applicants who neither earned their higher education entrance qualification nor their initial degree in the English language.
 3. proof of German language skills at level A1 or better of the Common European Framework of Reference for applicants who neither earned their higher education entrance qualification nor their initial degree in the German language; Applicants who are unable to provide proof of these skills will be enrolled on the condition that they submit the proof by the end of the second semester of study at the latest and
 4. evidence of having passed the aptitude assessment process described in Annex 3, and
 5. proof of an industrial internship of at least twelve weeks. If the proof cannot be provided at the beginning of the programme, the proof must be provided within one year. Details on the content and proof of the industrial internship are governed by the internship regulations of the Faculty of Engineering Science.

- (2) ¹The board of examiners for the master's programme in Biofabrication decides whether the pre-requisites according to Paragraph 1 No. 1 and the required language competence according to Paragraph 1 No. 2 are fulfilled.
- (3) ¹If, in the case of a degree, the coursework and examinations taken are not equivalent in terms of content and scope in accordance with Para. 1 No. 1, then it will be made a requirement to complete such coursework and examinations in addition to the coursework and examinations to be taken in the master's programme (cf. Annex 1). ²If a candidate does not properly register for the corresponding conditional examinations in good time 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 degree programme shall be deemed not to have been met, unless the student is not responsible for the reasons for the late registration. ³Missing the deadline in accordance with § 23 shall be deemed to be a failure for the purposes of the present regulations. ⁴Examinations that were failed on the first attempt may be repeated only once. ⁵A second repetition is not permitted. ⁶The conditional examinations must be successfully completed by the end of the examination period of the second semester; otherwise, the requirements for admission to the degree programme shall be deemed not to have been met.
- (4) For admission to the master's programme Biofabrication, the sum of the such credits from additional courses, less the credits awarded for all competences according to § 8, 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 established in accordance with § 5, taking into account Art. 86 of the Bavarian Higher Education Innovation Act (BayHIG).
- (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 credit for examination elements must amount to a total of at least 150 ECTS 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 the 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 studies; standard period of study

- (1) The standard period of study is four semesters including all examinations and the master's thesis.
- (2) A total of 120 credit points including the master's thesis must be earned in accordance with the European Credit Transfer System (ECTS).

- (3) New students may begin the programme in the winter semester or the summer semester.

§ 4

Components of the programme of study

The master's programme Biofabrication is divided into modules and is made up of the following areas:

1. General part

- a) Biofabrication
- b) Biomaterials

Areas a) and b) consist of compulsory and core elective areas. The compulsory areas comprise 10 credit points each, the core elective areas 15 credit points each. Additional modules beyond the required 15 credit hours may be taken voluntarily.

- c) Transferable skills enhancement

2. Advanced level

3. Master's thesis

§ 5

Board of examiners

- (1) ¹A board of examiners shall be formed to make the necessary decisions with regard to the admission to the master's programme and the organizational execution of the master's examination. ²The board of examiners shall administer the examination proceedings in accordance with the present regulations and make all decisions with the exception of the examinations and the assessment thereof. ³It shall consist of four members, each having one substitute representative. ⁴The members of the board of examiners and their substitutes shall be elected by the faculty council from among the professors (Article 57 para 1 BayHIG) 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's vote shall be decisive.
- (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 of the Faculty of Engineering Science 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 how to appeal. 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.

§ 6

Examiners and co-examiners

- (1) ¹Any person who is authorized to administer examinations at institutions of higher education according to 85 BayHIG, 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 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 present regulations, the chair of examiners shall appoint an examiner at the beginning of the semester in which the examination is to be held.

§ 7

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 51 para 2 BayHIG.

- (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 26 para 2 BayHIG.

§ 8

Credit transfer

- (1) The recognition and crediting of competencies shall be determined in accordance with Art. 86 BayHIG.

- (2) ¹If credits are recognized 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 § 16, the grades received at the other higher education institution are to be converted using the Modified Bavarian Formula:

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

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 § 16. ³If a conversion according to sentence 2 is not possible, the board of examiners shall determine a corresponding key for the grade conversion. ⁴If a grade is not available and cannot be determined, the remark "passed" will be entered; in this case, it will not be included in the calculation of the final grade. ⁵The board of examiners in consultation with the relevant representative from the subject area shall decide whether the requirements have been met for credit transfer. ⁶If 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. ⁷The University Governing Board shall provide the board of examiners with a recommendation on how to proceed with the request.

- (3) Credit transfer/ recognition requests are to be submitted to the board of examiners as soon as possible following enrolment and in any event prior to beginning the examination in the relevant module.
- (4) Paragraphs 2 and 3 shall apply mutatis mutandis to the crediting of competencies, subject to the maximum limit pursuant to Art. 86 para 2 Sentence 2 BayHIG.

§ 9

Times for holding examinations; announcing examination times and examiners

- (1) Examinations will be held once per semester. ²The examination periods usually last from the beginning of the lecture-free period until the second week of the lecture period.
- (2) ¹If not listed in the annex, the examination times and the 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.

§ 10

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.

§ 11

Forms of examination

- (1) ¹The examinations are taken in the form of written or oral examinations or portfolio examinations. ²In addition to written and oral examinations, portfolio examinations may include oral presentations and papers, written minutes, and written assignments. 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 announced by the board of examiners. ²Notifications will not be 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) ¹If 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. ²If a written examination is assessed as "failed" or "unsatisfactory", it must be assessed by a second examiner.

- (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 during the examination. 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 are relevant to determining the grade. ⁶The student may voluntarily take written examinations in several parts, if this is possible for the respective module; this is indicated in the annex 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 graded as "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 proctor. 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 are to determine the grades for the written examinations under the terms of § 16. ³An assessment of each written examination shall be provided no later than six weeks after the examination. ⁴The 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 shall be conducted in English by one examiner with the assistance of one assessor or 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. ⁵In agreement with the candidate, the examiner may conduct an oral examination in German. ⁶One examiner or the co-examiner shall complete an examination record sheet for the oral examination that includes the following: the 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; name of the candidate, and any noteworthy incidents. ⁷The minutes must be signed by the examiner and the co-examiner or by both examiners. ⁸The examiners are to determine the grades for performance in the oral examinations under the terms of § 16. ⁹Para 4 sentences 6 and 8 also apply.
- (8) ¹In the case of an oral examination, students who intend to take the same examination within the next two semesters are given preference as listeners, within the limits of the space available. 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 report) 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 course.⁴Assignments are to be graded on a pass/fail basis (alternative 1) or according to § 16 (alternative 2).⁵If alternative 1 of sentence 4 applies, the examination result shall not factor into the final grade.⁶In case of a failing grade, the regulations for repeating examinations in § 19 shall apply.

- (10) ¹In a portfolio examination of a module, mutually related performances (partial examinations) on the same examination subject are performed as specified by the examiners.²The individual partial examination performances can be written or oral performances (according to para 4, 7 and 9), which in their entirety form the module examination for the module in question.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 Annex 2.

§ 12

Master's thesis

- (1) ¹The master's thesis written by the candidate 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.³The topic may include interdisciplinary issues.
- (2) ¹The master's thesis may be assigned and supervised by any examiner (§ 6 para 1) of the corresponding subject of the Faculty of Engineering Science or the Faculty of Mathematics, Physics & Computer Science or the Faculty of Biology, Chemistry & Earth Sciences or the Faculty of Life Sciences: Food, Nutrition & Health in consultation with the chair of examiners.²With the approval of the board of examiners, it may also be conducted outside the Faculty of Engineering Science at other institutions within and outside the University of Bayreuth if it is supervised there by an authorized examiner according to sentence 1.³Candidates may not be assigned a topic for their master's thesis until they have earned at least 55 credit points in the programme of study.⁴Record is to be made of the date on which the topic was assigned.⁵It is recommended that the master's thesis be completed in the fourth semester.⁶The topic of a master's thesis must be confirmed by the chair of examiners prior to assignment of the topic.⁷The candidate must ensure that he or she receives a topic for the master's thesis in good time.⁸If he or she does not succeed in doing so, the chair of examiners shall, at the candidate's request, ensure that the candidate is given a topic for the master's thesis.⁹The candidate may make suggestions for the topic.¹⁰There is no legal claim to the assignment of a particular topic.
- (3) ¹The master's thesis is integrated into the programme of study and corresponds to a workload of 900 hours.²The master's thesis is to be submitted no later than six months after the topic was assigned.³The chair of examiners may extend this deadline by up to three months at the request

of the candidate and after having heard the supervisor if there are reasons beyond the candidate's control; the request is to be submitted before the submission deadline for the master's thesis. ⁴If the candidate demonstrates via a medical certificate that he or she was unable to work on the paper, the deadline is to be extended accordingly. ⁵Term papers 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 independent 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 master's thesis must be submitted in electronic form (printable PDF document) by the deadline. ²Submission is carried out by uploading the document via the form server. ³The Examinations Office will make a note of the date on which the thesis was submitted.
- (6) Up to two copies of the master's thesis in typewritten form, bound and paginated, must also be submitted to the examiners by the deadline at the request of the first examiner.
- (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 being repeated, the topic may not be returned.
- (8) ¹The master's thesis is assessed by the examiner who issued and supervised the topic of the master's thesis and independently by a second examiner. ²The second examiner is appointed by the supervisor. ³If the two grades awarded by the examiners differ by more than one grade, the board of examiners may call in another examiner. ⁴The assessment of the master's thesis should be completed within two months. ⁵Each examiner shall provide a recommendation as to whether the thesis is to be accepted or rejected and assign a grade in accordance with § 16. ⁶For the grade of the master's thesis, the grades of the two examiners are averaged. ⁷In this calculation, the grade shall only be given to one decimal place; the remaining digits are to be truncated (not rounded).
- (9) ¹The master's thesis is accompanied by a viva voce, which is obligatory. ²The viva voce shall only take place if the thesis has been graded "sufficient" (4,0) or better by all examiners in accordance with Paragraph 8. ³The date for the viva voce shall be agreed between the candidate and the examiners. ⁴The viva voce shall be open to the public; at the request of the candidate, the public shall be excluded. ⁵The viva voce comprises a 20-minute oral presentation and a 30-minute examination talk, each in English. ⁶The viva voce shall be evaluated individually by the examiners in accordance with § 16; an averaged individual grade shall be calculated from these grades. ⁷If at least one examiner grades the disputation as "unsatisfactory" (5,0), it shall be deemed to have been failed. ⁸It can be repeated once.

- (10) ¹The overall grade of the master's thesis is calculated from the averaged individual grade of the written master's thesis according to paragraph 8 and the averaged individual grade of the viva voce. ²The averaged individual grade for the written master's thesis is weighted three times, the individual grade for the viva voce is weighted once in the evaluation of the overall performance of 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 determination of the overall grade. ⁵§ 11 para 2 applies mutatis mutandis.
- (11) One copy of the master's thesis is to remain on record.

§ 13

Credit point system

- (1) ¹A record of credit points for completed modules is to be kept by the University of Bayreuth's 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 workload of 30 hours.
- (2) The credit points for the modules are given in Annex 2.

§ 14

Consideration of protective provisions

- (1) ¹The utilization of protection periods of the Maternity Protection Act shall be guaranteed. ²Upon request, the claiming of parental leave in accordance with the Federal Parental Allowance and Parental Leave Act (Bundeselterngeld- und Elternzeitgesetz), as well as periods for the care of a close relative within the meaning of § 7 para 3 of the Nursing Care Act who is in need of care within the meaning of § 14 and § 15 of the Eleventh Book of the Social Code (Sozialgesetzbuch), shall be guaranteed. 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.

§ 15

Consideration of Special Needs of Students with Disabilities or Chronic Illness and in Special Life Circumstances

- (1) ¹For the sake of ensuring equal opportunities, the particular needs of examinees with disabilities or chronic illnesses under the terms of the Bavarian Equal Opportunities for Disabled Persons Act are to be appropriately accommodated. ²Upon written request, the board of examiners shall determine on the basis of the degree of disability or chronic illness in what form the examination is to be taken; alternatively, an extension or other reasonable accommodations may be granted. ³Proof of the examination disability or chronic illness must be furnished in the form of a medical certificate stating that, due to a long-term or permanent disability or chronic illness, the examination cannot be taken in whole or in part in the intended form. 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.
- (2) ¹Students in special circumstances may apply to the board of examiners for reasonable accommodations in examinations in accordance with paragraph 1. ²The board of examiners shall decide on the existence of a special life situation and the extent of reasonable accommodations.

§ 16

Grading of examinations

- (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) | = 2,7 or 3,0 or 3,3 |
| "ausreichend" (fulfils the minimum requirements despite deficiencies) | = 3,7 or 4,0 |
| "nicht ausreichend" (unsatisfactory 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 arithmetic mean after weighting the components based on credit points, unless a different weighting is given in Annex 2. 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:

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

§ 17

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). ³If more credit points are earned via core elective subjects than are required, only the modules with the best grades will be taken into account, taking into account the required credit points. ⁴Non-graded modules are only counted after the graded modules for the purpose of obtaining the required credit points. ⁵If the last module still to be taken into account exceeds the credit points of the module area, the assessment of this module will only be included in the calculation of the overall grade on a pro rata basis with the credit points still required. ⁶Additional voluntary examinations are not to be taken into account in the calculation of the final grade.
- (2) Candidates who pass the master's examination are to receive a final grade as follows: an average grade of 1,2 or better is "ausgezeichnet", up to 1,5 is "sehr gut", up to 2,5 is "gut", up to 3,5 is "befriedigend", up to 4,0 "ausreichend".
- (3) 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 examination 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.

§ 18

Passing the master's examination

- (1) Passing the master's examination requires a grade of "ausreichend" ["sufficient"] or "bestanden" ["passed"] or better for the master's thesis and each module; in addition, all 120 credit points must be earned and all 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 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. ³Notice shall be sent to inform the candidate that he or she has failed the examination on the final attempt in accordance with § 5 para 5 in conjunction with Article 41 BayVwVfG as amended. ⁴The board of examiners may grant the student an extension of the deadline for circumstances beyond his or her control if the student submits a request prior to the deadline described in sentence 1.
- (4) ¹The completion of further core elective modules in the core elective areas beyond the required scope is possible; § 17 para 1 is to be observed. ²There is no obligation to repeat failed examinations taken for the purpose of earning additional credits. ³The additional credits shall be included on the certificate as long as the student does not submit a request to the contrary.

§ 19

Repeating examinations

- (1) Each failed examination may be repeated multiple times within the period specified in § 18.
- (2) ²The second or additional repetition can be conducted as a written or oral examination; this is to be decided by the board of examiners as in § 9 para 2. ²Such examinations may be held outside the time frame for examinations.
- (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. ³If a master's thesis that has been started is not passed due to the maximum duration of study according to § 18 para 2, the master's thesis can be continued as a repetition until the scheduled deadline; the student must notify the Examinations Office in writing by the end of the maximum duration of study according to § 18 para 2. ⁴If the master's thesis is then deemed "unsatisfactory", the candidate is considered to have failed the master's examination on the final attempt.
- (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.

§ 20

Notice of failing the master's examination

Notice shall be sent to inform the candidate that he or she has failed the master's examination on the final attempt in accordance with § 5 para 5 in conjunction with Article 41 BayVwVfG as amended.

§ 21

Access to examination documents

- (1) Following the conclusion of the examinations process, the candidate may be granted access to his or her graded examination documents including the reviewer's report as well as the record sheets for the examination.
- (2) ¹Such requests are to be made within six months 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 BayVwVfG shall apply.

§ 22

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 are to be reported to the examiner or the chair of examiners without delay, and in general, 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.

§ 23

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 § 9 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"]. ²Any candidate who causes considerable disruption to the course of an examination may be removed by shall be given invigilator and barred from continuing the examination. In this case, he or she shall be given the grade "nicht ausreichend" ["unsatisfactory"].
- (5) ¹If cheating in the form of plagiarism is detected, the examination will be graded as "nicht ausreichend" ["unsatisfactory"]. ²The accusation of plagiarism is justified if the examinee has attempted to influence the result of the examination in a way that is favourable to him or her by failing to specifically mark passages taken verbatim from other authors and also explanations of his or her work that are closely based on the thought processes of other authors. ³The determination shall be made by the relevant examiner or invigilator and shall be recorded in the files. ⁴In serious cases or in the case of repetition, the entire module examination can be declared failed and, in particularly serious cases, the right to repeat the examination can also be withdrawn and the entire examination can be declared failed on the final attempt. ⁵The decision on this is taken by the board of examiners. ⁶In deciding on the imposition of the sanction, both the quantity of the plagiarism and its significance for the work must be assessed in each individual case.

§ 24

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.

§ 25

Awarding the master's degree; degree certificate

- (1) ¹Upon the student's request, a diploma and a degree certificate for successful completion of the master's examination are to be issued within four 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 modules and module examinations 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 any additional examination grades) shall be given as described in § 18 paragraph 4. 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 graded assignment was submitted. 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 § 17 paragraph 4.
- (3) Revoking the degree "Master of Science" is to be carried out in accordance with the legal regulations (Article 101 BayHIG).

§ 26

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 to be responsible for questions relating to the master's programme Biofabrication (i.e. structure of the programme, organization of studies, course selection, and questions concerning examinations).
- (3) ¹Each student will be assigned a professor from the Faculty of Engineering Science as a mentor at the beginning of their studies. ²Students are recommended to take part in an advising session with their mentors at least once a semester; to document this by requesting a signature on a designated sheet.
- (4) ¹In the course of the semester, the programme coordinator shall offer advising for all students enrolled in the master's programme. ²Programme-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 subject, degree programme, or university,

§ 27

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 the winter semester of 2016/17 or later.)

*) The set of amendments dated 05 April 2023 contains the following provisions with regard to the effective date:
These regulations go into effect on 06 April 2023.

Annex 1: Admission to the programme; qualification

A qualifying university degree within the meaning of § 2 para 1 no. 1 shall be deemed to exist if it includes the passing of examinations which are equivalent to the following examination performances of a scientifically oriented relevant bachelor's degree 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

Annex 2: Modules and Examinations

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

1. General part

Abbreviation	Module areas/ modules	Se- mes- ter hours	Cred it poin ts	Examination
a) Biofabrication				
	Required modules		10	
BF	Biofabrication	4	5	Portfolio assessment: Written exam (60 min, weighting 0.6) and talk (weighting 0.2) and internship report (weighting 0.2)
CB	Cell Biology	4	5	Written exam (60 min)
	Core Elective Modules		15	
BIS	Bioinspired Surfaces	4	5	Written exam (90 min)
BIT	Biotechnology	4	5	written exam (60 min); the internship is compulsory
CSI	Characterization of Soft (Bio)Interfaces	4	5	Written exam (120 min) or oral exam (45 min)
PMA	Polymer Materials	4	5	Written exam (60 min)
SAB	Self-Assembling Biopolymers	4	5	Portfolio assessment: Written exam (60min, weighting 0,7) and oral presentation (weighting 0,3)

Abbreviation	Module areas/ modules	Semester hours	Credit points	Examination
b) Biomaterials				
	Required modules		10	
BMA	Biomaterials	4	5	Portfolio assessment: Written exam (60min, weighting 0,7) and oral presentation (weighting 0,3)
MIE	Medical Implant Engineering	4	5	Portfolio assessment: Presentations and written elaboration
	Core Elective Modules		15	
	Either two modules in the Process Engineering concentration and one module in the Tissue Engineering concentration must be taken, or vice versa.			
	Elective modules focus on Process Engineering			
CAE	Computer Aided Engineering	4	5	Portfolio assessment: written exam (90 min, weighting 0.6) and written paper (weighting 0.4)
CPC	Chemistry and Polymer Chemistry	4	5	Written exam (60 min)
LCA	Lab Course Automation	1 + X	5	written minutes
PPP	Polymer and Polymer Processing	4	5	Portfolio assessment: Written exam (60 min) and lab report (equally weighted)
PTM	Polymer Testing and Modeling	4	5	Written exam (60 min)
	Elective Modules Focus on Tissue Engineering			
BPE	Bioprocess Engineering	4	5	Written exam (60 min)
BTR	Bioengineering for Tissue Regeneration	4	5	Portfolio assessment: a written exam in BTR1 (60min, weighting 0.7), written elaboration and oral presentation of a poster in BTR2 (weighting 0.3)
EPT	Electrocatalysis and Electrochemical Process Engineering	5	5	Portfolio assessment: Oral exam (20 min, 0.67) and talk (15 min, 0.33)
FTE	Fundamentals of Tissue Engineering and Quality Management	4	5	Written exam (90 min)

Abbreviation	Module areas/ modules	Semester hours	Credit points	Examination
SOM	Simulation of Materials	4	5	Written exam (60 min)

Abbreviation	Module areas/ modules	Semester hours	Credit points	Examination
c) Transferable skills			11	
IM	Innovation Management	4	6	Portfolio assessment: Written elaboration of case studies (weighting 0.6) and graded written elaboration of a final report (weighting 0.4) in IM1 and IM2
SF	Scientific Working	5	5	Portfolio assessment: Oral examination (30 min, weighting 0.5) and a written paper in SF3 (weighting 0.5) and compulsory execution in SF2

2. Advanced Level:

The core elective areas AM or IAM are to be taken alternatively.

Abbreviation	Module areas/ modules	Semester hours	Credit points	Examination
Area of specialization			29	
AM	Core Elective Area Advanced Module	X	3x8	Portfolio exam per module element: an oral presentation (30 min, weighting: 0.3) and a written report (weighting: 0.7).
IAM	Core Elective Area International Advanced Module	X	24	Portfolio assessment: an oral presentation (30 min, weighting: 0.3) and a written report (weighting: 0.7).
SA	Summer Academy	X	5	compulsory

3. Master's thesis

Abbreviation	Module areas/ modules	Semester hours	Credit points	Examination
	Master's thesis		30	
MT	Master's thesis		30	Graded written paper and graded viva voce (duration and weighting see § 12 para 9 and 10).

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 90 para 1 sentence 2 BayHIG. ²A 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. educational background, especially work on which the initial degree was based, and
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. ³Qualification 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 to be administered twice annually, for commencement in the summer semester and 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 of each academic year (cut-off deadline). ⁴Documents given in number 2.2.1 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, an overview of previous coursework and examinations (Transcript of Records) providing the modules that were passed in relation to the master's programme Biofabrication (under the terms of Annex 1) and the relevant examinations, including examination grades and ECTS points earned as well as any transferred credits; or, in the case conditional admission to the master's programme is requested, a provisional overview of completed coursework and examinations with the above-mentioned 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 strong command of English as described in § 2 para 1 number 2.

2.2.4 if applicable, an affirmative action application as described in § 15.

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 (especially in the aptitude assessment process) 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 how to appeal; 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. due to the suitability that cannot be conclusively assessed on the basis of the documents, a decision must be made on the basis of an additional review, or whether
3. admission is to be denied due to insufficient suitability that is already apparent from the documents.

4.3 Students are considered to be specially qualified if they have a relevant first degree in the top 10% of the relevant cohort at the respective university, or if they have completed the Massive Open Online Course (MOOC) "Biomaterials and Biofabrication: Design, Engineering and Innovation" at the University of Bayreuth leading to a certificate.

4.4 Suitability is deemed insufficient if

1. If the applicant did not receive at least a grade of "satisfactory" (3,5) in the initial degree to be provided according to number 2.2.1 item a) (in case final admission was requested), or
2. if at least a preliminary grade point average of 3,5, as determined by the examinations office of the respective university, has not been achieved in the grades to be proven according to number 2.2.1 item b), amounting to at least 150 ECTS points (in the case of an application for admission subject to a condition precedent).

4.5 ¹Applicants whose suitability has not yet been conclusively assessed in accordance with number 4.2 sentence 2 will be invited to a selection interview (second stage of the aptitude assessment process). ²The date and time of the interview are to be announced at least one week in advance. ³The duration of the interview is approximately 20 minutes. ⁴The interview is intended to provide further information about the applicant's suitability and to

show whether he or she meets the requirements of the master's programme Biofabrication as defined by the criteria listed in number 1. ⁵For this purpose, the applicant's current level of competency in the Biofabrication areas listed in Annex 1 will 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 with the individual applicant by two assessors appointed by the selection committee. ⁸The assessors' verdicts are either "suitable" or "not suitable". ⁹The aptitude assessment process is only passed if the verdicts of both assessors are "suitable". ¹⁰A record must be made of the course of the selection interview, showing the date and place of the assessment, the names of the assessors, the names of the applicant, the main content of the interview, the assessment of the assessors, and the overall result. ¹¹The record sheet is to be signed by the assessors.

5. Determination and notification of the outcome

- 5.1 The course of the aptitude assessment process must be documented; in particular, the decisions of the committee in accordance with the present regulations and the overall outcome must be evident.
- 5.2 ¹The outcome of the aptitude assessment process is to be sent to the applicant in writing. ²A notice of denial containing a rationale and information concerning the applicant's right to appeal is to be signed by the chair of the board. ³As part of its supervisory duties in accordance with Article 30 para 3 sentence 1 BayHIG, the chair of the selection committee, on behalf of the University Governing Board, shall check a random sample of 10 % of denials of admission.
- 5.3 Admission based on the aptitude assessment process for the master's programme Biofabrication shall remain valid for future applications to this programme of study as long as the content and goals of the programme do not change so significantly that aptitude for this programme can no longer be demonstrated by having undergone the aptitude assessment process at an earlier date.

6. Repeating the Aptitude Assessment Process and Conditional Enrolment

- 6.1 Applicants who did not provide evidence of aptitude for the international master's programme Biofabrication may 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 one semester if it is possible for them to submit the degree certificate by the end of the first semester and to fulfil the requirements given in number 4.3.