



UNIVERSITÄT
BAYREUTH

**Examination and Study Regulations
for the
International Master's Programme**

Biofabrication

at the University of Bayreuth

2016/07/05

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 Examination 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 offered by the Faculty of Engineering Science at the University of Bayreuth. ²The master's programme Biofabrication, including all examinations, is held in the English language.
- (2) ¹The master's examination, as the conclusion of the master's programme Biofabrication (academic degree programme), is designed to assess whether the candidate has acquired the subject-related knowledge and skills detailed in the present Examination and Study Regulations. ²It is also ascertained whether the candidate possesses the ability to work independently on the basis of familiar methods from materials science and whether he or she has an adequate understanding of the interrelationships in the field of biofabrication to carry out further independent scientific work. ³The University, by way of the Faculty of Engineering Science, awards the academic degree Master of Science (abbreviated M.Sc.) for successful completion of the examination with the following addition included on 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 the bachelor's programmes (requiring 180 ECTS points) Materials Science & Engineering or Engineering Science at the University of Bayreuth or an equivalent degree (as given in Annex 1), and
 2. a strong command of English. Applicants who did not gain their higher education entrance qualification or initial degree in the English language can demonstrate their English language skills by way of a thesis in a university programme taught in English at a higher education institution, or by way of a B2-level language certificate according to the Common European Framework, and
 3. basic skills in the German language. Applicants who did not gain their higher education entrance qualification or initial degree in the German language can demonstrate their German language skills by way of a A1-level language certificate according to the Common European Framework or by way of a thesis in a university programme taught in German at a higher education institution. Applicants who do not fulfil this requirement are to be enrolled on the condition that they submit the evidence of German language skills by the end of their second semester of study.
 4. evidence of having passed the aptitude assessment process as described in Annex 3 and
 5. evidence of an industry internship that was at least 13 weeks in duration. If the evidence

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cannot be provided by the start of one's studies, the evidence is to be submitted within one year. Details regarding the content and evidence of the internship in the industry are governed by the internship regulations of the Faculty of Engineering Science.

- (2) Decisions concerning the requirements given in para 1 number 1 and the language skills described in para 1 number 2 are to be made by the board of examiners for the master's programme *Biofabrication*.
- (3) ¹In cases where the coursework and examinations are not equivalent in content and scope as described in para 1 number 1, applicants can still be admitted on the condition of completing additional coursework and examinations beyond the work required in the master's programme (cf. Annex 1). ²If the candidate does not duly register for such additional examinations in a timely manner, thereby enabling him or her to take the examinations for the first time by the end of the examination period of the first semester, then the conditions for entry to study are not considered as having been fulfilled unless the student's reasons for not having registered for the examinations in a timely manner were beyond his or her control. ³Failure to appear as described in § 22 counts as an examination attempt according to the present regulations. ⁴Such additional examinations can only be repeated once. ⁵Repeating an examination for a second time is not permitted. ⁶Such additional examinations are to be successfully completed by the end of examination period of the second semester; otherwise, the conditions for entry to study are not considered as having been 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 competences 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 established according to § 4 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 credit 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 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 the programme and the master's examination; standard period of study

- (1) ¹The master's programme *Biofabrication* is divided into modules as described in Annex 2. ²The programme of study is made up of the following sub-areas:
1. General Portion
 - a) *Material and Natural Science*
 - b) *Engineering Science*

Areas a) and b) are made up of compulsory and core elective areas; in the core elective areas, additional modules beyond the required 10 credit points may be taken.
 - c) Developing transferable skills
2. Specialization
 3. Master's thesis
- (2) The standard period of study is four semesters including all examinations and the master's thesis.
- (3) With the exception of the master's thesis and Advanced Module/ International Advanced Module, all examinations are taken over the course of one's studies.
- (4) A total of 120 credit points must be earned for the programme of study (including the master's thesis) 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 administer the examination proceedings in accordance with the present regulations and make all decisions with the exception of the examinations and the assessment thereof. ³The board is made up of a chair and three additional members; the chair and the additional members shall each have one substitute. ⁴The members of the board of examiners and their substitutes shall be elected by the faculty council of the Faculty of Engineering Science from among the professors (Article 2 para 1 sentence 1 number 1 of the *BayHSchPG*) in the Faculty involved in the programme of study to serve a five-year term. ⁵The board of examiners shall elect a chair and deputy chair from among its members.

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- (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 being observed. 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 may 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 legal remedies available. ²Notices of appeal shall be issued by the president after having heard 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 a programme of study related to the examination 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 if his or her request is approved by the board of examiners. 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 in accordance with para 1, 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 3 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 received at the other higher education institution are to be converted 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 board 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 within four weeks of notification of denial for the University Board to review the decision. ⁶The University Board shall provide the board of

examiners with a recommendation on how to proceed with the request.

- (3) Credit transfer request are to be submitted to the board of examiners as soon as possible following enrolment and in any event prior registering for the relevant module for the first time.

§ 8

Times for holding examinations; announcing examination times and examiners

- (1) ¹Written and oral examinations are to be held once a semester. ²Examinations are generally held from the beginning of the semester break to the beginning of the following semester; the board of examiners shall give notice (university-wide) of any exceptions.
- (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 must 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

Form of examinations

- (1) ¹The examinations are held in the form of written or oral module examinations or portfolio examinations. ²Portfolio examinations may include written and oral examinations, oral presentations and talks, written reports, or 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 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 on their own.

- (3) If an examination is assessed by more than one examiner, the grade shall be determined by taking the average of the grades assigned; only the first decimal place is to be taken into account; the remaining digits are to be truncated (not rounded).
- (4) ¹The duration of written examinations is at least 60 min and maximal 120 min, and should be appropriate to the requirements of the respective course, as 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 complete written examinations in multiple parts voluntarily to the extent that this is possible with the relevant module; this is given in the annex for the relevant modules. ⁷When first registering for a module examination, it must be stated whether the examination will be completed in multiple parts. ⁸If some parts of the examination are not passed in a module examination divided into sections, then it is to be graded as "*nicht ausreichend*" ["unsatisfactory"]. ⁹The module examination can only be repeated as an overall module examination.
- (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 to be graded by the examiner who was appointed by the chair of of examiners. ²The relevant examiners are to determine the grades for the individual examinations under the terms of § 15. ³An assessment of each written examination should 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 copy of the written examination is to remain in the records.
- (7) ¹The duration of oral examinations of each course is in the range between 15 min and 45 min, depending on the requirements of the particular course, as is given in Annex 2. ²The oral examination is to be held in the English language by two examiners or an examiner and a co-examiner. 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 candidate's request and with the

approval of the relevant examiners, the oral examination may also be held in the German language. ⁶One examiner or the co-examiner shall complete 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 is to be signed by the two examiners or the examiner and co-examiner. ⁸Grades for the oral examinations are to be determined by the examiner or examiners 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 following two semesters are to be given preference. ²The examination can be conducted without an audience if so requested by the candidate or the examiner. ³Discussion and announcement of the oral examination results (grade) shall not be conducted in public.
- (9) ¹Presentations, talks, reports, and written compositions (e.g. internship reports, project report) are limited to seminars, internships, study projects, the Summer Academy, the Advanced Module, and the International Advanced Module. 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 work to the students at the beginning of the course. ⁴Work is to be graded on a pass/fail basis (alternative 1) or according to the terms of § 15 (alternative 2). ⁴If alternative 1 of sentence 4 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 examination 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 assignments, the scope of which do not individually or jointly exceed the limits set forth in paragraphs 4, 7, and 9. ³In portfolio examinations, all assessment components 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 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.

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- (2) ¹The master's thesis can be supervised - and the topic assigned - by any instructor in the relevant subject who is authorized to give examinations as described in § 5 para 1 and who is a member of the Faculty of Engineering Science or with the approval of the chair of examiners. ²With the approval of the board of examiners, it may be conducted outside the Faculty of Engineering Science or at other institutes both within and outside the University of Bayreuth as long as it is supervised there by an instructor with authorization as described in sentence 1. ³Candidates may not be assigned a topic for their master's thesis until they have earned at least 55 credit points in this programme of study. ⁴Record is to be made of the date on which the topic was assigned. ⁵The topic of the master's thesis must be confirmed by the chair of examiners prior to assignment of the topic. ⁶It is the responsibility of the candidate to ensure that he or she receives a topic for the master's thesis in a timely manner. ⁷If he or she does not succeed, the chair of examiners, at the student's request, will ensure that the candidate receives a topic for the master's thesis. ⁸The candidate may make suggestions for the topic. ⁹There is no legal claim to a certain topic.
- (3) ¹The standard period for completing the master's thesis from assignment of the topic to submission is six months. 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 the deadline for submitting the master's thesis can be met and the workload is appropriate given the 30 credit points awarded, namely 900 hours of work. ³In cases that are beyond the candidate's control, the chair of examiners may - at the request of the student and after having heard the supervisor - extend this 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, 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 independently and did not make use of any sources or materials that are not cited in the thesis. ⁴It 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
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months. ²Paragraphs 1 to 6 also apply when assigning and working on a new topic. ³When repeating the master's thesis, returning the topic is not permitted.

- (8) ¹The master's thesis is to be assessed by the examiner who assigned the topic of the master's thesis and independently by a second examiner. ²The second examiner is to be appointed by the supervisor. ³Assessment of the master's thesis should be completed within two months. ⁴Each examiner shall provide a recommendation as to whether the thesis is to be accepted or rejected and assign a grade in accordance with § 15. ⁵The grade for the master's thesis is calculated by taking the average of the grades given by the two examiners. ⁶In this calculation, the grade shall only be given to one decimal place; the remaining digits are to be truncated (not rounded). ⁷If the grades assigned of the two examiners differ by more than one grade, the board of examiners may consult an additional examiner; sentences 5 and 6 apply *mutatis mutandis*.
- (9) ¹The master's thesis is accompanied by a defence, which is mandatory. ²The defence shall only be held if the thesis is graded "*ausreichend*" ["sufficient"] ("4,0") or better by all examiners. ³The date and time of the defence are to be agreed upon by the candidate and the examiners. ⁴The defence is to be open to all members of the University; it may be conducted in camera if so requested by the candidate. ⁵The defence includes a 20-minute talk and a 30-minute examination discussion, both held in the English language. ⁶The defence is to be assessed individually by the examiners under the terms of § 15; a single grade is calculated by taking the average of the individual grades. ⁷If at least one of the examiners assigns a failing grade ("5,0") for the defence, it is considered as having been failed. ⁸It can be repeated once.
- (10) ¹The overall grade for the master's thesis is calculated by taking the average of the individual grades for the written master's thesis as described in para 8 and the average grade for the defence. ²The single average grade for the written master's thesis (weighting: x3) and the single average grade for the defence (weighting: x1) determine 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). ⁴The grade for the master's thesis in this form is used in calculating the final 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 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 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) ¹Upon request, the following are to be observed with regard to dates and deadlines: §§ 3, 4, 6, and 8 *MuSchG*, dated 20 July 2002, BGBl p. 2318 (as amended), periods set aside under the laws concerning parental leave (BEEG, dated 5 December 2006, BGBl p. 2748 - as amended), and periods reserved for care of a family member (as stipulated in *PflegeZG*, dated 28 May 2008, BGBl pp. 874, 896 - as amended) who requires care as described in §§ 14 and 15 of *SGB XI*, dated 26 May 1994 (BGBl pp. 1014 and 1015), as amended. ²The 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

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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.

" <i>sehr gut</i> " (excellent)	= 1,0 or 1,3
" <i>gut</i> " (considerably better than average)	= 1,7 or 2,0 or 2,3
" <i>befriedigend</i> " (average performance)	= 2,7 or 3,0 or 3,3
" <i>ausreichend</i> " (performance that meets the minimum requirements despite deficiencies)	= 3,7 or 4,0
" <i>nicht ausreichend</i> " (insufficient 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	= " <i>sehr gut</i> "
for an average grade of 1,6 up to and including 2,5	= " <i>gut</i> "
for an average grade of 2,6 up to and including 3,5	= " <i>befriedigend</i> "
for an average of 3,6 up to and including 4,0	= " <i>ausreichend</i> "
for an average grade of 4,1 and up	= " <i>nicht ausreichend</i> ".

§ 16 Final grade

- (1) ¹The overall grade for the master's examination is calculated by taking the average of the grades received for the modules (including the grade for the master's thesis), weighted according to the credit points awarded. ²In this calculation, the grade shall only be given to one decimal place; the remaining digits are to be truncated (not rounded). ³Additional examination taken as described in § 24 para 3 are not to be considered in calculating the final grade.

- (2) Candidates who pass the master's examination are to receive a final grade as follows: an

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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) 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 eight 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 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 paragraph 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 an examination on the final attempt in accordance with § 4 para 5 in conjunction with Article 41 of the Bavarian Administrative Procedures Act (*BayVwVfG*) as amended. ⁴The board of examiners may grant the student an extension of the deadline stated in sentence 1 for circumstances beyond his or her control.

§ 18

Repeating examinations in individual areas

- (1) Any examination that was failed on the first attempt can be repeated once.
- (2) ¹Repeating an examination for a second time is only permitted for up to four examinations. ²The second repetition can be conducted as a written or oral examination; this is to be decided by the board of examiners as in § 8 para 2. ³Such examinations may be held outside the time frame for examinations. ⁴Students who fail the second repetition of an examination are to be considered as having failed the master's examination on the final attempt.
- (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 generally 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 bachelor's examination irrevocably, then a written notice shall be sent to him or her within two weeks upon request; the notice shall include a list of the individual examination grades as well as the missing examination elements.

§ 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 relevant comments made by the examiners as well as the record sheets for the examination.

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- (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 circumstances 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 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 does 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 prior to or 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, examination 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 the invigilator and barred from continuing the examination; in this case, he or she shall be given the grade "*nicht ausreichend*" ["unsatisfactory"].

§ 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 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 thesis and additional credits as described in paragraph 3. ²The official notification 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. ⁴In addition, an English translation of the diploma and a Diploma Supplement are to be issued; the translation of the diploma is to be signed by the Dean of the Faculty of Engineering Science and the Diploma Supplement is to 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 not taken in the core elective areas described in Annex 2. ²If a student wishes to take additional examinations, he or she must stipulate when registering for the examination that they are additional examinations being taken voluntarily. ³Taking such examinations requires that the same conditions be fulfilled as for the compulsory examinations. ⁴There is no obligation to repeat failed examinations which are additional examinations taken voluntarily. ⁵The additional examinations 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 to be carried out in accordance with the legal regulations (Article 69 of the Bavarian Higher Education Act).

§ 25 Academic advising

- (1) General student advising is offered by the University of Bayreuth's Student Advising Office.
- (2) The programme advisor for the master's programme *Biofabrication* is to be responsible for questions relating to the master's programme (i.e. structure of 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. after having failed examinations,
 3. students who have considerably less than 30 credit points per semester,
 4. students choosing or changing the focus of their studies,
 5. students transferring from a different degree programme or university.

§ 26
Entry into effect

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

Annex 1 Admission to the Programme; Qualification

A qualifying academic degree in the sense of § 2 para 1 number 1 is present if the degree includes examinations that are equivalent to the following examinations from a relevant, scientifically oriented bachelor's programme:

– Engineering Mathematics I – II	(16 ECTS)
– Experimental Physics for Engineers I	(4 ECTS)
– Electrical Engineering for Materials Scientists	(4 ECTS)
– Composition and Properties of Polymers	(3 ECTS)
– General Process Engineering	(4 ECTS)
– Biochemistry for Engineers	(4 ECTS)
– Biology for Engineers	(4 ECTS)
– Chemistry for Engineers	(4 ECTS)

Total: 43 ECTS

Annex 2 Modules and Examinations

¹The following table displays the modules in the master's programme Biofabrication. ²The modules include the following forms of instruction: lecture, tutorial, internship, and seminar.

Modules in the area **General Portion**:

Abbr.	Module	SWS	Credits	Examination
<i>Material and Natural Science</i>				
BF	Biofabrication	4	5	Written module examination (60 min.)
FTE	Tissue Engineering Fundamentals of Tissue Engineering and Quality Management	4	5	Written module examination (60 min.)
SAB	Self-Assembling Biopolymers	4	5	Written module examination (60 min.)
KMNS	Core elective area Developing subject-related skills: Material and Natural Science		10	
WAP	Core elective module: Advanced Polymers	4	5	Written module examination (60 min.)
WCM	Core elective module: Carrier Materials and Devices	4	5	Written module examination (60 min.)
WPM	Core elective module: Polymer Materials	4	5	Written module examination (60 min.)
WSA	Core elective module: Physical Chemistry of Supramolecular Assemblies	3	5	Written module examination (60 min.)
WSC	Core elective module: Supramolecular Chemistry	3	5	Written module examination (90 min.)
<i>Engineering Science</i>				
BMA	Biomaterials	4	5	Written module examination (60 min.)
CAE	Computer Aided Engineering	4	5	Portfolio examination: written examination (90 min., weighting: 0.6); written composition (weighting: 0.4)
PPM	Processing of Polymeric Materials	4	5	Written module examination (60 min.)
KES	Core Elective Area Developing subject-related skills: Engineering Science		10	
WBI	Core elective module: Biotechnology	4	5	Written module examination (60 min.); the internship is

				compulsory
WBT	Core elective module: Bioengineering for Tissue Regeneration	4	5	Written module examination (60 min.)
WCT	Core elective module: Coating Technology and Interface Engineering	3	5	Written module examination (60 min.); the internship is compulsory
WLA	Core elective module: Lab Course Automation	X	5	Written report
	<i>Developing transferable skills</i>			
MMT	Elective Area Management Training and Entre- preneurship	X	6	Examination elements and grading are based on the relevant courses (weighting of grades according to the number of credit points*; if only one examination element is graded, this is to be the module grade; compulsory in MMT3
SF	Scientific Working	5	5	Oral examination (30 min); compulsory in SF2 and SF3
	<i>Master's Thesis</i>			
MT	Master's Thesis		30	Graded written work and graded oral defence (see § 11 para 10 for duration and weighting).

* 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 **Specialization**:

Abbr.	Module	SWS	Credits	Examination
AM	Core elective area Advanced Module	X	3x8	Portfolio examinations 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

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*. ²Passing the aptitude assessment process is a prerequisite for admission to the programme of study. 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 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, in the summer semester and winter semester. ²Written applications for admission to the master's programme *Biofabrication* are to be submitted in the form established by the selection committee (cf. number 3) for the master's programme *Biofabrication* by 15 July for the following winter semester or by 15 January for the summer semester; applications are to be directed to the chair of examiners by the stated deadline and in the required form. ³The documents 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,

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- 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 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, 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 (especially in the aptitude assessment process) are to be decided on the basis of a simple majority vote. 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.

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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 legal remedies available; 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 due to not being able to fully determine aptitude on the basis of the documents, a decision is made to require an additional examination, or
 3. whether admission is to be denied due to shortcomings that could be discerned from the documents.
- 4.3 Those are considered to be especially qualified who have an initial degree among the best 10% in their relevant graduating class at the higher education institution they attended.
- 4.4 The following are cases of insufficient aptitude:
1. if the grade for the initial degree described in 2.1 item a) (in case final admission is requested) is not at least "sufficient" (3,5) or better, or
 2. if the average grade for the work to be demonstrated under the terms of 2.2.1 item b) amounting to at least 150 ECTS points as confirmed by the examinations office at the higher education institution they attended (in case conditional admission is requested) is lower than "3,5".
- 4.5 ¹Applicants whose aptitude as described in number 4.2 sentence 2 number 2 could not be conclusively established are to be invited to an interview (second stage of the aptitude assessment process). ²The date and time of the interview are to be announced in writing at least one week in advance. ³The interview is to be approximately 20 minutes in duration. ⁴The interview should provide further insights into the applicant's aptitude and show whether he or she meets the requirements for the master's programme Biofabrication as described in the criteria given in number 1. ⁵For this purpose, the status of the applicant's competencies in the areas of biofabrication given in Annex 1 are to be

examined. ⁶In this connection, applicants are to be given the chance to prove their current knowledge in these areas. ⁷The interview is to be conducted individually with each candidate by two assessors appointed by the selection committee. ⁸The assessors are to provide the decision "suited" or "not suited". ⁹The aptitude assessment process is only passed if the decision of both assessors is "suited". ¹⁰A written record shall be made of the interview, indicating the date, duration, location, name of the assessors involved, the name of the applicant, the assessment of the assessors involved, and the overall outcome. ¹¹The record sheet is to be signed by the assessors.

5. Determining the results

¹The outcome of the aptitude assessment process is to be sent to the applicant in writing, and if positive, to be presented upon enrolling. ²Successful completion of the aptitude assessment process entitles one to enter the master's programme Biofabrication within one year. ³The official notification is to be signed by the chair of the selection committee. ⁴A notice of denial is to contain a rationale and information concerning legal remedies available. ⁵As part of its supervisory duties in accordance with Article 20 para 3 sentence 1 *BayHSchG*, the chair of examiners, on behalf of the Governing Board of the University of Bayreuth, shall - by way of the committee chair - check a random sample of 10 % of denials of admission.

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 two semesters if it is possible for them to fulfil the requirements given in number 4.3 by the end of the second semester.