

The following document is the English translation of
“Amtliche Bekanntmachung
Master-Prüfungsordnung für den
Studiengang „Lasers and Photonics“
an der Ruhr-Universität Bochum
vom 31. August 2015“

Only the official bulletin in German is legally binding. This English translation is not legally binding.

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OFFICIAL BULLETIN
Examination Regulations for the degree course “Lasers and Photonics”
at the Ruhr-Universität Bochum
of 31 August 2015

**Examination Regulations for the Master Degree Course
“Lasers and Photonics”
at the Ruhr-Universität Bochum
of 31 August 2015**

Based on §§ 2 para. 4, 64 para 1 of the higher education act (Hochschulgesetz NRW - HG) of 16.09.2014 (law and ordinance gazette GV.NRW p. 547), the Ruhr-Universität Bochum has adopted the following ordinance:

**Contents
I. General**

- § 1 Aim of the degree course
- § 2 Admission to the degree course
- § 3 Regular period of study and scope of studies
- § 4 University degree and occupational title
- § 5 Modules
- § 6 Examination attainments
- § 7 Registration and deregistration of examination attainments and compensation of disadvantages
- § 8 Assessment of examinations and notification of results
- § 9 Grading of modules
- § 10 Repeat examinations and irrevocable failure
- § 11 Examination board
- § 12 Examiners and assessors
- § 13 Recognition of previous periods of study, academic attainments and examinations, placement in higher subject-specific semesters
- § 14 Failure, deception and breach of regulations

II. Master examination

- § 15 Admission
- § 16 Type and scope of the Master examination
- § 17 Master thesis
- § 18 Acceptance and assessment of the Master thesis
- § 19 Passing the Master examination
- § 20 Master examination certificate
- § 21 Diploma supplement
- § 22 Master certificate

III. Final provisions

- § 23 Invalidity of the Master examination, withdrawal of the academic degree
- § 24 Inspection of the examination files
- § 25 Rules for transition
- § 26 Effective date and publication

I. General

§ 1 Aim of the degree course

- (1) The master examination is the academic professional qualification of the degree course Lasers and Photonics at the Ruhr-Universität Bochum.
- (2) The aim of the master degree is to convey knowledge in the field of laser technology and photonics in order to be able to perform complex engineering tasks independently and responsibly. The master degree course thus leads to a professional qualification which is needed for collaboration in research and development with leadership responsibility. It also conveys the knowledge required for academic work at a doctoral level.
- (3) The master examination serves to establish whether the candidate has acquired profound knowledge and the ability to independently apply sophisticated academic methods. The students should be enabled to critically assess the academic findings, to think and act in a responsible, interdisciplinary manner, and to analyse complex problems of laser technology and photonics and develop solutions. Advanced language skills and study periods abroad are desirable.

§ 2 Admission to the degree course

- (1) Applicants may be admitted to the master program who
 - a) have earned the degree “Bachelor of Science” in electrical engineering and information technology or in mechanical engineering or a Bachelor of Science in an equivalent degree subject from a university within the scope of the Basic Law following a degree course with a duration of at least six semesters (3 years of study), or
 - b) hold a Bachelor of Science in electrical engineering and information technology, in mechanical engineering or an equivalent degree from a university outside of the scope of the Basic Law following a degree course with a duration of at least six semesters (3 years of study), if the equivalence or comparability of the degree is confirmed by the examination board.
- (2) The Bachelor’s degree submitted has to include method and research-oriented content totalling at least 30 CP in the field of mathematics and at least 30 CP from one of the areas electrical engineering and information technology or mechanical engineering. The examination board may determine additional academic and examination attainments as well as the period for their provision. Preliminary admission is granted for the period stipulated for the provision. The examination board decides on exceptions on the basis of a justified application.
- (3) Agreements between universities are considered by the examination board when determining equivalence.
- (4) Students who have irrevocably failed the Bachelor, Master, intermediate examination or degree examination in one of the disciplines “electrical engineering”, “information technology”, “IT security”, “security in information technology”, “mathematics” “physics”, “mechanical engineering”, “Computer Science” or a related discipline at universities within the scope of the Basic Law cannot be admitted to the degree course.
- (5) The degree course can be commenced in the winter semester or in the summer semester.
- (6) Prior to commencement of the master degree, consultation is to be provided on the choice of subjects and the structure of the master degree course.
- (7) For admission to the English language degree course, English language skills at least at the level B2 CEFR (Common European Framework) are required. This may be demonstrated by providing a Unicert® II-certificate or the following international certificates with the corresponding scores: IELTS (academic) 5.5, and more, TOEFL IBT 98, and more, or FCE

/First Certificate in English), CAE (Certificate in Advanced English) or CPE (Certificate of Proficiency in English).

§ 3 Regular period of study and scope of studies

- (1) The regular period of study for achieving the master degree amounts to four semesters or two years of study.
- (2) The scope of studies amounts to a total of 120 credit points (CP). One credit point corresponds to an average work load of thirty hours.

§ 4 University degree and occupational title

Once the master examination has been passed, the faculty of electrical engineering and information technology and the faculty of mechanical engineering at the Ruhr-Universität Bochum award the degree “Master of Science”, abbreviated “M.Sc.”. In accordance with the applicable German engineering laws, the graduate is then entitled to bear the protected occupational title engineer.

§ 5 Modules

- (1) The degree course is modular in structure.
- (2) A module can consist of several courses.
- (3) Each module is concluded with a module examination. The module examination can be composed of more than one examination attainment.

§ 6 Examination attainments

- (1) An examination attainment can be effected in the form of a written examination, in the form of an examination talk, through the processing of study-related tasks, a term paper, project work, through a seminar contribution, a practical course or a colloquium presentation. The examination attainments can be effected on several dates during the semester, and, in singular cases, may depend on earlier examinations. Such dependencies on earlier examinations will be mentioned in the module handbook in the respective actual version.
- (2) A written examination serves to assess whether students are able to process tasks within the field of the course to which the written examination applies in an appropriate manner and to find correct approaches for their solution within a limited period of time and with limited resources. The duration of a written examination may vary between one and four clock hours and is determined by the examination board.
- (3) In an examination talk, the candidate is to demonstrate that he or she has acquired sufficient knowledge in the examination field, grasps the coherencies and is able to assign specific issues to their contexts. Examination talks should last between 15 and a maximum of 45 minutes per examinee. They are to be held by two examiners or one examiner in the presence of a competent assessor, either as an individual examination or group examination with up to four students. Before determining the assessment, the examiner is to confer with the assessor where applicable. The main subjects and results of the examination talk are to be documented in a protocol. The records and sketches compiled within the course of the examination talk are to be included in the protocol.
- (4) Study-related tasks take place parallel to the course in the same semester. The attainments can be spread across several dates in the semester and be provided in writing or orally. The assessment of the students' attainments is the responsibility of the course lecturer. Group attainments can also be permitted by the course lecturer provided individual assessment of the contribution made by each group member is possible.

- (5) Project work constitutes the independent processing of a given topic. Group attainments can also be permitted by the course lecturer provided individual assessment of the contribution made by each group member is possible. The attainment to be acquired is to be defined by the course lecturer at the beginning of the course and individually assessed at the end of the course.
- (6) Seminar contributions are attainments acquired by a participant in the form of a lecture and, where applicable, a graphical presentation with commentary on a prescribed overall subject delivered in front of the seminar group and assessed by the seminar lecturer. The examination attainment for a seminar is attained when the student has held his or her own lecture and taken part in the predetermined number of individual sessions to discuss the seminar contributions. The seminar is not passed if the student has not taken part in the pre-defined number of individual sessions and has not, or not successfully, used the opportunity to catch up on the missed individual sessions.
- (7) Practical courses are attainments in which a participant performs his or her own experiments on a prescribed subject and is assessed by the practical course lecturer. The experiments can be carried out in groups. The examination attainment for a practical course is effected when the student has successfully participated in the pre-defined number of individual sessions of the respective course. This is the case when, in a practical course, the performance, recording and assessment of experiments has been completed. The practical course is not passed if the student has not taken part in the pre-defined number of individual sessions and has not, or not successfully, used the opportunity to catch up on the missed individual sessions.
- (8) Colloquia are attainments in which students present the contents and main results of their theses to a specialist audience. It is a prerequisite for your own colloquium lecture that you have already attended at least five colloquium lectures by other students. Colloquia are open to the faculty.
- (9) The type and extent of examination attainments for the courses and modules are defined in the module handbook of the degree course (available in the Internet).
- (10) In consultation with the examination board, the use of multiple-choice procedures is permitted for examination attainments. Multiple choice procedures have predefined answers with one or more correct solutions. The selection of one wrong answer means that the answer as a whole is counted as wrong.
- (11) The form of examination attainment selected in a course and the registration procedures including deadlines are announced by the course lecturer at the beginning of the course. How the individual assessments of the components of the examination attainment are included in the overall attainment is also announced.
- (12) In each academic year, the module examinations are offered on two regular dates. For course-accompanying examination attainments (e.g. practical courses), special arrangements can be made by the examination board. Furthermore, the examination board can determine the provision of additional examination dates.
- (13) The examination dates of a semester are usually determined by the examination board at the beginning of each semester.

§ 7 Registration and deregistration of examination attainments and compensation of disadvantages

- (1) The students have to register themselves for all examination attainments and for the master thesis. The deadlines for examination registration are determined and published by the examination board at the beginning of the semester.
- (2) The registration for examinations of the mandatory modules according to list in annex 1 has to be carried out for the first time in the third degree semester. If the registration is not done

by the applicants themselves until the second degree semester, it will be done automatically in the third degree semester.

- (3) If, deviating from § 6 para. 12, an additional examination date is offered alongside the regular examination dates, the students have to register themselves.
- (4) A registration for an examination in a module that requires preliminary examination is only valid if the preliminary examinations as requested in the respective actual form of the module handbook have been passed successfully.
- (5) If a student does not pass a mandatory module examination he or she is automatically registered for repeat examination on the next possible regular examination date. This does not apply to the marked modules in the modules list (annex 1).
- (6) If a student fails to attend an examination for which he or she is registered without good reason, this examination is graded 0 % provided the student failed to deregister for the examination before the deadline.
- (7) Each module examination may be deregistered twice. The deadline for deregistration is 14 days before the examination. For the modules marked in the modules list (Annex 1) after deregistered examinations, re-registration is automatically carried out for the earliest possible date.
- (8) If a student fails to attend an examination due to illness, this is to be demonstrated by a medical certificate confirming the inability to take part in the examination at the time of the examination. Medical certificates are to be submitted to the examinations office immediately after the examination concerned, but at the latest one week after the examination date. In case of illness at a further, later examination date for the same module examination, an official medical certificate is to be submitted. Furthermore, in justified individual cases, the examination board may require the submission of an official medical certificate. If the examination board recognises the reasons for the non-attendance, the respective examination is not counted against the maximum number of module examinations.
- (9) If a candidate provides a medical certificate confirming that he or she is unable to complete examination attainments in whole or in part in the required manner due to a prolonged or permanent physical or psychological disability, the chairperson of the examination board will allow the candidate to acquire equivalent attainments in a different form.
- (10) The statutory periods of maternity leave, the periods of parental leave and the periods of absence due to the care and upbringing of children within the meaning of § 25 para. 5 of the Federal Training Assistance Act (BAföG), as well as due to the care of a spouse, registered civil partner, direct relative or first-degree relative by marriage are to be taken into account.
- (11) The automatic registration for examinations or for the master thesis or for its repetition can be paused for the following cases:
 1. for taking care and educating underage children according to § 25 para. 5 of the Federal Training Assistance Act (BAföG) up to 3 semesters,
 2. for participation as elected represent in organs of the university administration, of the student association ("Studierendenschaft"), of the representatives of the student association (Fachschaft) or of the "Studierendenwerk" up to a maximum total of 4 semesters,
 3. for perception of the function of a equal opportunity commissioner up to a maximum total of 4 semesters,
 4. for the duration of study delays due to consequences of a handicap or of severe illness,
 5. for up to three semesters in which the students take over responsibility for near relatives requiring care and support.

§ 8 Assessment of examination attainments and notification of results

- (1) The assessment of graded examination attainments is based on the percentage point system according to § 9.

- (2) The assessment of non-graded examination attainments is based on “pass” or “fail”.
- (3) The candidate is normally to be notified of the result of a written examination three weeks after the respective examination date, subject to observation of the data protection provisions. The candidate is to be given the opportunity to inspect the papers. The time, place and deadlines for inspection are to be announced by the teachers.
- (4) The candidate is to be given the assessment result of an examination talk following the examination talk.
- (5) The assessment results of attainments achieved in another form are to be announced by the respective course lecturer in an appropriate form three weeks after completion of the last component.

§ 9 Grading of modules

- (1) A module examination is completed when all the respective examination attainments in accordance with § 8 are available.
- (2) The grading of the module examination is carried out as soon as the module examination is completed. A weighted average rating (with CP weighted arithmetic mean) of the examination attainments of the module is carried out based on percentage points. Decimal values are rounded up to the nearest whole number.
- (3) The grading of the assessment and the grade designations can be taken from the following table 1:

Percentage points	Grade designation in words
95 - 100	excellent
84 - 94	very good
73 - 83	good
62 - 72	satisfactory
50 - 61	sufficient
0 - 49	fail

Table 1: Grading scheme

- (4) For modules that consist only of ungraded examination attainments, the grade “pass” or “fail” is issued.
- (5) A module examination is successfully completed,
 - a) if in a module that consists only of graded examination attainments, an average assessment of at least 50 percentage points is achieved;
 - b) if in a module that consists only of ungraded examination attainments, all examination attainments are passed;
 - c) if in a module, that consists both of graded and ungraded examination attainments an average assessment of at least 50 percentage points is achieved in the graded examination attainments and all ungraded examination attainments are passed.
- (6) A grading according to the ECTS-grading scale is limited to the total grade of the master examination.
- (7) For each module, the nature of the examination (with or without grade) is given in the modules list (Annex 1)
- (8) An examination consisting of multiple choice questions only is passed if
 - a) a minimum of 60 % of the asked questions is correctly answered or a minimum of 60 % of the achievable points has been scored, or
 - b) the number of correctly answered questions or scored points is at least 50 %, and deviates by not more that 22 % from the average score of all candidates who have participated in the examination for the first time within the regular study period.

The assignment of negative points is not allowed. If an examination consists of a minimum of 50% of multiple choice tasks and other tasks, the multiple choice tasks will be graded according to this paragraph. The other tasks will be graded following the usual grading scheme for them. The final grade will be calculated according to the weighted average of both examination parts. The weighing will be done according to the relative fractions of the tasks of the total examination.

§ 10 Repeat examinations and irrevocable failure

- (1) A failed module examination can be repeated. A maximum of three examination attempts are permitted. This does not apply to the master thesis (see para. 2). If a module examination is not passed after three examination attempts (2 repeats) the module examination is deemed as an irrevocable fail. If a module examination is irrevocably failed, the master examination is irrevocably failed.
- (2) Given insufficient attainment, the master thesis can be repeated once. The repeat has to take place within the semester following the fail. If the repeat is also assessed at less than 50 %, the master examination is irrevocably failed. A second repeat is not possible. The time period for the repetition may be extended in the following cases:
 - a. for taking care and educating underage children according to § 25 para. 5 of the Federal Training Assistance Act (BAföG) up to 3 semesters,
 - b. for participation as elected represent in organs of the university administration, of the student association ("Studierendenschaft"), of the representatives of the student association ("Fachschaft") or of the "Studierendenwerk" up to a maximum total of 4 semesters,
 - c. for perception of the function of a equal opportunity commissioner up to a maximum total of 4 semesters,
 - d. for the duration of study delays due to consequences of a handicap or of severe illness,
 - e. for up to three semesters in which the students take over responsibility for near relatives requiring care and support.
- (3) The candidate is issued a written notice of the irrevocable failure of the master examination. This includes legal instructions.
- (4) It is generally not permitted to repeat a module examination that has been passed. On request the examination board may allow students a one-off attempt to improve a grade for a maximum of three module examinations passed. The best result counts.
- (5) In case of a grading of less than 50 % for a written examination or for a first repetition of a written examination, an additional oral examination in form of an examination interview can be offered according to §6, paragraph 3. This is only valid for the first and second examination attempt. If the additional oral examination is passed, the final total grade "sufficient" (50%) will be given. The examination board decides about the offers of such additional oral examinations at the beginning of the academic year.

§ 11 Examination board

- (1) For the organisation of the examinations and the tasks assigned by these examination regulations, the faculty of electrical engineering and information technology forms an examination board which can also include representatives from the faculty of mechanical engineering. The examination board consists of the chairperson, his or her deputy and five other members, who are elected separately by group by the faculty board of the faculty of electrical engineering and information technology. The chairperson, the deputy and two other members are elected from the group of lecturers, one member is elected from the group of research assistants, and two members are elected from the group of students. With the exception of the chairperson and his or her deputy, representatives are elected

accordingly for the members of the examination board. The term of office of the chairperson and his or her deputy and the members of the group of lecturers is three years. The term of office of the other members is one year. Re-election is permissible.

- (2) The examination board is a public authority within the meaning of the laws on administrative procedure and administrative process.
- (3) The examination board ensures that the provisions of the examination regulations are observed and that all examinations are properly conducted. It is particularly responsible for the decision on objections against decisions made in the examination procedure. The examination board regularly reports to the faculty board of the faculty of electrical engineering and information technology. It provides suggestions on reforming the examination regulations. For all regular cases, the examination board may assign its responsibilities to the chairperson. This does not include decisions on objections.
- (4) The examination board constitutes a quorum if, alongside the chairperson or his/her deputy, two further lecturers and at least one other member with voting power is present. Decisions are passed by a simple majority. In the event of a tied vote, the chairperson has the casting vote. The student members of the examination board do not take part in the assessment and recognition of academic attainments and examinations.
- (5) In justified cases, the members of the examination board have the right to witness the provision of examination attainments.
- (6) For the organisation of the examination-related matters, the examination board may keep an electronic database within the legal framework of the data protection laws.
- (7) The meetings of the examination board are not public. They are usually to be held once per semester. The members of the examination board and their deputies are subject to official secrecy. If not in public service, they are to be committed to secrecy by the chairperson of the examination board. Summary minutes are to be kept on the proceedings of every meeting.
- (8) The examination board and its chairperson are supported in the completion of their regular tasks by the examinations office.

§ 12 Examiners and assessors

- (1) The examiners and assessors are appointed by the examination board. It can assign the appointment to the chairperson. Examiners may only be appointed who have at least the relevant master degree or equivalent qualification and, provided no overriding reason requires otherwise, hold, or have held an independent teaching post in the subject field of the examination. As a rule, the examiners are the lecturers responsible for the respective course. Assessors may only be appointed who hold at least the relevant master degree or equivalent qualification.
- (2) Examiners are independent in their examining function.
- (3) Provided the examiners, the assessors and those concerned with the examination are not in public service, they are to be committed to secrecy by the chairperson of the examination board or his/her deputy.

§ 13 Recognition of previous periods of study, academic attainments and examinations, placement in higher subject-specific semesters

- (1) Periods of study, academic attainments and examinations attainments completed in the same degree course at other universities within the scope of the Basic Law will be officially recognised on demand. Periods of study, academic attainments and examinations attainments in other degree courses or at other universities or at state or state-recognised vocational academies within the scope of the Basic Law will be recognised if their equivalence has been verified. Periods of study, academic attainments and examination attainments

attained at universities outside of the scope of the Basic Law are recognised upon request if their equivalency has been verified. On request, the university may recognise other knowledge and qualifications on the basis of the provided certificates. After recognition, these qualifications will be attributed to modules of the master course.

- (2) Major differences appear if the acquired competences do not correspond to the requirements of the master course Lasers and Photonics. This should not be based on a schematic comparison but on an overall assessment and evaluation. For judging the equivalence of periods of study, academic attainments and examination attainments completed at foreign universities, the equivalency agreements approved by the Conference of the Ministers of Education and Cultural Affairs and the Conference of University Rectors as well as special agreements made in the framework of university partnerships should be taken into account.
- (3) The examination board of the faculty of electrical engineering and information technology is responsible for recognitions according to paragraphs 1 to 2. Before establishing the equivalency, responsible subject representatives are to be consulted. The student is requested to submit all documents required for recognition. The decision on recognition with an instruction of right to appeal is to be issued within six weeks of submission of the complete documents. If recognition of a proposal according to par. 1 is refused, the applying student may apply for a examination by the rectorate.
- (4) If academic attainments and examination attainments are recognised, assessments and grades are to be transferred and included in the calculation of the overall grade. If the assessment and grading systems are not comparable, the notation “passed” will be given. This recognition will be mentioned in the certificate and in the diploma supplement.
- (5) If the prerequisites of paragraphs 1 to 2 are met, there is a legal entitlement to recognition.
- (6) The recognition of academic attainments and examination attainments according to the preceding paragraphs can be granted up to a maximum of 60 credit points. Associated with a university or master course change, a recognition of the master thesis is excluded.

§ 14 Failure, deception and breach of regulations

- (1) If a candidate tries to influence the result of an examination attainment through deception, the respective examination attainment is to be evaluated with 0 percentage points or with “failed”. In examination talks, deception is established and recorded by the respective examiner, in written examinations by the invigilator and for examination attainments in other formats by the lecturer of the respective course. In case of multiple or other serious deception attempts, the candidate can also be expelled.
- (2) A candidate who disturbs the orderly procedure of an examination attainment may be excluded from continuing the examination attainment by the respective examiner or invigilator – usually after prior warning. In this case, the respective examination is evaluated with 0 percentage points. The reasons for the exclusion are to be recorded. In severe cases the examination board can exclude the candidate from further examinations.
- (3) If, for compelling reasons, students are unable to comply with the provisions of these examination regulations, the reasons are to be notified immediately in writing at the examinations office and substantiated.
- (4) Submission of plagiarisms in project papers or the master thesis is classed as deception in accordance with para. 1.
- (5) The candidate is to be given immediate written notice of incriminating decisions according to para. 1 to 4 stating the reasons and providing information on the legal remedies.

II. Master examination

§ 15 Admission

- (1) Anyone enrolled at the Ruhr-Universität Bochum for the master degree course Lasers and Photonics in accordance with § 48 of the Higher Education Act (HG) or admitted as a guest student according to § 52 para. 2 of the Higher Education Act (HG) can be admitted to the master examination.
- (2) The registration for an examination is only valid when the Bachelor's certificate and a written declaration § 2 para. 4 and para. 6 have been submitted to the examinations office.
- (3) Students can only be admitted to the master thesis if they have successfully completed modules with a scope of at least 80 CP.

§ 16 Type and scope of the Master examination

- (1) The master examination is made up of the attainments of the modules in accordance with annex 1 with a total scope of 120 CP. The master examination consists of mandatory modules (40 CPs), mandatory elective modules (30 CPs), free elective modules (20 CPs), and the master thesis (30 CPs). There is no separate final examination.
- (2) The module handbook lists the courses belonging to each module and is available in the internet.
- (3) Before passing the master examination, the student may attend examinations within additional topics not corresponding to the requested ones. Results for these additional topics do not enter the final grade. They will be listed in the Transcript of records.

§ 17 Master thesis

- (1) The master thesis is a written examination paper. It serves to show that the candidate is able to independently process a complex problem in the field of laser technology and photonics within a specific period of time by applying scientific methods. The master thesis includes a technical lecture, in which the candidate presents the main findings to a specialist audience. The technical lecture is to be included in the assessment of the master thesis.
- (2) The master thesis should be prepared in the fourth course semester.
- (3) The master thesis can be issued and supervised by any habilitated, appointed or nominated teacher of the faculties electrical engineering and information technology, mechanical engineering, physics and astronomy and chemistry and biochemistry which are involved in the course. It can also be supervised by non-habilitated employees if they have received a formal teaching assignment for this from the faculty board. Supervision by a professor or lecturer who does not belong to these faculties is also possible. This requires the approval of the chairman of the examination board or his or her deputy.
- (4) The student has a right to propose the topic and the supervisor for the master thesis. A rejection of the proposed subject is to be justified objectively.
- (5) The task is set by the chairperson of the examination board in the examinations office of the faculty of electrical engineering and information technology. The date of issue is to be recorded.
- (6) On request, the chairperson of the examination board is to ensure that the candidate receives a topic for a master thesis.
- (7) The deadline for the master thesis is 6 months. The topic and extent of the master thesis are to be limited such that the deadline for compiling the thesis can be met (900 hours). The task set can only be rejected once within the first month of the processing time. In individual cases and on justified request by the candidate, the examination board may extend the

processing time by a period of up to four weeks. The master thesis is to be written in German or in English. The title is finalised on submission of the master thesis.

- (8) On submitting the master thesis, the candidate is to certify in writing that he or she wrote the thesis independently and used no sources or aids other than those specified and that all quotations are identified.

§ 18 Acceptance and assessment of the Master thesis

- (1) The written documentation of the master thesis is to be submitted to the examinations office in duplicate and in verifiable electronic form within the period stipulated. The date of submission is to be recorded. If the master thesis is not submitted within the period stipulated, it is regarded as assessed with 0 percentage points (“failed”).
- (2) The master thesis is to be assessed by two examiners. One of the examiners should be the person selected for setting the topic and responsible for the supervision of the master thesis. The second examiner has to belong to the group of persons specified in § 17, para. 3 and is determined by the chairperson of the examination board. The assessment by the examiners is to be carried out according to the percentage point system. The overall grade of the master thesis is formed from the arithmetic average of the individual assessments. If the grades of the two examiners differ by more than twenty percentage points, the examination board determines the overall grade. For that purpose, a third examiner will be appointed.
- (3) The assessment procedure for the master thesis including the notification to the examinations office is, as a rule, to be completed within two weeks of submission of the master thesis.

§ 19 Passing the Master examination

- (1) The master examination is passed when all the modules designated in appendix are successfully completed and 120 CP have been attained.
- (2) The master course finishes when the master examination is passed.
- (3) The overall grade of the master examination is calculated as a weighted arithmetic average (weighted with the CP) of all the graded modules and the master thesis. Decimal values are rounded up to the nearest whole number. For the designation of the grade, Table 1 from § 9 para. 3 is applied.

§ 20 Master examination certificate

- (1) Having passed the master examination, a certificate is issued with the designation “Certificate of the master examination in the degree Lasers and Photonics” in the head section. On request, the issuing of the certificate on passing the master examination can be postponed for one semester if the student repeats examinations for the purpose of improving grades taking § 10 into account. This request is to be made at the examinations office within four weeks of passing the master examination. The following are to be shown on the certificate:
 - a) The overall grade of the master examination with the average assessment in percentage points and the grade designation.
 - b) The topic of the master thesis, its assessment in percentage points and the grade designation,
 - c) The designation and the extend (CPs) of the individual modules, the assessment of the modules in percentage points and the grade designation where applicable, and the grade “passed” for modules without grade.
- (2) The certificate is signed by the chairperson of the examination board or his/her deputy and affixed with the seal of the faculty of electrical engineering and information technology.

- (3) The certificate bears the date of the last examination. In case of the master thesis, this is the date on which the thesis was submitted. It also bears the date of issuing.
- (4) If the candidate has not yet passed the master examination and he or she does not wish to continue the degree course at the Ruhr-Universität Bochum, on request and on presentation of the corresponding proofs, he or she is to be issued a written certificate. This is to include all completed examinations with the corresponding percentage points, the designations of the modules passed, their assessments in percentage points and the grade designation where applicable.

§ 21 Diploma supplement

- (1) Along with the examination certificate, the graduate is issued the diploma supplement with the date of the examination certificate.
- (2) The diploma supplement provides information on the individual specialist profile of the degree course completed.
- (3) The diploma supplement is signed by the chairperson of the examination board or his/her deputy and affixed with the seal of the faculty of electrical engineering and information technology.
- (4) The diploma supplement includes the transcript of records.

§ 22 Master certificate

- (1) Along with the examination certificate, the graduate is issued the master certificate with the date of the last examination and the date of issuing. This certifies that the academic degree and the professional title have been awarded in accordance with § 4.
- (2) The master certificate is signed by the dean of the faculty of electrical engineering and information technology and by the dean of the faculty of mechanical engineering and affixed with the seal of the faculty of electrical engineering and information technology and with the seal of the faculty of mechanical engineering.

III. Final provisions

§ 23 Invalidity of the Master examination, withdrawal of the academic degree

- (1) If a candidate has practiced deception in acquiring an examination attainment and this fact does not become known until after issuing of the examination certificate, the examination board is to retroactively amend the assessments and grades for the respective examination and, if applicable, to declare the examination as failed.
- (2) If the conditions for admission to an examination were not fulfilled, without the student intending to deceive, and this fact does not become known until after issuing of the examination certificate, this deficiency is to be remedied by passing the examination. If the candidate deliberately obtained the admission in a wrongful manner, the examination board is to decide on the legal consequences in accordance with the Administrative Procedure Act for the state of North Rhine-Westphalia.
- (3) Before a decision is made, the respective candidate should be given the opportunity to make a written statement.
- (4) The incorrect examination certificate is to be withdrawn and a new certificate issued if applicable. After a period of five years after all circumstances which justify the withdrawal become known, a decision in accordance with para. 1 and para. 2 sentence 2 is excluded.
- (5) If the examination as a whole is declared as failed due to deception, the degree M.Sc. is to be withdrawn. The examination board decides on the withdrawal. The decision is to be

implemented by the chairman of the examination board. Where applicable, the certificate concerned is to be withdrawn.

§ 24 Inspection of the examination files

- (1) After completion of the degree course, the candidate is, upon request, to be given the opportunity to inspect his or her examination files within a reasonable period.
- (2) The request is to be made to the chairperson of the examination board within one month of issuing the examination certificate. The chairperson of the examination board determines the place and time of the inspection.

§ 25 Transition rules

A master examination according to the examination regulations for the master course Lasers and Photonics from 19.II.2012, bulletin of the Ruhr-Universität Bochum No. 942, can be taken only up to the end of the winter semester 2016/2017. From summer semester 2017 on, examinations can only be taken within this actual examination regulation. On request, this examination regulation may be applied to students who study following another examination regulation of the faculty. A proposal on application is irrevocable.

§ 26 Effective date and publication

- (1) These examination regulations come into effect on the date of their publication and are applicable for all students enrolling in this degree course from the winter semester 2015/2016.
- (2) These examination regulations are to be published in the Official Bulletins of Ruhr-Universität Bochum.

Issued on the basis of the resolutions of the faculty board of the faculty of electrical engineering and information technology of 18 February 2015.

Bochum, 23 August 2015

The Rector
of the Ruhr-Universität Bochum
University Professor Dr. Elmar Weiler

Appendix 1
for the examination regulations of the Master Course
“Lasers and Photonics”
at the Ruhr-Universität Bochum

List of Modules

	Modules	Courses	Amount of Module (LP)	Semester of examination	autom. registration in 3. Sem.	autom. examination repeat	Grading
Mandatory modules							
1	English	English for Academic purposes English for Special purposes	6	1-3	yes	yes	ungraded
2	Laser Technology	Laser Technology	6	1-3	yes	yes	graded
3	Laser Materials Processing	Laser Materials Processing	6	1-3	yes	yes	graded
4	Laser Metrology	Laser Metrology	6	1-3	yes	yes	graded
5	Optical Metrology	Optical Metrology	6	1-3	yes	yes	graded
6	Optoelectronics	Optoelectronics	6	1-3	yes	yes	graded
7	Photonics	Photonics Optics Fundamentals	6	1-3	yes	yes	graded
Mandatory elective modules							
8	Mandatory elective courses	Courses from the course catalogues *	a	1-3	no	no	graded
9	Practical subjects	Courses from the course catalogues *	b	1-3	no	no	ungraded
Free Elective Courses							
10	Free elective Courses	Free choice	c	1-3	no	no	ungraded
Master thesis							
11	Master thesis	Master thesis	30	4	no	no	graded
sum:			120				

* Catalogues for the mandatory elective courses are published in the module handbook.

$$a+b+c \geq 48 \text{ LP}; a \geq 20 \text{ LP}; b \geq 6 \text{ LP}; c \geq 16 \text{ LP}$$