

Examination Regulations

for

Information Engineering and Computer Science M.Sc.

at Rhine-Waal University of Applied Sciences

Dated 14 May 2014

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Section 1 Applicability

These examination regulations shall apply to the English-taught master's degree programme Information Engineering and Computer Science of the Faculty of Communication and Environment of Rhine-Waal University of Applied Sciences.

Section 2 Aims and objectives; purpose of examination; master's degree

(1) With due regard to the general study objectives outlined in Section 58 of the Higher Education Act of North Rhine-Westphalia (HG NRW) and on the basis of sound scientific knowledge, this master's degree programme should convey, in particular, application-oriented content and enable students to apply methods from the natural sciences, engineering and information technology, to develop practical solutions to problems in their field while taking relevant interdisciplinary approaches into account, and to conduct scientific research. A strong command of the English language is key to achieving success in this degree programme, as it provides the essential basis for this programme's continuous goal of broadening and enhancing students' technical language skills.

- (2) Moreover, this master's degree programme aims to produce graduates who:
- are able to grasp the many interrelated concepts within their discipline and chosen field of study, and are able to link these concepts to knowledge and competencies from other disciplines;
 - are able to undertake scholarly work and employ research methodology at a level which would also suffice for an advanced dissertation;
 - are adept at developing evidence-based solutions for practical, real-world scenarios;
 - can employ theoretical-analytical skills over a wide range of application fields;
 - possess the technical skills and key qualifications necessary for a seamless transition to a professional career.

In addition, the degree programme should both impart and promote intellectual and social competencies. These include, for example, attributes such as:

- the ability to think abstractly, analytically, dialectically and globally;
- the ability to quickly familiarise oneself with new fields, disciplines and areas of responsibility;
- self-reliance, creativity, open-mindedness and plurality;
- effective communication skills;
- the ability to give and receive criticism in a professional environment.

(3) The master's examination concludes this programme of study. It serves to assess each student's individual performance over the course of the programme and to determine whether he or she has achieved the aforementioned goals.

(4) The academic degree “Master of Science”, abbreviated as “M.Sc.”, shall be awarded for successfully completing the master’s examination.

Section 3 **Entry requirements**

(1) The prerequisites for admission to this degree programme are:

1. Proof of a professionally qualifying first degree, which was earned in programme of study that consisted of at least 210 ECTS credit points or a standard period of study of no less than seven full-time semesters, and which was in one of the following undergraduate degree programmes: E-Government, Media Communication and Computer Sciences, Mobility and Logistics, Environment and Energy, Communication and Information Engineering, or in a similar degree programme with a curriculum that heavily emphasises computer science/informatics.
2. A final mark for said first degree of 2.3 or better (according to the German grading scale).
3. Proof of having acquired at least 10 ECTS credit points in mathematics as well as at least 20 ECTS credit points in scientific-technological fields.
4. Proof of sufficient proficiency in the English language, demonstrated by a language certificate of level B2 according to the Common European Framework of Reference for Languages (CEFR). Generally, the following language tests and scores are accepted as valid proof:

– IELTS:	6.0 or higher
– TOEFL (iBT):	minimum 80
– TOEFL (PBT):	minimum 550
– TOEFL (CBT):	minimum 213
5. Exempted from this language certificate requirement are applicants who have acquired English language proficiency equivalent to level B2 over the course of earning their university entrance qualification [Hochschulreife] at a secondary school in Germany. This is considered the case when an applicant has successfully completed at least seven years of English at a German secondary school and earned a final cumulative mark of at least “sufficient” (4.0 or better) for the subject.

(2) Deviating from paragraph (1) no. 1, if an applicant has earned a qualifying undergraduate degree in a programme that consisted of less than 210, but at least 180 ECTS credit points (hereinafter “CP”), or had a standard period of study of less than seven, but at least six full-time semesters, then said applicant may be admitted to this programme of study on a provisional basis with the stipulation that he or she must successfully complete the missing bachelor-level requirements during his or her master’s studies. In most cases, the Examination Board and the applicant will conclude a formal “learning agreement”, which states the scope of the missing ECTS points and specific modules which are to be completed. Admission to the master’s thesis is dependent upon the acquisition of a set number of ECTS CP (see Section 20 (1) no. 3). In some cases it may be possible to receive credit for equivalent prior learning or vocational training in order to meet CP requirements related to this programme.

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(3) The Examination Board of the faculty shall be responsible for deciding whether the prerequisites in paragraph (1) have been met on the basis of the submitted documentation and, if necessary, a face-to-face discussion with the applicant on specialist topics relevant to the field of study. The subject-relevance requirement of the applicant's undergraduate degree is considered met if the degree was completed in the same field or a field related to this master's degree programme. In all other cases, applicants must demonstrate a sufficient level of technical expertise and competence which is comparable in scope and content to an undergraduate degree as defined by sentence 2.

(4) In certain justified cases, applicants may also submit a request for exemption from the English language certificate requirement in paragraph (1) no. 4. Such a request is normally justified when the applicant has completed his or her first professionally qualifying degree in English and in a majority English-speaking country. The Examination Board is responsible for approving or rejecting these requests. If an applicant completed his or her first professionally qualifying degree at Rhine-Waal University of Applied Sciences, then no further proof of English proficiency is required.

(5) An applicant is ineligible for admission to this programme of study if he or she was previously deregistered (exmatriculated) from the same programme of study at a university that is subject to German Basic Law [Grundgesetz] for failing the final attempt at passing a compulsory examination as stipulated by that institution's examination regulations. Further, an applicant is ineligible for admission to this programme of study if he or she was previously deregistered from a related or comparable programme of study at a university that is subject to German Basic Law for failing the final attempt at passing a compulsory examination as stipulated by these examination regulations. A "related or comparable programme of study" is defined as any master's degree programme at a university or university of applied sciences in Germany if that programme's contents predominately fall under the mantle of e-government, media communication and computer sciences, mobility and logistics, environment and energy, communication and information engineering or a similar degree programme with a curriculum that heavily emphasises computer science/informatics.

Section 4

Standard period of study; structure of programme; volume of study

(1) The standard period of study, including time for all examinations, is three semesters.

(2) This degree programme is divided into modules. As a rule, a "module" refers to a specific group of thematically-related and chronologically coordinated course units that contribute to a uniform education and qualification goal. The master's thesis and colloquium each constitute individual modules. In accordance with the framework outlined in Section 5 (5), compulsory modules in this degree programme comprise a total sum of 90 CP.

(3) The volume of study comprises 50 semester credit hours, or *Semesterwochenstunden* (SWS).

(4) Additional information about the structure of the programme, as well as about the type, form and scope of modules, can be found in the study and examination schedule in the annex of these examination regulations. For details about a module's qualification aims,

content and most commonly offered mode of examination, please refer to the descriptions in the module guide, which is available in the dean's office for all students and staff to review.

Section 5

Structure of the master's examination; credit points

(1) As specified in the study and examination of this programme (see annex), the master's examination comprises all examinations administered over the course of the programme as well as the final examination section, which consists of the thesis and the colloquium.

(2) As specified in the study and examination schedule, examinations may cover a module as a whole or individual course units therein and thus mark the full conclusion of either the whole module or only a component thereof. Assessment shall occur either before or immediately after the final session(s) of the corresponding course unit(s). The thesis topic is usually set in the third semester and issued to the student in a timely matter so that the colloquium can be completed before the end of the semester.

(3) The progression of study and examination procedures must be planned in such a way that the master's examination can be completed within the standard period of study.

(4) Examination procedures must allow for the rights granted to students under the German Maternity Leave Act [Mutterschutzgesetz], the German Child Benefits and Parental Leave Act [Gesetz zum Elterngeld und zur Elternzeit], as well as the right to a leave of absence for providing care to those persons specified in Section 48 (5) sentence 5 HG NRW. In general, if a student requires a change in the timing of examination procedures, he or she must submit a written request to the Examination Board.

(5) The master's examination is based on a credit point system. All modules and course units are assigned a value in credit points (CP) in accordance with the European Credit Transfer and Accumulation System (ECTS). The number of CP awarded for a module is based on the prescribed workload that is usually needed to complete the individual course units and the module as a whole. As per the ECTS learning agreement, one CP represents a workload for students of approximately 25 to 30 hours. Furthermore, the allocation of CP is based on the assumption that a student's workload for a full year of study is equal to 60 CP in total. Credit points are successfully acquired for a module when a student fulfils the requirements of the respective examination(s) therein. Earned credit points are recorded in the student's credit point account, which is maintained on his or her behalf by the Examination Board.

Section 6

Examination Board

(1) An Examination Board shall be established for the purpose of organising examinations conducted within its respective faculty and assuming the duties and obligations allocated by these examination regulations. The Examination Board is an independent body of Rhine-Waal University of Applied Sciences, as well as a public authority within the meaning of German administrative procedural law. An Examination Board shall consist of a

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Chair, a Deputy Chair, and five additional members. The Chair, the Deputy Chair, and two additional members shall be elected by the Faculty Council from among the faculty's professors, one member shall be elected from the faculty's scientific staff, and the remaining two members from the faculty's student body. The term in office for full-time employees of the university and their proxies shall be four years; the term in office for student members and their proxies shall be one year. Members may be re-elected.

(2) The Examination Board of the Faculty of Communication and Environment (hereinafter "Examination Board") is responsible for ensuring compliance with these examination regulations within the faculty. The duties and responsibilities of the dean as outlined in Section 27 (1) HG NRW shall hereby remain unaffected. The Examination Board is responsible, in particular, for ruling on appeals submitted against decisions made during examination procedures. In addition, the Examination Board is responsible for presenting an annual report to the Faculty Council on ongoing trends and developments in examinations and lengths of study. This report shall include corresponding recommendations for reforms or alterations to the examination regulations and curricula. The Examination Board may delegate its everyday duties and tasks to the Chair, but not in the case of rulings on appeals submitted by students.

(3) The Examination Board shall have a quorum when the Chair or Deputy Chair, one or more additional professor, and at least two additional members with voting power are present at a meeting. Furthermore, at least half of the members with voting power in attendance must be professors. The Examination Board shall pass resolutions with a simple majority. In the event of a tie, the deciding vote shall be cast by the Chair. Student members of the Examination Board, as well as the member from the scientific staff, shall not participate in votes on scientific-pedagogic decisions, in particular decisions on the recognition or assessment of examination results or on the appointment of examiners and observers. Furthermore, student members shall not participate in decisions or discussions on issues that relate to their own examinations or to examination questions.

(4) Examination Board members have the right to observe examinations within their respective faculty. Student members are prohibited from observing an examination if they are required to sit that same examination on the day in question.

(5) All members of an Examination Board, their proxies, examiners and observers are subject to strict confidentiality requirements. Those members not employed in public service in Germany shall be sworn to secrecy by the Chair of the Examination Board.

(6) Any detrimental decisions made by the Examination Board or its Chair must be communicated to the affected student without delay. Affected students shall be given the opportunity for a fair hearing before a final decision is made.

Section 7

Examiners and observers

(1) All members of the teaching staff at Rhine-Waal University of Applied Sciences are authorised to act as examiners. In exceptional cases, non-members of the teaching staff may be authorised to act as examiners, provided they have the relevant vocational and

occupational experience and this decision is deemed necessary and appropriate for accomplishing the purpose of the examination (as second examiner for the thesis, for example). Examiners must possess at least those qualifications being assessed by the respective examination, or equivalent qualifications; this also applies to any qualified observers present during oral examinations. Examiners and observers are appointed by the Examination Board. They shall carry out their duties without regard to any outside instruction.

(2) The Examination Board is responsible for ensuring that testing obligations are distributed as evenly as possible among examiners.

(3) The Chair of the Examination Board shall notify students of the names of the examiners in a timely manner. Students shall be notified ideally upon admission to the examination, but in general no later than two weeks before the scheduled examination date, or, in the case of the master's thesis, at the latest when the thesis topic is formally issued. Notification by electronic means or public display is sufficient.

Section 8

Credit transfer and recognition of prior learning

(1) Prior periods of study and related examinations (both passed and failed) and coursework, which were completed in an identical programme of study (full or partial) at a university that is subject to the Basic Law of Germany, shall be recognised officially and fully without an equivalence assessment. A "period of study" is defined as any evaluated and documented component of a degree programme at a German university, which, while not equivalent to a full programme of study, nevertheless constitutes a significant acquisition of knowledge or skill.

(2) Prior periods of study, related examinations (both passed and failed), and other coursework not covered under paragraph (1) shall generally be recognised fully on application, unless otherwise deemed not equivalent. Periods of study and related examinations or other completed coursework are considered equivalent if they share fundamentally similar content, scope and requirements as their counterparts in this degree programme. Furthermore, equivalency shall not be determined by a side-by-side schematic comparison, but rather by examining and evaluating the overall competencies acquired in each specific case. The equivalency of prior learning achievements completed at universities and institutions outside of Germany shall be determined on the basis of the equivalency agreements approved by the Standing Conference of the Ministers of Education and Cultural Affairs in Germany [Kultusministerkonferenz] and the German Rectors' Conference [Hochschulrektorenkonferenz]. In cases of doubt regarding equivalency, the Central Office for Foreign Education [Zentralstelle für ausländisches Bildungswesen] may also be heard.

(3) Skills and qualifications acquired in other contexts can also be credited.

(4) Students are responsible for providing all necessary documentation for the recognition of prior learning within two weeks of initial enrolment at Rhine-Waal University of Applied Sciences. Documents must clearly state the completed period(s) of study and the related passed or failed examinations or other coursework, as well as all other skills and qualifications which are to be credited in each case. As a rule, when previous periods of

study and credits from university degree programmes are to be credited, students must submit the relevant examination regulations complete with descriptions of the modules, as well as the individual transcript of records or a comparable document.

(5) If a credit transfer request is approved, the marks for the prior learning achievements – in those cases where a mark was awarded and the grading system is comparable – shall also be transferred and included in any relevant mark calculations. If no mark was awarded or the grading system is not comparable, but it is possible to surmise a mark based on specific evidence or indications, then a mark shall be assigned according to the scale in Section 10 (3) and the credit transfer process shall proceed according to sentence 1 of this paragraph. If there is a lack of evidence pointing to a specific mark, then a passed examination shall be credited without a mark and not included in any grade calculations. Failed examination attempts will be credited as failed without a mark; Section 11 shall govern subsequent re-examinations. Successful transfer of credits shall also be documented in the final grade certificate (see Section 26 (1)).

(6) A maximum of 50 CP may be transferred for prior examinations, coursework or other qualifications. In the case of the master's thesis, the colloquium or other project requirements, credit transfers are not permissible. In specific, exceptional circumstances, the Examination Board may deviate from the provisions in sentences 1 and 2.

(7) The Examination Board is responsible for all decisions relating to credit transfers. Before decisions are made with regards to equivalency, the responsible subject representatives at the University must be consulted.

Section 9 Placement examination

(1) Applicants who have acquired the skills and knowledge necessary for successful studies, but by means other than a university degree, are eligible to sit a placement examination [Einstufungsprüfung] and, depending on the results, to begin their studies in an advanced semester, provided this does not clash with any applicable regulations for the allocation of places at a university in Germany.

(2) Depending on the results of the placement examination, an applicant may be partially or fully exempted from certain course units and their respective examination requirements. Examinees shall receive written confirmation of the results of their placement examination.

(3) Details concerning the type, form and scope of placement examinations are specified in the Placement Examination Regulations of Rhine-Waal University of Applied Sciences.

Section 10 Evaluation of examinations

(1) Examinations are evaluated and differentiated by marks. Marks are awarded by the examiner responsible for the examination in question.

(2) If multiple examiners are responsible for a single examination, then they shall evaluate the whole examination together, unless otherwise specified below. Where the individual evaluations for an examination are not identical, the final mark shall be calculated by averaging the points of the individual scores.

(3) Examinations shall be marked according to the following scale:

1	= very good	= excellent
2	= good	= well above average
3	= satisfactory	= average
4	= sufficient	= meets all requirements despite shortcomings
5	= failed	= does not meet requirements due to significant shortcomings

Marks can be raised or lowered in increments of 0.3 points, allowing for more precise assessment; the marks 0.7, 4.3, 4.7 and 5.3 cannot be awarded.

(4) For marks that fall between two whole numbers, the following ranges shall apply:

1.0 – 1.5	=	very good
1.6 – 2.5	=	good
2.6 – 3.5	=	satisfactory
3.6 – 4.0	=	sufficient
4.1 – 5.0	=	failed

Only the first decimal place shall be taken into account; all other decimal places are dropped without rounding.

(5) An examination is passed if a mark of “sufficient” (4.0) or better was awarded.

(6) The mark for a module consisting of multiple separate examinations shall be calculated by averaging the marks earned for these individual examinations. The marks shall be weighted by their credit point value.

(7) Students shall be informed of the results of written examinations (Section 16) no later than six weeks after the end of the examination phase. Students shall be informed of the results of an assignment, term paper or project (Section 18) no later than six weeks after the submission deadline. Notification by electronic means or public display is sufficient. Students shall be informed of the results of their thesis within eight weeks. Students shall be informed of the results of oral examinations (Section 17) immediately after their conclusion.

(8) The final cumulative grade for the master’s examination is also supplemented by an ECTS grade, providing a relative assessment of academic performance in addition to an absolute assessment. An ECTS grade illustrates a student’s individual performance in relation to the performance of other graduates in the same programme of study. Accordingly, graduates who are among the:

top 10% of their class will receive the grade:	“A”;
the next 25% will receive the grade:	“B”;
the next 30% will receive the grade:	“C”;
the next 25% will receive the grade:	“D”;
and the final 10% will receive the grade:	“E”.

Section 11

Repeating examinations

(1) Failed examinations may be repeated up to two additional times. The thesis and the colloquium, however, may be repeated only once. Previously failed examination attempts, which were undertaken in a related or comparable programme of study, shall count towards a student’s remaining attempts at passing that examination at Rhine-Waal University of Applied Sciences.

(2) Passed examinations cannot be repeated for a better mark.

(3) Students who do not re-sit a failed examination within two semesters shall be automatically registered for a repeat examination on a compulsory basis by the Examination Board. Details are outlined in paragraph (4) below.

(4) If a student has not undertaken a re-examination attempt for a previously failed examination nor submitted an application to do so before the last remaining opportunity before the final deadline, then that student shall be automatically registered for this last opportunity on a compulsory basis. This shall also apply in those cases when no re-examination opportunity for that particular examination was offered before the deadline. If a student registers for the last re-examination date of his or her own accord, then he or she is prohibited from withdrawing from the re-examination within the meaning of Section 14 (6). If the student fails to appear to the re-examination and cannot provide good reason for his or her absence, then the examination attempt shall be evaluated as “failed” (5.0). The Examination Board must be notified in writing immediately of any mitigating circumstances for an absence, and credible evidence must also be provided. In cases of illness, the Examination Board reserves the right to request a corresponding medical certificate from a doctor of the board’s choosing. If the Examination Board recognises the mitigating circumstances provided, then the deadline shall be extended until the next examination date offered for that particular examination.

(5) Exempted from compulsory registration to re-examinations are students who are on an official leave of absence in accordance with Section 9 of the Enrolment Regulations [Einschreibungsordnung] of Rhine-Waal University of Applied Sciences. In exceptional circumstances, students may apply for an exemption from compulsory registration to a re-examination, particularly in the case of students who:

- a) are actively involved in the care and upbringing of minors, in the sense of Section 25 (5) of the German Federal Education and Training Assistance Act [Bundesausbildungsförderungsgesetz]; or

- b) participate as elected representatives in organs of the university, the student body or the Faculty Student Representatives; or
- c) are currently exercising the office of Equal Opportunities Officer; or
- d) have an impairment or serious illness which prolongs the duration of study.

In the case of a), an exemption should generally not exceed three semesters; in cases b) and c), it should generally not exceed two semesters.

Section 12

Withdrawal, examination offences, penalties for violations

(1) An examination shall be evaluated as “failed” (5.0) if a student is registered for an examination but fails to appear without good reason, or if a student withdraws from an examination in-progress without good reason or otherwise does not complete an examination requirement before the deadline. Sentence 1 shall also apply when a student does not submit a master’s thesis or an examination in the form of an assignment, term paper or project before the deadline without good reason.

(2) The Examination Board must be notified immediately and in writing of any mitigating circumstances for missing an examination, withdrawing from an examination or failing to submit an examination before the deadline, and credible evidence must also be provided. In cases of illness, the Examination Board reserves the right to request a medical certificate from a doctor of the board’s choosing. If the Examination Board recognises the mitigating circumstances provided, then the student shall be notified that he or she is permitted to register again for the same examination without penalty.

(3) If a student attempts to cheat or otherwise manipulate the results of an examination through deception, fraud, usage of any non-permissible aids or reference materials, etc., then the examination in question shall be evaluated as “failed” (5.0). A student who disrupts the due and orderly examination process can be excluded from the remainder of that examination, usually after first receiving a warning from the examiner or proctor/invigilator; in this case the excluded student shall be awarded the mark “failed” (5.0) for that examination. The reason(s) for exclusion shall be put on official record. If a student is excluded from an examination, he or she may appeal the decision to the Examination Board. This right also extends to exclusion on the basis of deception, fraud, usage of non-permissible aids or reference materials, etc.

(4) In the case of repeat or otherwise serious examination offences such as fraud or deception, the master’s examination can be declared definitively and irreversibly failed. The Examination Board shall be responsible for this decision. If a master’s examination is declared to be definitively and irreversibly failed, the student in question shall be automatically deregistered (exmatriculated) from this degree programme.

Section 13

Purpose, scope and types of examinations

(1) The purpose of examinations is to continually assess over the course of the degree programme whether a student has acquired proficiency in the contents and methods of

specific subject areas, and can independently and correctly apply the acquired knowledge and skills.

(2) Examination requirements are based on the contents of the related course unit(s). Examination material is subject to change, though students have the right to expect it to remain unchanged for up to a maximum of three successive examination dates.

(3) Examinations are generally conducted in the form of written examinations (Section 16), oral examinations (Section 17), or as assignments, term papers or projects (Section 18). A combination of these examination types is possible with the consent of the Examination Board.

(4) The Examination Board will specify the type of examination – as well as the duration in the case of written examinations – generally before the start of the related course unit, in agreement with the examiner(s) and in a uniform and binding manner for all participating students. In addition, the Examination Board is responsible for informing students of this information. Notification by electronic means or public display is sufficient.

Section 14 **Entry requirements for examinations**

(1) Students can be admitted to an examination only if they:

1. meet the general prerequisites of study outlined in Section 3 and,
2. are officially enrolled as students or have visiting student status [Zweithörer/-in] at Rhine-Waal University of Applied Sciences on the date of examination.

(2) In general, an application for entry to an examination must be submitted online via the appropriate platform before the deadline set by the Examination Board, or otherwise in writing to the Chair of the Examination Board.

(3) The application must include documents proving that the prerequisites in paragraph (1) have been met, provided that these documents were not submitted previously

(4) An application for entry to an examination shall be denied if:

- a) the prerequisites in paragraph (1) have not been met; or
- b) submitted documents were incomplete and missing documents were not submitted before the deadline set by the Examination Board; or
- c) the student has previously failed the final permissible attempt for a required examination as per the relevant examination regulations in the same programme of study at a university that is subject to German Basic Law, or the final attempt at an examination that is equivalent to the examination specified in the application and in a related or comparable programme of study.

(5) The Chair of the Examination Board, or the Examination Board itself in cases of doubt, shall be responsible for all decisions regarding admission to an examination. Notification by electronic means or public display is sufficient.

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(6) A student can submit a request to the Chair of the Examination Board to withdraw from an examination – generally via the appropriate online platform, otherwise in writing – by no later than ten days before the start of the respective examination phase without loss of an examination attempt.

Section 15

Conduct of examinations

(1) Dates for examinations shall be set in such a way that they do not require the cancellation of other course units.

(2) Students shall be notified of the date of an examination in a timely manner, generally at least two weeks before the examination in question. Notification by electronic means or public display is sufficient.

(3) For identification purposes, students must present their Rhine-Waal ID card in addition to an officially recognised photo ID (e.g. passport) upon request by the examiner or proctor/invigilator.

(4) If a disabled student within the meaning of Section 3 of the Equal Rights for Disabled Persons Act [Behindertengleichstellungsgesetz] can demonstrate via medical certificate or by other credible means that he or she is not able to sit the examination in its current form, in part or in full, due to his or her impairment, then the Chair of the Examination Board may permit the student to sit an equivalent examination in a specially arranged form. The Chair of the Examination Board is responsible for ensuring, where possible, that the testing conditions do not discriminate against disabled students; in cases of uncertainty, the Chair may request further evidence of impairment from the student in question. Special examination arrangements for disabled students can include in particular:

- extending the duration of examinations / the time allotted to students;
- providing individual rest periods during a timed examination;
- splitting examinations into smaller parts;
- replacing written examinations with oral examinations, or vice versa;
- permitting and, where applicable, providing additional aids or reference materials, personal assistance, adapted examination documents or separate testing areas.

Section 16

Written examinations

(1) The purpose of a written examination [Klausur] is to assess whether students are able to recognise and solve problems in a particular examination field using commonly employed methods and techniques within a set amount of time and with limited help from aids or reference materials. Written examinations may also be conducted on a computer, subject to the approval of the Examination Board, provided that the technical conditions ensure compliance with all statutory data privacy and protection requirements.

(2) The time allotted to students for a written examination is based upon the number of semester credit hours (SWS) for the respective course unit. As a general rule, 60 minutes shall be allotted for every two semester credit hours.

(3) Written examinations are supervised. The examiner shall decide which aids or reference materials, if any, are permitted during an examination.

(4) As a rule, the examination question for a written examination is set by a single examiner. Where justified by subject matter, particularly when multiple disciplines are covered by a single examination, multiple examiners may set the examination question. In this case, examiners shall first jointly define the weighting of the different parts of the examination question.

(5) If a student is repeating a previously failed written examination for the final time permitted by German law, then that final attempt shall be evaluated by two examiners. In all other cases, evaluation by a single examiner is sufficient. In those cases described in paragraph (4) sentence 2, each examiner shall evaluate, in general, only their respective part of the examination question; sentence 1 remains unaffected.

Section 17 **Oral examinations**

(1) An oral examination shall be conducted before a single examiner in the presence of a qualified observer, or before a panel of examiners as a group or individual examination. In examinations where an observer is present, the observer has a right to be heard before the mark is determined. In examinations before a panel of examiners, the examiners shall jointly evaluate the examination performance.

(2) Oral examinations generally require at least 30, but no more than 45 minutes. In the case of group examinations, group members will be informed of the duration of their oral examination in advance.

(3) A record shall be kept of the main topics and the results of an oral examination, including, in particular, all facts used to justify the awarded mark.

(4) Students intending to sit the same oral examination at a later date are permitted to attend the examination of others, provided that there is sufficient space available and the student(s) being tested do not object. Observing students are not permitted to be present during post-examination discussions or when the mark is disclosed.

Section 18 **Assignments, term papers, projects**

(1) Examinations in the form of take-home assignments, term papers or projects involve clearly defined tasks that are taken directly from the theory and practice of the subject area being tested. These examinations may also be supplemented with a presentation and/or a question-and-answer discussion at an advanced level. The examination can be conducted as a group examination if each student's individual contribution is recognisable and verifiable to

a sufficient degree. The topic and task must be arranged in such a way that it is possible to complete the assignment, term paper or project within the given deadline.

(2) An assignment, term paper or project must generally be completed within a period of no more than four months. As a rule, the text portion should not exceed 30 DIN A4 pages in length (not including annexes).

(3) The Chair of the Examination Board or the assigning examiner shall notify students of the task, deadline and submission method for the assignment, term paper or project in writing, by electronic means or by public display.

(4) Section 16 (5) sentences 1 and 2 shall apply accordingly.

(5) When submitting an assignment, term paper or project, students must also include written and signed confirmation that all work – or, in the case of group work, all of the submitting student's respective and appropriately marked individual contribution – was produced independently and made use of no resources or sources other than those which were clearly stated, with quotations duly marked as such.

Section 19 **Master's thesis**

(1) The purpose of the master's thesis is to assess whether students, given a limited period of time, can employ scientific and application-oriented methods in order to independently develop a practice-oriented scholarly work in their field of study. At the same time, the master's thesis serves as a way for students to demonstrate that they have systematically and methodically studied the subject area, that they used abstract and analytical thinking above and beyond the isolated case when developing a solution, and that they duly examined both the technical minutiae and the overarching multidisciplinary correlations of the topic. The master's thesis is usually an independent scientific enquiry into the assigned topic, including a comprehensive description and explanation of the generated results. The thesis topic is ultimately set and supervised by a professor or lecturer of the Faculty of Communication and Environment who also teaches in the Information Engineering and Computer Science M.Sc. programme. Before a topic is officially assigned, students have the right to suggest a topic of their own choosing.

(2) The thesis topic can be set and supervised by any professor who is authorised to act as an examiner as per Section 7 (1). At the request of the student, the Examination Board can also appoint as a supervisor an honorary professor or a lecturer with relevant experience in the corresponding duties and tasks of a thesis supervisor. The thesis can also be completed at a company or institution outside of the university, provided that a sufficient level of supervision can be assured and subject to the approval of the Examination Board. Students shall be given the opportunity to suggest a subject area for their thesis.

(3) The Chair of the Examination Board shall ensure that students are assigned a thesis topic in a timely manner after submission of the necessary application documents.

(4) The thesis can also be admitted in the form of group work if each student's individual contribution fulfils the requirements in paragraph (1) and is clearly distinguishable and thus assessable due to clear delimitation by section, page numbers or other criteria which ensure the clear delimitation of parts.

(5) Generally, the text portion of the thesis should be between 70 and 90 DIN A4 pages in length (not including annexes), though the exact requirement is set by the respective examiner. The thesis can be supplemented with other media as well, provided they are appropriate and helpful tools for documenting the work in accordance with the assigned task.

Section 20

Entry requirements for the master's thesis

(1) Students are eligible for admission to the master's thesis if they:

1. meet the general prerequisites for study outlined in Section 3; and
2. are officially enrolled as students or maintain visiting student status [Zweithörer/-in] as per Section 52 (2) HG NRW at Rhine-Waal University of Applied Sciences for the full duration of the thesis; and
3. have acquired at least 50 CP in this master's programme.

(2) The Application for Submission of a Master's Thesis must be submitted in writing to the Chair of the Examination Board. Students must also include a declaration of any previous attempts at completing a master's thesis. Furthermore, the application must clearly indicate the name of the examiner who is prepared to assign and supervise the thesis.

(3) On written request, a student may withdraw his or her application without loss of an examination attempt and at any time before the official decision regarding the application has been announced.

(4) The Chair of the Examination Board or, in cases of doubt, the Examination Board itself, is responsible for decisions regarding admission to the master's thesis. Applications for admission shall be denied when:

- a) the prerequisites listed in paragraph (1) have not been met; or
- b) documents are missing or incomplete; or
- c) the applicant has previously failed the final permissible attempt for a required examination as per the relevant examination regulations in the same programme of study, or the final permissible attempt at a master's thesis in a related or comparable programme of study at a university that is subject to German Basic Law.

Section 21

Date of assignment and writing the master's thesis

(1) The thesis shall be formally assigned by the Chair of the Examination Board. The date of assignment is defined as the day on which the Chair of the Examination Board notifies the student of the topic set by the thesis supervisor; the date of assignment shall be put on official record.

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(2) Students are given a period of 20 weeks – from the date of assignment to the submission deadline – in order to complete the thesis. Students are not permitted to submit the master’s thesis within the first eight weeks from the the date of assignment. The topic and task of the thesis must be set in such a way that it is possible to complete the thesis before the deadline. In exceptional cases, the Chair of the Examination Board can extend the deadline up to four weeks on the basis of a duly justified request submitted before the original submission deadline. The thesis supervisor is to be heard in connection with this request.

(3) Students may request a new thesis topic one time and without specifying reasons, but only within the first four weeks after the date of assignment. If the requesting student is attempting to pass the master’s thesis for a second time, he or she may only request a new topic if this was not done during the first attempt.

(4) In the case of a disabled thesis candidate within the meaning of Section 3 of the Equal Rights for Disabled Persons Act [Behindertengleichstellungsgesetz], Section 15 (4) of these regulations shall apply accordingly.

Section 22

Submission and evaluation of the master’s thesis

(1) The thesis must be submitted to the Chair of the Examination Board before the deadline and as a hard copy, in triplicate, and additionally on a CD-ROM containing a PDF copy and a copy in the original file format (PAGES or WORD). The date of submission shall be put on official record; if a thesis is submitted via post, the postmarked date shall be recorded as the date of submission. Students must also include a written and signed confirmation that all work – or, in the case of group work, all of the submitting student’s respective and appropriately marked individual contribution – was produced independently and made use of no resources or sources other than those which were clearly stated, with quotations duly marked as such.

(2) The thesis shall be evaluated by two examiners. One of the examiners shall be the candidate’s thesis supervisor. If the thesis supervisor is an honorary professor or a lecturer, then the second examiner must be a professor of the Faculty of Communication and Environment. If the marks awarded by the examiners are not identical, but the difference is less than 2.0 points, then the final mark shall be calculated by averaging the two scores. If the difference in scores is greater than or equal to 2.0, then a third examiner shall be appointed by the Examination Board. In this case, the final mark shall be calculated by averaging the two best scores. A final mark of “sufficient” (4.0) or better can only be awarded if at least two of the marks are equal to “sufficient” (4.0) or better. All evaluation decisions shall be justified in writing by the examiners.

(3) Twenty-seven CP shall be awarded for passing the thesis.

Section 23 Colloquium

(1) The colloquium is an oral defence (or *viva voce*) of the master's thesis which is evaluated separately and must be held no later than two months after the date of submission of the thesis. The purpose of the colloquium is to assess whether a student is able to orally express the findings of the thesis and their interrelatedness to concepts and ideas both inside and outside of the subject area, to independently justify the findings, and to assess their practical significance. The discussion with the candidate will revolve around the treatment of the thesis topic.

(2) Students are eligible for admission to the colloquium if they:

1. meet the general prerequisites outlined in Section 3; and
2. are officially enrolled as students or have visiting student status [Zweithörer/-in] as per Section 52 (2) HG NRW at Rhine-Waal University of Applied Sciences at the time of the colloquium; and
3. have acquired at least 87 credit points.

(3) The application for admission to the colloquium must be submitted to the Chair of the Examination Board. Students must also include a declaration of all previous attempts at completing a post-thesis colloquium. Students may submit an application for admission to the colloquium when they apply for admission to the thesis; in this case, the application shall be approved when the prerequisites in paragraph (2) are met. Additionally, Section 20 (4) shall apply for the approval and rejection of an application for admission to the colloquium.

(4) The colloquium shall be conducted as an oral examination before the examiners of the thesis, who are responsible for evaluating the discussion and assigning a mark. Should the situation outlined in Section 22 (2) sentence 5 occur, then the colloquium shall be conducted before the two examiners whose marks were used to calculate the final averaged mark for the thesis. The colloquium usually lasts for approximately 45 minutes. In all other matters relating to the conduct of the colloquium, the provisions governing the conduct of oral examinations (Section 17) shall apply accordingly.

(5) In the case of disabled students within the meaning of Section 3 of the Equal Rights for Disabled Persons Act [Behindertengleichstellungsgesetz], Section 15 (4) of these regulations shall apply accordingly.

(6) Three CP shall be awarded for passing the colloquium.

Section 24 Final results of the master's examination

(1) The master's examination is passed when a student successfully earns 90 CP in this degree programme.

(2) The master's examination is deemed failed when a student's final attempt at passing one of the compulsory regular examinations, the thesis or the colloquium is evaluated as "failed" (5.0) or otherwise considered to be evaluated as "failed" (5.0). In this case, the

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candidate shall receive a written declaration informing him/her of the failed master's examination or the irretrievable loss of the right to sit examinations as per Section 11 (1), as well as providing an explanation of available legal recourse. On written request after deregistration (exmatriculation), the Examination Board can issue a certificate listing all successfully completed examinations and their final marks as well as the examinations still needed to pass the master's examination. This certificate must clearly show that the deregistered (exmatriculated) student has definitively and irreversibly failed the master's examination or lost his or her right to sit examinations as per Section 11 (1).

Section 25

Final grade certificate, final mark, diploma supplement

(1) Students shall be promptly issued a final grade certificate [Abschlusszeugnis] upon passing the master's examination, where possible within four weeks after the colloquium. The final grade certificate shall contain a full list of completed modules and awarded marks, the topic, mark and names of examiners for the thesis, the mark for the colloquium, and the overall final mark for the master's examination. If credits were transferred from a different institution as per Section 8, then their origin shall also be noted.

(2) The overall final mark for the master's examination shall be equal to the weighted average of the individual marks listed in paragraph (1) sentence 2 and in accordance with the grading scale defined in Section 10 (4). The marks are weighted according to the distribution of credit points in the curriculum.

(3) The final grade certificate shall be signed by the Chair of the Examination Board and affixed with the official seal of the Examination Board. In addition, it shall indicate the date on which the colloquium took place.

(4) In addition to the final grade certificate, each graduate shall receive an official Diploma Supplement and a transcript of records, both issued in English.

(5) A student who voluntarily withdraws from the university before successfully completing the master's examination may apply for a premature leaving certificate [Abgangszeugnis], which lists all of the examinations completed during the programme of study. Paragraph (3) sentence 1 shall apply accordingly.

Section 26

Master's degree certificate

(1) A master's degree certificate shall be issued to students at same time as the final grade certificate and bearing the same date of issue. The master's degree certificate attests the conferring of the master's degree stated in Section 2 (4).

(2) The master's degree certificate shall be signed by the Chair of the Examination Board, the Dean of the Faculty of Communication and Environment, and the President of the University, and affixed with the official seal of Rhine-Waal University of Applied Sciences.

Section 27

Additional examinations

Students may also sit examinations in modules and course units which are not compulsory for their study programme. Upon request, the results of these examinations can be listed on the final grade certificate or the premature leaving certificate, but will not be incorporated into the final mark calculation. This shall also apply to credits and marks earned as part of learning agreements within the meaning of Section 3 paragraph (2).

Section 28

Viewing examination records

(1) Following the conclusion of examination procedures in their degree programme, students may request the opportunity to view marked written examinations, the examiners' corresponding evaluation sheets, and the minutes of the examinations.

(2) Students must submit a request to view examination records to the Chair of the Examination Board within one month from the date of issue of the final grade certificate, premature leaving certificate or declaration of a failed master's examination. Section 32 of the Administrative Procedure Act of North Rhine-Westphalia [Verwaltungsverfahrensgesetz NRW] shall govern students' right to submit a request after expiry of this deadline. The Chair of the Examination Board shall set the time and place of inspection.

(3) Students may request an opportunity to view a marked examination during their ongoing studies after the examination in question has been completed. Requests must be submitted within one month after publication of the examination results. Paragraph (2) shall apply accordingly.

Section 29

Nullification of examinations

(1) If a student cheated on one or more examination and this becomes known only after the student has been issued a final grade certificate, a premature leaving certificate or a certificate described in Section 24 (2), then the Examination Board reserves the right to retroactively nullify the marks for the affected examinations and to declare the master's examination, in part or in whole, as "failed".

(2) If the prerequisites for entry to an examination were not met and it can be shown that this was not the result of deliberate deception by the student and this inconsistency becomes known only after the student has been issued a final grade certificate, a premature leaving certificate or certificate described in Section 24 (2), then this error shall be remedied by the fact that the examination was passed. If the student used deliberate deception to gain wrongful entry to the examination, then the Examination Board shall decide upon any subsequent legal action, taking into account the North Rhine-Westphalian Administrative Procedure Act [Verwaltungsverfahrensgesetz NRW].

(3) The consequently incorrect final grade certificate, leaving certificate, master's degree certificate or certificate described in Section 24 (2), shall be revoked and reissued, if applicable. The statute of limitations for decisions with regard to paragraph (1) and

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paragraph (2) sentence 2 is five years after the date of issue for a final grade certificate, leaving certificate or certificate described in Section 24 (2).

Section 30

Entry into force

These examination regulations shall enter into force on the day after their publication in the Official Notices [Amtliche Bekanntmachungen] of Rhine-Waal University of Applied Sciences.

Note: These examination regulations entered into force in their present version on 11 June 2014.

Curriculum of Information Engineering and Computer Science M.Sc.

Version from 16 December 2013

Annex: Recommended study and examination schedule for Information Engineering and Computer Science M.Sc.

Code No (Kennnummer)	Module	SW	Type (Veranstaltungsart)						TE	CP	Sum CP	SS 1	WS 2	SS 3
			L	SL	S	Ex	PT	Pro						
M-IE_1.01	System Simulation	5	2			2	1		E	5	5	5		
M-IE_1.02	Data Analysis / Statistics	4	2			2			E	5	5	4		
M-IE_1.03	Scientific and Technical Communication	3	3						E	5	5	3		
M-IE_1.04	Applied Research Project A	4					4		E	5	5	4		
M-IE_2.01	Data Mining	4	2			2			E	5	5		4	
M-IE_2.02	Geoinformatics	4	2			2			E	5	5		4	
M-IE_2.03	Intercultural Management and Intercultural Competence	4							E	5	5			
	Intercultural Management and Intercultural Competence		2			1								3
	Localisation and Internationalisation						1							1
M-IE_2.04	Innovation Management	3							E	5	5			
	User-Centred Innovation and Design Management		2											2
	Digital Culture and New Markets		1											1
M-IE_2.05	Applied Research Project B	4					4		E	5	5			4
	Specialisation Track (1st semester)	8								10	10			
	Course 1		2			2			E			4		
	Course 2		2			2			E			4		
	Specialisation Track (2nd semester)	4								5	5			
	Course 3		2			2			E					4
Semester hours per week (Semesterwochenstunden)		47								CP	60	24	23	30
												47 SW		
												90 CP		

Specialisation Tracks

Module	SW	CP
<i>Track Computer Science</i>		
M-IE_CS.01	4	5
M-IE_CS.02	4	5
M-IE_CS.03	4	5
<i>Track Environmental Analysis</i>		
M-IE_EA.01	4	5
M-IE_EA.02	4	5
M-IE_EA.03	4	5
<i>Track Logistics</i>		
M-IE_LG.01	4	5
M-IE_LG.02	4	5
M-IE_LG.03	4	5
<i>Track Cyber-Physical Systems</i>		
M-IE_CP.01	4	5
M-IE_CP.02	4	5
M-IE_CP.03	4	5

Abbreviations	
SW	Semester hours per week (Semesterwochenstunden)
WS	Winter semester (Wintersemester)
SS	Summer semester (Sommersemester)
TE	Type of examination (Prüfungsform)
CP	Credit points (Kreditpunkte)
L	Lecture (Vorlesung)
SL	Seminaristic lecture (seminaristische Lehrveranstaltung)
S	Seminar (Seminar)
Ex	Exercise (Übung)
PT	Practical training (Praktikum)
Pro	Project (Projekt)
E	Examination (Prüfung)
C	Certificate (Testat)

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