

# Examination Regulations

for

## Communication and Information Engineering B.Sc.

at Rhine-Waal University of Applied Sciences

Dated 25 August 2015

*Please note: this English translation is provided for information purposes only.  
Only the German version published in the Official Notices of Rhine-Waal University of  
Applied Sciences is legally binding.*

In accordance with Section 2 (4) sentence 1 and Section 64 (1) of the Higher Education Act of North Rhine-Westphalia [Hochschulgesetz – HG NRW], in the amended form produced by the University Future Act [Hochschulzukunftsgesetz] of 16 September 2014 (Law and Regulations Gazette of NRW – GV.NRW. 2014, p. 547), which entered into force on 1 October 2014, and by the General Examination Regulations for Bachelor's Programmes (RPO) of Rhine-Waal University of Applied Sciences of 22 October 2012 (published in the Official Notices 11/2012 on 29 October 2012), as amended by the Third Amending Statutes from 19 August 2014 (published in the Official Notices 28/2014 on 9 September 2014), the Faculty Council of the Faculty of Communication and Environment of Rhine-Waal University of Applied Sciences has issued the following examination regulations:

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## **Section 1**

### **Scope of application**

These examination regulations shall apply to the English-taught bachelor's degree programme Communication and Information Engineering of the Faculty of Communication and Environment of Rhine-Waal University of Applied Sciences, in conjunction with the General Examination Regulations for Bachelor's Programmes [Rahmenprüfungsordnung; hereinafter "RPO"] of Rhine-Waal University of Applied Sciences. These examination regulations govern the standard seven-semester mode of study (full-time study), the nine-semester dual-vocational mode of study (dual study), and the nine-semester part-time mode of study for working professionals [berufsbegleitendes Studium].

## **Section 2**

### **Aims and objectives; purpose of examination; degree awarded**

(1) The bachelor's examination concludes the degree programme, constitutes a first academic and scientific qualification towards a career, and entitles the holder to continue their studies in a master's degree programme. The aims and objectives for this bachelor's programme are outlined in Section 3 RPO. 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 deepening students' technical language and communication skills.

(2) The academic degree "Bachelor of Science", abbreviated as "B.Sc.", shall be awarded for successfully completing the bachelor's examination.

## **Section 3**

### **Entry requirements**

(1) The general entry requirements for bachelor's degree programmes are outlined in Section 4 RPO.

(2) A "related or comparable programme of study" within the meaning of Section 4 (6) RPO is defined as any undergraduate (bachelor's or German 'Diplom') degree programme at a university or university of applied sciences in Germany if that programme's content predominately falls under the umbrella of either communications engineering or electrical engineering.

(3) Sufficient proficiency in English can be demonstrated by submitting a valid and recognised language certificate equivalent to CEFR level B2 (Common European Framework of Reference for Languages). Generally, the following language tests and scores are accepted as valid proof:

- IELTS: 6.0 or better
- TOEFL (iBT): minimum 80
- TOEFL (PBT): minimum 550
- TOEFL (CBT): minimum 213

(4) 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.

#### **Section 4 Preparatory internship**

Students in this degree programme are required to complete an eight-week preparatory internship (within the meaning of Section 4 (3) RPO) at an extramural company, public authority or other organisation and in a context relevant to the curriculum. The internship should familiarise the student with questions and matters relating to engineering.

#### **Section 5 Programme structure; volume of studies; progression of studies**

(1) This degree programme has a total volume of study of 136 credit hours [Semesterwochenstunden – SWS].

(2) In accordance with the framework outlined in Section 6 (5) RPO, the modules of this programme comprise a total sum of 210 credit points (hereinafter “CP”).

(3) All modules and examinations shall be conducted in English. An exception to this rule applies to elective modules, for on a case-by-case basis and with the consent of the Examination Board, students enrolled in Communication and Information Engineering B.Sc. may be permitted to complete German-taught elective modules from other degree programmes. In the case of the required Interdisciplinary Project, students are also permitted to participate in projects that use German as the common language.

(4) An integral part of the dual study programme is on-the-job vocational training that occurs over the first four semesters of study and is subject to contractual agreement between the student and the company providing the training. Both the vocational training position and the company must have a clear relevance to this field of study. The Faculty of Communication and Environment shall be responsible for assessing the relevance of a proposed dual study contract. In the ‘dual phase’ of study, the regular content of the first two semesters is taught over the course of four semesters instead. During this phase, the dual study student spends two weekdays studying at the university and three weekdays receiving vocational training at the company. The dual phase concludes with a comprehensive examination, in German, conducted by the respective German Chamber of Industry and Commerce before the start of the fifth semester.

(5) The part-time mode of study [berufsbegleitendes Studium] allows working individuals to continue their profession while studying on a part-time basis. Students who enrol with this mode of study are able to follow the dual study progression. In other words, the regular content of the first two semesters is taught over the course of four semesters instead. During this time, the part-time student’s work week is divided into two days of study at the university and three days at their place of employment. After these first four semesters of study, the part-time student becomes responsible for organising the remaining study requirements around his/her work schedule.

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(6) Additional information about the structure and progression 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 modes 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 6 Scope of examinations**

(1) In individual course units within modules, students may be required to complete a pass/fail certificate requirement (Section 20 RPO) before being permitted to sit a written examination. This can occur for modules which require students to pass both a certificate and a written examination.

(2) The time allotted to students for a written examination is based on the CP value of the respective course unit(s) and generally will not exceed 180 minutes. If a module uses a combination of examination types within the meaning of Section 14 (3) RPO, then the allotted time can be reduced accordingly.

(3) An oral examination generally lasts at least 15 minutes, but no more than 30 minutes per student.

(4) The text portion of an assignment, term paper or project should not exceed 30 DIN A4 pages in length (not including annexes).

(5) Assignments, term papers and projects can be permitted in the form of group work if each student's individual contribution fulfils the requirements in Section 23 (1) RPO and is clearly distinguishable and thus assessable due to clear delimitation by section, page numbers or other criteria that ensure distinct identification of each student's separate contribution. The text portion of each student's individual contribution should not exceed 20 DIN A4 pages.

## **Section 7 Scope and form of the bachelor's thesis**

(1) As a rule, the text portion of the thesis should be between 40 and 60 DIN A4 pages in length (not including annexes). The thesis may also be supplemented with other media, provided they are appropriate and helpful for documenting the thesis contents in accordance with the assigned task. In this case, the text portion of the thesis (not including annexes) may have less pages than the minimum requirement defined in sentence 1.

(2) The thesis can also be permitted in the form of group work if each student's individual contribution fulfils the requirements in Section 23 (1) RPO and is clearly distinguishable and thus assessable due to clear delimitation by section, page numbers or other criteria that ensure distinct identification of each student's separate contribution.

**Section 8**  
**Admission to the bachelor's thesis and colloquium**

- (1) In conjunction with the general prerequisites for admission to the thesis (Section 24 (1) RPO), students must show that they have acquired 175 CP.
- (2) In conjunction with the general prerequisites for admission to the colloquium (Section 27 (2) RPO), candidates must show that they have acquired 207 CP.

**Section 9**  
**Credit points for the bachelor's thesis and colloquium**

- (1) Twelve CP shall be awarded for successfully passing the thesis.
- (2) Three CP shall be awarded for successfully passing the colloquium.

**Section 10**  
**Conferment of the bachelor's degree**

The bachelor's degree specified in Section 2 (2) is officially conferred with the issuing of the bachelor's degree certificate (Section 30 (1) RPO).

**Section 11**  
**Entry into force**

Students who enrolled at Rhine-Waal University of Applied Sciences before winter semester 2015/16 are permitted to graduate with a degree in *Industrial Engineering, Specialization Communication and Information Engineering* until the start of winter semester 2019/2020. In this case, students are required to earn at least 15 CP in business-related modules.

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 on 30 October 2015.

Annex

Recommended study and examination schedule for  
Communication and Information Engineering B.Sc. (full-time)

Code No (Kennnr.)	Module	SW (SW S)	Type (Veranstaltungsart)							TE (Prü)	Sum CP	WS 1	SS 2	WS 3	SS 4	WS 5	SS 6	WS 7
			L (VL)	SL (SL)	S (S)	Ex (Ü)	PT (Pra)	Pro (Pro)										
Cl_1.01	Physics: Mechanics and Optics Physik: Mechanik und Optik	4	2			2			E	5	4							
Cl_1.02	Fundamentals of Computer Science and Networks Grundlagen der Informatik und der Computernetzwerke	4	3			1			E	5	4							
Cl_1.03	Fundamentals of Digital Technologies Grundlagen der Digitaltechnik	4	2			2			E	5	4							
Cl_1.04	Laboratory: Digital Technologies and Computer Science Labor: Digitaltechnik und Informatik	6						6	C	5	6							
Cl_1.05	Mathematics: Analysis and discrete mathematic Mathematik: Analysis und Diskrete Mathematik	4	2			2			E	5	4							
Cl_1.06	Introduction to Scientific Working Einführung in das wissenschaftliche Arbeiten	4		4					C	5	4							
Cl_2.01	Fundamentals of Electrical Engineering: Fields and Circuits Grundlagen der Elektrotechnik: Felder und Schaltungen	4	2			2			E	5		4						
Cl_2.02	Laboratory: Electrical Engineering Laborausbildung: Elektrotechnik	4						4	C	5		4						
Cl_2.03	Object Oriented Programming Object Orientierte Programmierung	6	2			2	2		E	5		6						
Cl_2.04	Computer Networks Computernetze	4	2			2			E	5		4						
Cl_2.05	Mathematics: Linear Algebra and Graph Theory Mathematik: Lineare Algebra und Graphentheorie	4	2			2			E	5		4						
Cl_2.06	Project Management and Intercultural Competences Projektmanagement und Interkulturelle Kompetenz	4	2			2			C	5		4						
Cl_3.01	Fundamentals of Electrical Engineering: Electrical Networks and Grundlagen der Elektrotechnik: Elektrische Netze und	4	2			2			E	5			4					
Cl_3.02	Signals and Systems Signale und Systeme	4	2			2			E	5			4					
Cl_3.03	Data Management Datenmanagement	4	2			2			E	5			4					
Cl_3.04	Programming: Distributed Systems Programmierung: Verteilte Systeme	6	2			2	2		E	5			6					
Cl_3.05	Statistics Statistik	4	2			2			E	5			4					
Cl_3.06	Higher Mathematics Höhere Mathematik	4	2			2			E	5			4					
Cl_4.01	Analog and Digital Signal Processing Analoge und Digitale Signalverarbeitung	8	4			2	2		E	10				8				
Cl_4.02	Identification and Automation Identifikation und Automatisierung	4	2			2			E	5				4				
Cl_4.03	Software Engineering Softwareengineering	4	2			2			E	5				4				
Cl_5.01	Embedded Systems Eingebettete Systeme	4	2				2		E/C	5						4		
Cl_5.02	Communication Systems Nachrichtentechnische Geräte und Systeme	4	2			2			E	5						4		
Cl_5.03	Interdisciplinary Project Interdisziplinäres Projekt	6						6	E	10							6	
	Elective courses * Wahlpflichtkurse *	16	8			8			E	20				8	8			
	Semester hours per week (total)	124								150	26	26	26	24	22	30		30

SWS: 124, CP: 150      SWS: 12, CP: 60  
Total      SWS: 136, CP: 210

Allocation	SWS	total	136	26	26	26	24	22	0	12
	CP	total	210	30	30	30	30	30	30	30

Elective catalogue\*, \*\*

Code No (Kennnr.)	Module	SW (SW )	Type (Veranstaltungsart)							TE (Prü)	Sum CP
			L (VL)	SL (SL)	S (S)	Ex (Ü)	PT (Pra)	Pro (Pro)			
Cl_W.01	Ambient Intelligent Systems	4		2		2			E	5	
Cl_W.02	Remote Sensing and Noninvasive Methods Fernerkundung & nicht invasive Erkundungsverfahren	4		2		2			E	5	
Cl_W.03	Communication Security Sicherheit in Kommunikationssystemen	4		2		2			E	5	
Cl_W.04	Safety Critical Systems Safety Critical Systems	4		2		2			E	5	
Cl_W.05	Advanced Modelling and Simulation Fortgeschrittene Modellierung & Simulationen	4		2		2			E	5	
Cl_W.06	Fundamentals of Business Administration Grundlagen der Betriebswirtschaft	4		2		2			E	5	

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

\* Im Wahlpflichtbereich können mit Zustimmung des Prüfungsausschusses maximal 6 CP aus dem gesamten Studienangebot der Hochschule Rhein-Waal belegt werden. //  
\* As elective subjects, a maximum of 6 CP can be chosen with the consent of the Examination Board from any study programme at Rhine-Waal University of Applied Sciences.

\*\* Die Fakultät behält sich das Recht vor eine Mindestteilnehmerzahl für das Zustandekommen eines Wahlpflichtkurses festzulegen. Die Möglichkeit des Erreichens der vorgeschriebenen Kreditpunktzahl aus dem Wahlpflichtbereich bleibt unberührt. //  
\*\* The faculty reserves the right to determine a minimum number of participants for offering an elective subject. The possibility to obtaining the required number of credit points remains unaffected.